DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30333

February 14, 2022

SENT VIA EMAIL

Melanie Sloan
American Oversight
1030 15th Street NW
Suite B255
Washington, District of Columbia 20005
Via email: foia@americanoversight.org

Dear Ms. Sloan:

This letter is regarding your Centers for Disease Control and Prevention and Agency for Toxic Substances and Disease Registry (CDC/ATSDR) Freedom of Information Act (FOIA) request of September 24, 2020, assigned #20-02402-FOIA (copy enclosed).

We located 570 pages of responsive records (254 pages released in full; 126 disclosed in part; 143 pages withheld in full, 47 pages referred to another federal agency). After a careful review of these pages, some information was withheld from release pursuant to 5 U.S.C. §552 Exemptions (b)(5) and (b)(6).

EXEMPTION 5
Exemption 5 protects inter-agency or intra-agency memorandums or letters which would not be available by law to a party other than an agency in litigation with the agency. Exemption 5 therefore incorporates the privileges that protect materials from discovery in litigation, including the deliberative process, attorney work-product, and attorney-client privileges. Information withheld under this exemption was protected under the deliberative process and presidential communications privileges. The deliberative process privilege protects the decision-making process of government agencies. The deliberative process privilege protects materials that are both predecisional and deliberative. The information that have been withheld under the deliberative process privilege of Exemption 5 are both predecisional and deliberative, and do not represent formal or informal agency policies or decisions. Examples of information withheld include recommendations, comments, opinions and draft documents. The presidential communications privilege protects documents solicited and received by the President or his immediate White House advisers who have broad and significant responsibility for investigating and formulating the advice to be given to the President.

EXEMPTION 6
Exemption 6 protects information in personnel and medical files and similar files when disclosure would constitute a clearly unwarranted invasion of personal privacy. The information that has been withheld under Exemption 6 consists of personal information, such as names, email accounts, cell phone numbers, mailing addresses, and private medical information. We have determined that the individuals to whom this information pertains has a substantial privacy interest in withholding it.

Please click on the following link to download a copy of your records (download access is open for 90 days).
https://centersfordiseasecontrol.sharefile.com/d-s52f6f448a5494909897ec6741beede33

In addition, we have located 47 pages that belong to the U.S. Department of Health & Human Services (HHS). CDC does not make decisions on the release or denial of other agencies' documents. We have referred these respective records along with your request to HHS, for their release determination and direct reply to you. Contact information for HHS is as follows:

Department of Health and Human Services (HHS)
Hubert H. Humphrey Building, Room 729H
200 Independence Avenue, SW
Washington, D.C. 20201
Phone: 202-690-7453
Email: FOIARequest@hhs.gov

You may contact our FOIA Public Liaison at 770-488-6277 for any further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001, e-mail at ogis@nara.gov; telephone at 202-741-5770; toll free at 1-877-684-6448; or facsimile at 202-741-5769.

If you are not satisfied with the response to this request, you may administratively appeal by writing to the Deputy Agency Chief FOIA Officer, Office of the Assistant Secretary for Public Affairs, U.S. Department of Health and Human Services, Hubert H. Humphrey Building, 200 Independence Avenue, Suite 729H, Washington, D.C. 20201.You may also transmit your appeal via email to FOIARequest@psc.hhs.gov. Please mark both your appeal letter and envelope "FOIA Appeal." Your appeal must be postmarked or electronically transmitted by May 16, 2022.

Sincerely,

Roger Andoh
CDC/ATSDR FOIA Officer
Office of the Chief Operating Officer
Phone (770) 488-6399
Fax: (404) 235-1852

Enclosures

#20-02402-FOIA

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Mon, 6 Jan 2020 14:33:05 +0000
To: Goldstein, Susan (CDC/DDID/NCIRD/OD);Posner, Sam (CDC/DDID/NCIRD/OD);Pope, Kristin (CDC/DDID/NCIRD/OD)
Cc: Cohn, Amanda (CDC/DDID/NCIRD/OD)
Subject: RE: Urgent clearance needed for Wuhan pneumonia cluster travel notice

This looks like a travel notice, not a HAN. We do need a HAN. These things need to be cleared through the IM which for today is Amanda but starting tomorrow will be anita.

-----Original Message-----
From: Goldstein, Susan (CDC/DDID/NCIRD/OD) <stg1@cdc.gov>
Sent: Monday, January 6, 2020 8:39 AM
To: Posner, Sam (CDC/DDID/NCIRD/OD) <shp5@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Pope, Kristin (CDC/DDID/NCIRD/OD) <kfp7@cdc.gov>
Subject: FW: Urgent clearance needed for Wuhan pneumonia cluster travel notice

FYI - Wuhan pneumonia HAN for posting today per Dr. R. We reviewed in cross clearance. Tom also reviewed earlier version.

-----Original Message-----
From: Goldstein, Susan (CDC/DDID/NCIRD/OD)
Sent: Monday, January 6, 2020 7:01 AM
To: Cohen, Nicole (Nicky) (CDC/DDID/NCEZID/DGMQ) <hei1@cdc.gov>; Santibanez, Scott (CDC/DDID/NCEZID/DPEI) <zqg5@cdc.gov>; Clark, Thomas A. (CDC/DDID/NCIRD/DVD) <tnc4@cdc.gov>; Bauman, Ann (CDC/DDID/NCIRD/OD) <exj7@cdc.gov>
Cc: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>; Beltrami, Elise MD (CDC/DDID/NCEZID/OD) <ebj4@cdc.gov>; Weber, J. Todd (CDC/DDID/NCEZID/DHQP) <jtw5@cdc.gov>; Lanier, Tykitcha (CDC/DDID/NCEZID/OD) <fbq9@cdc.gov>; Heath, Tamika (CDC/DDID/NCEZID/OD) <fyr4@cdc.gov>
Subject: RE: Urgent clearance needed for Wuhan pneumonia cluster travel notice

Cleared by NCIRD. A couple of minor edits and comments from DVD and NCIRD. I shared with Division of Bacterial Diseases and Influenza Division so they are aware. Susan

-----Original Message-----
From: Cohen, Nicole (Nicky) (CDC/DDID/NCEZID/DGMQ) <hei1@cdc.gov>
Sent: Sunday, January 5, 2020 6:20 PM
To: Santibanez, Scott (CDC/DDID/NCEZID/DPEI) <zqg5@cdc.gov>; Goldstein, Susan (CDC/DDID/NCIRD/OD) <stg1@cdc.gov>; Clark, Thomas A. (CDC/DDID/NCIRD/DVD) <tnc4@cdc.gov>; Bauman, Ann (CDC/DDID/NCIRD/OD) <exj7@cdc.gov>
Cc: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>; Beltrami, Elise MD (CDC/DDID/NCEZID/OD) <ebj4@cdc.gov>; Weber, J. Todd (CDC/DDID/NCEZID/DHQP) <jtw5@cdc.gov>; Lanier, Tykitcha (CDC/DDID/NCEZID/OD) <fbq9@cdc.gov>; Heath, Tamika (CDC/DDID/NCEZID/OD) <fyr4@cdc.gov>
Subject: RE: Urgent clearance needed for Wuhan pneumonia cluster travel notice

Thanks, Scott. The current version in eClearance is attached. You should also have it in eClearance now.

Best,
Nicky.

-----Original Message-----

From: Santibanez, Scott (CDC/DDID/NCEZID/DPEI) <zqg5@cdc.gov>
Sent: Sunday, January 5, 2020 6:14 PM
To: Goldstein, Susan (CDC/DDID/NCIRD/OD) <stg1@cdc.gov>; Clark, Thomas A. (CDC/DDID/NCIRD/DVD) <tnc4@cdc.gov>; Bauman, Ann (CDC/DDID/NCIRD/OD) <exj7@cdc.gov>
Cc: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>; Cohen, Nicole (Nicky) (CDC/DDID/NCEZID/DGMQ) <hei1@cdc.gov>; Beltrami, Elise MD (CDC/DDID/NCEZID/OD) <ebj4@cdc.gov>; Weber, J. Todd (CDC/DDID/NCEZID/DHQP) <jtw5@cdc.gov>; Santibanez, Scott (CDC/DDID/NCEZID/DPEI) <zqg5@cdc.gov>; Lanier, Tykitcha (CDC/DDID/NCEZID/OD) <fbq9@cdc.gov>; Heath, Tamika (CDC/DDID/NCEZID/OD) <fyr4@cdc.gov>
Subject: RE: Urgent clearance needed for Wuhan pneumonia cluster travel notice
Importance: High

Susan, Tom, Ann,

Please see request below for expedited NCIRD clearance of a Travel Notice.

We should be sending it to you in eClearance shortly.

Any assistance you can provide in expediting is much appreciated.

Nicky can also send an email copy if it is helpful.

Thanks,

Scott

Scott Santibañez MD MPHTM
CAPT US Public Health Service
Deputy Associate Director for Epidemiologic Science National Center for Emerging and Zoonotic Infectious Diseases Centers for Disease Control and Prevention

-----Original Message-----
From: Santibanez, Scott (CDC/DDID/NCEZID/DPEI) <zqg5@cdc.gov>
Sent: Sunday, January 5, 2020 5:54 PM
To: Cohen, Nicole (Nicky) (CDC/DDID/NCEZID/DGMQ) <hei1@cdc.gov>; Beltrami, Elise MD (CDC/DDID/NCEZID/OD) <ebj4@cdc.gov>; Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>; Weber, J. Todd (CDC/DDID/NCEZID/DHQP) <jtw5@cdc.gov>
Cc: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>; Santibanez, Scott (CDC/DDID/NCEZID/DPEI) <zqg5@cdc.gov>
Subject: Re: Urgent clearance needed for Wuhan pneumonia cluster travel notice

Nicky

This is okay with me. I'm not sure if Elise is checking in, if so I'll defer to her, but otherwise let's proceed as you've outlined.

Go ahead and send to me in eClearance when you're ready. We'll also send NCIRD a heads up.

We'll upload email clearance from DHQP as a supporting document once they completed their review.

Thanks

Scott

_____
From: Cohen, Nicole (Nicky) (CDC/DDID/NCEZID/DGMQ) <hei1@cdc.gov>
Sent: Sunday, January 5, 2020 4:44:06 PM

To: Beltrami, Elise MD (CDC/DDID/NCEZID/OD) <ebj4@cdc.gov>; Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>; Weber, J. Todd (CDC/DDID/NCEZID/DHQP) <jtw5@cdc.gov>
Cc: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>; Santibanez, Scott (CDC/DDID/NCEZID/DPEI) <zqg5@cdc.gov>
Subject: RE: Urgent clearance needed for Wuhan pneumonia cluster travel notice

Thanks, Elise. Would you be ok with its going forward to NCIRD in eClearance and doing DHQP review simultaneously outside eClearance to save time?

Nicky.

From: Beltrami, Elise MD (CDC/DDID/NCEZID/OD) <ebj4@cdc.gov>
Sent: Sunday, January 5, 2020 4:42 PM
To: Cohen, Nicole (Nicky) (CDC/DDID/NCEZID/DGMQ) <hei1@cdc.gov>; Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>; Weber, J. Todd (CDC/DDID/NCEZID/DHQP) <jtw5@cdc.gov>
Cc: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>
Subject: Re: Urgent clearance needed for Wuhan pneumonia cluster travel notice

Nicky, I am out until Tuesday. Scott is covering for me and is my proxy in eClearance.

Thanks,
Elise

Get Outlook for iOS<https://aka.ms/o0ukef> _____
From: Cohen, Nicole (Nicky) (CDC/DDID/NCEZID/DGMQ) <hei1@cdc.gov<mailto:hei1@cdc.gov>>
Sent: Sunday, January 5, 2020 4:05:36 PM
To: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov<mailto:zzb8@cdc.gov>>; Weber, J. Todd (CDC/DDID/NCEZID/DHQP) <jtw5@cdc.gov<mailto:jtw5@cdc.gov>>; Beltrami, Elise MD (CDC/DDID/NCEZID/OD) <ebj4@cdc.gov<mailto:ebj4@cdc.gov>>
Cc: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov<mailto:zvd3@cdc.gov>>
Subject: RE: Urgent clearance needed for Wuhan pneumonia cluster travel notice

Current version is attached.

Elise, I would appreciate advice on how to best to expedite clearance. Marty and Dr. Redfield are expecting it to post Monday morning, although I'm not sure that's feasible. I am holding on to it in our clearance admin box so it doesn't get stuck anywhere.

Thanks,
Nicky.

From: Cohen, Nicole (Nicky) (CDC/DDID/NCEZID/DGMQ)
Sent: Saturday, January 4, 2020 4:16 PM
To: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov<mailto:zzb8@cdc.gov>>; Weber, J. Todd (CDC/DDID/NCEZID/DHQP) <jtw5@cdc.gov<mailto:jtw5@cdc.gov>>; Beltrami, Elise MD (CDC/DDID/NCEZID/OD) <ebj4@cdc.gov<mailto:ebj4@cdc.gov>>
Cc: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov<mailto:zvd3@cdc.gov>>
Subject: Urgent clearance needed for Wuhan pneumonia cluster travel notice
Importance: High

Todd, Mike, Elise,

We just entered a travel notice for the pneumonia cluster in Wuhan, China, into eClearance. There is a lot of pressure, including from Dr. Redfield, to post quickly. We are aiming to have up on website Monday.

DHQP will need to review (b)(5)

(b)(5)

(b)(5)

We would really appreciate if DHQP review could be expedited outside of eClearance, if possible, to allow for rapid cross-clearance by NCIRD on Monday.

Tom Clark (DVD) and RJ Simonds (CGH, CDC China) have reviewed this version.

Thanks,
Nicky.

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Mon, 6 Jan 2020 15:13:24 +0000
To: Miles, Carla (CDC/DDID/NCIRD/OD) (CTR)
Subject: FW: Novel coronavirus specific preparedness high level overview
Attachments: Demmler SARS review.pdf, PHE SARS diagnosis2003.pdf, Munster SARS and MERS_2016Nat Reviews.pdf, Cecils Corona chapter 2019.pdf

Please print these articles.
Thanks

From: Gerber, Susan I. (CDC/DDID/NCIRD/DVD) <bhx1@cdc.gov>
Sent: Friday, January 3, 2020 4:42 PM
To: Clark, Thomas A. (CDC/DDID/NCIRD/DVD) <tnc4@cdc.gov>
Cc: Pallansch, Mark A. (CDC/DDID/NCIRD/DVD) <map1@cdc.gov>; Watson, John (CDC/DDID/NCIRD/DVD) <acq4@cdc.gov>; Lindstrom, Stephen (CDC/DDID/NCIRD/DVD) <sql5@cdc.gov>
Subject: RE: Novel coronavirus specific preparedness high level overview

Hi Tom,

SARS is a select agent. (b)(5)

(b)(5)

If this is another novel coronavirus- it would need to be confirmed, and based on the sequence, we would be able to develop a diagnostic assay in a matter of a few weeks, hopefully. Steve could provide details on this.

Attached are a few general SARS related references.

S

From: Clark, Thomas A. (CDC/DDID/NCIRD/DVD) <tnc4@cdc.gov>
Sent: Friday, January 3, 2020 2:08 PM
To: Gerber, Susan I. (CDC/DDID/NCIRD/DVD) <bhx1@cdc.gov>
Subject: RE: Novel coronavirus specific preparedness high level overview

Sue, I ran this by Nancy. Her comments are below.

(b)(5)

- Please send a short list (i.e., 5) of the most relevant SARS references including clinical, epi and lab information?

Thanks,
Tom

From: Gerber, Susan I. (CDC/DDID/NCIRD/DVD) <bhx1@cdc.gov>
Sent: Friday, January 3, 2020 12:33 PM
To: Clark, Thomas A. (CDC/DDID/NCIRD/DVD) <tnc4@cdc.gov>
Cc: Pallansch, Mark A. (CDC/DDID/NCIRD/DVD) <map1@cdc.gov>; Watson, John (CDC/DDID/NCIRD/DVD) <acq4@cdc.gov>; Lindstrom, Stephen (CDC/DDID/NCIRD/DVD) <sql5@cdc.gov>
Subject: Novel coronavirus specific preparedness high level overview

Hi Tom,

(b)(5)

(b)(5) If we have more information, then we would be able to get more specific.

Sharing with others as well.

Thanks,

S

Special Article

Severe Acute Respiratory Syndrome (SARS): A Review of the History, Epidemiology, Prevention, and Concerns for the Future

Gail J. Demmler, MD, and B. Lee Ligon, PhD

During the first part of 2003, the world experienced the first epidemic of the 21st century with the emergence of a new and readily transmissible disease. The disease, severe acute respiratory syndrome (SARS), spread quickly and caused numerous deaths, as well as public panic. This article provides a brief review of the initial history of the epidemiology, as well as of the clinical definition, occurrence in the pediatric population, etiology, prevention, drug studies, and considerations for the future.

On November 16, 2002, the first severe and readily transmissible new disease to emerge in the 21st century, severe acute respiratory syndrome (SARS), began in Guangdon Province, China and spread rapidly[1,2] By June 26, 2003, 7 months later, the World Health Organization (WHO) showed reports from 33 countries totaling 8456 cumulative cases and 809 deaths.[3] Earlier in that same week, WHO removed Hong Kong and Beijing, the two most severely affected cities, from the list of areas having recent local transmission of SARS; only Toronto and Taiwan continued to report instances of local transmission. This article provides a brief review of the history of the spread of the disease, as well as of the clinical definition, occurrence in the pediatric population, etiology, prevention, drug studies, and considerations for the future. For more detailed information, the reader should consult the WHO website (http://www.who.int/csr/sars/en/), the website of the Centers for Disease Control and Prevention (CDC) (http://www.cdc.gov/ncidod/sars/index.htm), the cumulative SARS reference text accessible on the Internet (http://sarsreference.com), and the articles referenced herein.

History: The Emergence and Rapid Spread of a New Disease

The first report of the new disease, given the name "severe acute respiratory syndrome" (SARS), was received by WHO on February 11 from the Chinese Ministry of Health, which documented that 305 cases and 5 deaths had occurred in the Guangdon Province.[2]

From the Department of Pediatrics, Baylor College of Medicine, Houston TX.

Address reprint requests to Gail Demmler, MD, Baylor College of Medicine, Department of Pediatrics, 6621 Fannin, Houston, TX 77030.

1045-1870/03/1403-0011$30.00/0

doi:10.1053/spid.2003.50038

Hong Kong

Two days later, on February 21, a 65-year-old physician who had treated patients for what was thought to be atypical pneumonia checked into a 4-star hotel in Hong Kong and was given a room on the 9th floor.[2] He had begun having symptoms five days earlier, but upon arrival in Hong Kong, he felt well enough to go sightseeing and shopping with his brother-in-law. However, the next day, he sought urgent care and was admitted with respiratory failure to the intensive care unit of a hospital.[4] He unwittingly had transmitted the disease to at least 12 other guests and visitors to the 9th floor, with the result that the disease was spread quickly worldwide.[2] On March 4, an individual who earlier had visited the 9th floor of the Hong Kong hotel was admitted to the Prince of Wales Hospital in Hong Kong with respiratory symptoms for which he was treated for 7 days with a jet nebulizer four times a day.[2]

Vietnam

One of the guests at the same hotel, a 48-year-old Chinese-American businessman, became ill with high fever, dry cough, myalgia, and mild sore throat and was admitted on February 26 to the French Hospital in Hanoi. He later was evacuated to Hong Kong, where he died. Two days later, Dr. Carlo Urbani, a WHO official in Vietnam, reported an alarming number of patients being treated at the French Hospital for atypical pneumonia.[2,5] By March 5, secondary probable SARS cases were identified among healthcare workers in Hanoi, and at the urging of Dr. Urbani and his colleagues, Vietnam closed the hospital to new patients and visitors on March 11. Most of the hospital's staff remained in the hospital; some of them fell ill while others watched their colleagues sicken and die. Prompt action taken by a steering committee led by the health minister was instrumental in containing the disease. By May 7, the Hanoi French Hospital had transferred the last of its patients to another hospital and was being thoroughly disinfected.[6]

Singapore

Another hotel guest staying on the 9th floor proved to be the index case of SARS in Singapore. A previously healthy 23-year-old woman of Chinese ethnicity, she had been on a vacation to Hong Kong from February 20 to February 25. She developed fever and a headache on February 25 and a dry cough on February 28. On March 1, she was admitted to a hospital in Singapore, where over the course of several days, she infected at least 20 other people. No further transmission from this patient was observed after strict infection control measures (use of N95 masks, gown, gloves, and handwashing before and after patient contact) were implemented.[5,7] As of May 5, 204 cases of SARS had been diagnosed in Singapore and 26 patients had died.[5]

Toronto

On March 5, yet another guest on the 9th floor of the hotel, a 78-year-old Toronto woman, died from SARS; subsequently member of her family were admitted to the hospital.[2,5,8] The patient and her husband had traveled to Hong Kong from February 13 to February 23 to visit relatives. Two days after returning home, the woman, who had a history of type 2 diabetes and coronary heart disease, developed fever, anorexia, myalgia, a sore throat, and mild nonproductive cough. Three days later, her doctor examined her and found pharyngeal erythema but no other abnormalities; she was prescribed an oral antibiotic and was sent home. Two days later, she noticed the development of increasing cough with dyspnea, and on March 5, 9 days after the onset of her illness, she died at home.[8]

Taiwan

Soon, cases of SARS were occurring in Taiwan. The first 2 suspected cases were diagnosed in a couple on March 14. The man had traveled in February to the Guangdong Province and to Hong Kong. On March 26, a Taiwanese resident of Hong Kong's Amoy Gardens flew to Taiwan and took a train to Taichung to celebrate the traditional festival Qing Ming. His brother became Taiwan's first SARS fatality. A fellow passenger on the train also was affected. The number of cases began to increase steadily during the last weeks of April. On April 28, the Taiwanese government imposed a mandatory 14-day quarantine on all incoming travelers from China, Hong Kong, Singapore, Macau, and Toronto. As of May 5, 2003, 116 cases of SARS had been diagnosed in Taiwan, and 8 patients had died.[5]

By the time the cases occurred in Taiwan, reports had begun flooding into WHO from different parts of the world. On March 8, 14 staff members of the private French Hospital in Hanoi were ill with an acute respiratory syndrome, and a WHO team arrived to provide support. By March 11, at least 20 hospital personnel in the Hanoi hospital and 23 at the Prince of Wales Hospital in Hong Kong were ill with an unidentified acute respiratory syndrome.[2,9]

On March 12, WHO issued a global alert concerning the spread of a severe atypical pneumonia with unknown etiology. Three days later, with more instances of the disease being reported, WHO decided on the basis of 5 factors (Table 1) to increase the level of the global alert issued on March 12.[2]

Table 1. Factors Leading to the Global Alert Issued by WHO on March 15, 2003[2]

1. The causative agent and the potential for spread were still unknown.
2. The outbreaks appeared to pose a great risk to health care workers, family members, and other close contacts of patients.
3. None of the different antibiotics and antivirals that had been tried empirically seemed to have an effect.
4. Although the numbers still were relatively small, the clinical course had progressed rapidly to respiratory failure, requiring intensive care, and many previously healthy patients had died.
5. The disease had spread from its initial focus in Asia to North America and Europe.

SARS Definition

Several criteria, namely clinical, epidemiologic, and laboratory, have been established by the CDC as criteria for the definition of SARS (Table 2). A "probable" case is defined as one that "meets the clinical criteria for severe respiratory illness of unknown etiology and epidemiologic criteria for exposure; laboratory criteria confirmed, negative, or undetermined." A "suspect" case is that "meets the clinical criteria for moderate respiratory illness of unknown etiology, and epidemiologic criteria for exposure; laboratory criteria confirmed, negative, or undetermined." A case can be excluded as being either suspect or probable if an alternative diagnosis can fully explain the illness or the case was reported on the basis of contact with a suspected index case that subsequently was excluded as a case of SARS, provided other possible epidemiologic exposure criteria are not present.[10]

SARS in Children

SARS appears to take a less aggressive clinical course in younger children in comparison to that seen in adults and teenagers.[11] Until April 25, children younger than 15 years of age, accounted for only 3 percent of all cases reported in Hong Kong. The reason for this low percentage is unclear.[5]

The first publication on SARS in the pediatric population comes from Hon and colleagues. Because most data available were on adults, they decided to report on their experience in treating children at the Prince of Wales and Princess Margaret hospitals in Hong Kong. Between March 13 and 28, 2003, they admitted 10 children with suspected cases of SARS. All 10 children satisfied the WHO case definition for SARS, had been in close contact with infected adults, and had fever that lasted for a median duration of 6

Table 2. Centers for Disease Control and Prevention Case Definition of SARS[10]

- Clinical Criteria
  - Asymptomatic or mild respiratory illness
  - Moderate respiratory illness
    - Temperature of >100.4° F(>38° C)*, and
    - One or more clinical findings of respiratory illness (eg, cough, shortness of breath, difficulty breathing, or hypoxia).
  - Severe respiratory illness
    - Temperature of >100.4° F(>38° C)*, and
    - One or more clinical findings of respiratory illness (eg, cough, shortness of breath, difficulty breathing, or hypoxia), and
    - radiographic evidence of pneumonia, or
    - respiratory distress syndrome, or
    - autopsy findings consistent with pneumonia or respiratory distress syndrome without an identifiable cause.
- Epidemiologic Criteria
  - Travel (including transit in an airport) within 10 days of onset of symptoms to an area with current or previously documented or suspected community transmission of SARS (see Table), or
  - Close contact within 10 days of onset of symptoms with a person known or suspected to have SARS
- Laboratory Criteria
  - Confirmed
    - Detection of antibody to SARS-CoV in specimens obtained during acute illness or >21 days after illness onset, or
    - Detection of SARS-CoV RNA by RT-PCR confirmed by a second PCR assay, by using a second aliquot of the specimen and a different set of PCR primers, or
    - Isolation of SARS-CoV.
  - Negative
    - Absence of antibody to SARS-CoV in convalescent serum obtained >21 days after symptom onset.
  - Undetermined
    - Laboratory testing either not performed or incomplete.

days. The authors noted 2 distinct patterns of clinical presentation: teenage patients presented with symptoms of malaise, myalgia, chill, and rigor similar to those of adults, whereas the younger children presented primarily with cough and runny nose; none had chills, rigor, or myalgia. The younger children also experienced much shorter and milder clinical courses, and radiological changes were milder and generally resolved more quickly than in the teenagers. Although all of the patients had clinically important lymphopenia, the teenagers suffered more severe cases. All patients were treated with a regimen of ribavirin and steroids similar to that used in adults SARS patients. A detailed table listing the ages, sex, clinical features, laboratory findings, radiological findings, and treatment and outcome is available in the article, which also can be accessed at http://image.thelancet.com/extras/o3let4127web.pdf.

Prevention: WHO Efforts to Stop Further Spread of SARS

Using the Global Outbreak Alert and Response Network (GOARN), a WHO mechanism launched in 2000 to link together 112 existing networks with extensive data resources, expertise, and skills, WHO initiated an emergency plan that called for 2 arenas of attack, 1 on land and 1 in the air. The land initiative involved sending teams of experts and specialized protective equipment for infection control to countries requesting such assistance. The land attack involved establishing a "virtual" network of 11 leading laboratories connected by a shared secure website and daily teleconferences; this network worked around the clock to identify the causative agent of SARS and to develop a robust and reliable diagnostic test. The results from the establishment of the laboratory network were the conclusive identification of the causative agent of SARS only a month later and the complete sequencing of its RNA shortly thereafter (see below).[2]

Etiology

Immediately after the incidence of SARS was recognized, researchers were at work attempting to identify the etiological agent. Shortly thereafter, perhaps at record speed, the culprit was identified. On April 10, 2003, the first publications, initially published on-line, reported the identification of a novel coronavirus.

Drosten and colleagues[12] reported that they had isolated "a novel coronavirus" in cell culture and had obtained a sequence 300 nucleotides in length using polymerase chain reaction (PCR)-based random amplification. On the basis of the obtained sequence, they established conventional and real-time PCR assays for specific and sensitive detection of the novel virus; the assays detected a variety of clinical specimens from patients with SARS but not from controls. High concentrations (up to 100 million molecules per milliliter) were found in sputum, and viral RNA also was detected at extremely low concentrations in plasma during the acute phase and in faces during the late convalescent phase. The authors suggested that the novel coronavirus might have a role in causing SARS.

The other report came from Ksiazek and associates,[13] who reported that no classic respiratory or bacterial respiratory pathogen was identified consistently, but that a novel coronavirus was isolated from patients who met the case definition of SARS. Cytopathic features were noted microscopically in Vero E6 cells that had been inoculated with a throat-swab speciment. Electron microscopic examination revealed ultrastructural features characteristic of coronaviruses. Reactivity with group I coronavirus polyclonal antibodies was revealed using immunohistochemical and immunofluorescence staining. The authors used consensus coronavirus primers designed to amplify a fragment of the polymerase gene by reverse transcription-polymerase chain reaction (RT-PCR) to obtain a sequence that clearly identified the isolate as a unique coronavirus only distantly

Table 3. Lessons Learned from the SARS Outbreak

Lesson	*Means*
The capacity of global alerts to improve awareness and viligance	Wide support by responsible press and amplified by electronic communications
The advantage of quick detection and reporting	Immediate reporting of initial cases by South Africa and India
The successful containment that can be achieved by readying health services with preparedness plans and compaigns to guard against imported cases	Climate of high alert that was established after reports of the disease became known
The value of immediate political commitment at the highest level	The experience in Vietnam, where the government took immediate measures to protect its people
The ability of even developing countries to triumph over a disease when reporting is prompt and open and when rapid case detection, immediate isolation and infection control, and vigorous contact tracing are put in place.	The appeal by Vietnam, where WHO assistance was requested quickly and fully supported

related to coronaviruses previously sequenced. Using specific diagnostic RT-PCR primers, they were able to identify several identical nucleotide sequences in 12 patients from several locations. Indirect fluorescent antibody tests and enzyme-linked immunosorbent assays made with the new coronavirus isolate demonstrated a virus-specific serologic response. The authors suggested the name Urbani SARS-associated coronavirus as the nomenclature for this virus in honor of one of the authors on the paper, Dr. Carlo Urbani, who had died during the investigation of the initial SARS epidemic.

Possible Approach to Development of Drugs

Efforts have been underway at various institutions to assess potential anti-SARS-CoV agents in vitro. Ribavirin has been used clinically in SARS patients, but it seems to lack the in vitro efficacy.[1]

Kanchan and colleagues[14] have suggested the viral main proteinase (M^{pro}, also called $3CL^{pro}$), which controls the activities of the coronavirus replication complex, as an attractive target for therapy. They determined crystal structures for human coronavirus (strain 229E) M^{pro} and for an inhibitor complex of porcine coronavirus [transmissible gastroenteritis virus (TGEV)] M^{pro} and constructed a homology model for SARS coronavirus (SARS-CoV) M^{pro}. They noted that the structures reveal a remarkable degree of conservation of the substrate-binding sites, which is further supported by recombinant SARS-CoV M^{pro}-mediated cleavage of a TGEV M^{pro} substrate. Molecular modeling suggests that available rhinovirus $3C^{pro}$ inhibitors may be modified to make them useful for treating SARS.

Warnings, Lessons, and Questions for the Future

This particular epidemic alone has resulted in untold costs beyond the immediate health concerns. By May 2003, the estimated costs in the Far East alone were approximately $30 billion. Other concerns involved the worldwide public panic, with its emotional and psychological tolls; the social instability that occurred in the hardest hit areas; the loss of jobs by some government officials; the closures of hospitals, schools, and borders; and even the deployment in Singapore of military forces to assist in contact tracing and enforcement of quarantines.[2] WHO and researchers from various areas have noted the need to consider the potential for future outbreaks and to be prepared to contain them.

Warnings

WHO warns that SARS presents a particular threat for several reasons, among which are (1) no vaccine has been developed yet and (2) treatment and containment measures require isolation and quarantine. Furthermore, because the virus comes from a family of viruses notorious for their frequent mutations, it has the potential for future outbreaks and poses problems for development of a vaccine. Epidemiology and pathogenesis remain poorly understood, diagnostic tests have important limitations that allow for contagious individuals to slip through safety nets and infect more individuals, and the disease shows a disturbing concentration among previously healthy hospital staff.[2]

Lessons

WHO also has identified numerous positive lessons that have been learned from the SARS experience so far (Table 3). Lessons of caution for future incidents also have been identified and include the need to impress upon all countries the responsibility for containing the emergence of any new infectious disease, particularly in a "world where all national borders are porous when confronted by a microbial threat."[2] Other studies point to other measures, such as the use of reduction of contact between infectious individuals and others, quarantine standards adopted with regard to contacts of cases, and the rapid hospitalization of patients, as contributors to the success achieved in containing the diseases.[15] Despite the rapid identification of the causative agent of SARS and the containment of the disease, several

Table 4. Concerns Identified by WHO as Result of SARS

1. Inadequate surge capacity in hospitals and public health systems
2. Healthcare providers themselves being the victims of the disease
3. Shortage of expert staff to coordinate national and global responses to a rapidly evolving public health emergency
4. In some cases, the need for hasty construction of new facilities; in other cases, hospitals being closed
5. The power of poorly understood infectious diseases to incite widespread public anxiety and fear, social unease, economic losses, and unwarranted discrimination

deficiencies and concerns also have been identified by WHO (Table 4).[2]

Perhaps the most important lesson is the need to recognize that, in a global economy such as exists today, attempts to conceal cases of an infectious disease for fear of social, economic, political, or other consequences are merely stopgap measures that have dire results: loss of credibility before the international community, negative domestic economic impact, damage to health and economies of other countries, loss of lives, public panic, and the potential for the offending country's own territory to spiral out of control.[2]

Questions

In addition to the many lessons that have been learned from the SARS epidemic numerous questions remain. Because this new coronavirus is sufficiently transmissible to cause a large epidemic, it requires that good, basic public health measures be in place. Questions remain about the accuracy of case reports, especially because in many instances the data are poor and instances of underdiagnosis and misdiagnosis are almost inevitable during an outbreak of a new disease. Other questions concern the evident heterogeneity in transmission, especially in light of the extreme instances of transmission in which single individuals apparently infected as many as 300 others. Yet another concern is whether global eradication of SARS can be established.[15]

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Laboratory diagnosis of SARS

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The emergence of new viral infections of man requires the development of robust diagnostic tests that can be applied in the differential diagnosis of acute illness, or to determine past exposure, so as to establish the true burden of disease. Since the recognition in April 2003 of the severe acute respiratory syndrome coronavirus (SARS-CoV) as the causative agent of severe acute respiratory syndrome (SARS), enormous efforts have been applied to develop molecular and serological tests for SARS which can assist rapid detection of cases, accurate diagnosis of illness and the application of control measures. International progress in the laboratory diagnosis of SARS-CoV infection during acute illness has led to internationally agreed World Health Organization criteria for the confirmation of SARS. Developments in the dissection of the human immune response to SARS indicate that serological tests on convalescent sera are essential to confirm SARS infection, given the sub-optimal predictive value of molecular detection tests performed during acute SARS illness.

Keywords: laboratory diagnosis; RT–PCR; coronavirus; immune response

1. INTRODUCTION

Recognition of the newly described SARS-CoV followed from its detection in clinical material from humans affected with SARS in 2003 (Drosten *et al.* 2003; Peiris *et al.* 2003*a*; Rota *et al.* 2003). The identification of the virus and its relationship to human disease were confirmed using Koch's postulates modified for viral diseases and was achieved through an international network of laboratories working under the coordination of the WHO (Kuiken *et al.* 2003). Experimental work has indicated that the SARS-CoV can be recovered from several organs in infected animals, indicating a disseminated infection, which parallels the observational experience of many of the laboratories involved in handling clinical samples from SARS cases (Peiris *et al.* 2003*b*). The main site of replication, pathology and recovery of the virus during human infection is considered to be the lower respiratory tract (Nicholls *et al.* 2003). This is consistent with the most important route of human-to-human transmission being through respiratory secretions, although outbreaks of infection that involved dissemination of virus excreted in faeces have also been described (Peiris *et al.* 2003*b*). Accurate laboratory diagnosis of SARS-CoV was essential to ensure appropriate individual patient management, local infection control and public health measures which were critical in halting the global spread of the first serious new threat to the human population in the twenty-first century.

One of the difficulties of accurate clinical diagnosis of SARS is the relatively long incubation period after infection (mean 6–7 days but ranging up to 10–14 days), before the onset of clinical symptoms and the relatively non-specific nature of the initial illness presentation. Early symptoms include fever, chills, non-specific malaise and myalgia compared with more florid respiratory symptoms which develop later during illness associated with pulmonary infiltrates in the lungs (Donnelly *et al.* 2003). Summary analyses of published case series indicate that between 25% and 75% of cases demonstrate gastrointestinal symptoms of diarrhoea, nausea and vomiting as illness progresses (Jernigan *et al.* 2004). The wide range of recognized gastrointestinal disturbance in different case series may be a reflection of the fact that the earliest compilations of data of the disease did not fully recognize this clinical feature. Overall, the major clinical symptoms of respiratory and enteric disease caused by the SARS-CoV in humans are analogous to disease syndromes caused by several animal coronaviruses in their natural hosts.

2. CLINICAL VIROLOGY

Clinical studies on SARS have shed light on the diagnostic usefulness of different samples at different times during illness, summarized in figure 1. In many viral illnesses, virus shedding is greatest during the early symptomatic phase of illness around the onset of symptoms, e.g influenza (Hayden *et al.* 1998). However, with SARS-CoV, virus excretion is comparatively low during the initial phase of illness and it is necessary to use very sensitive tests that are able to detect low levels of viral nucleic acid during the first days of illness. The mainstay of diagnosis during the illness phase of SARS has involved the use of RT–PCR to detect the SARS-CoV nucleic acid

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One contribution of 15 to a Discussion Meeting Issue 'Emerging infections: what have we learnt from SARS?'.

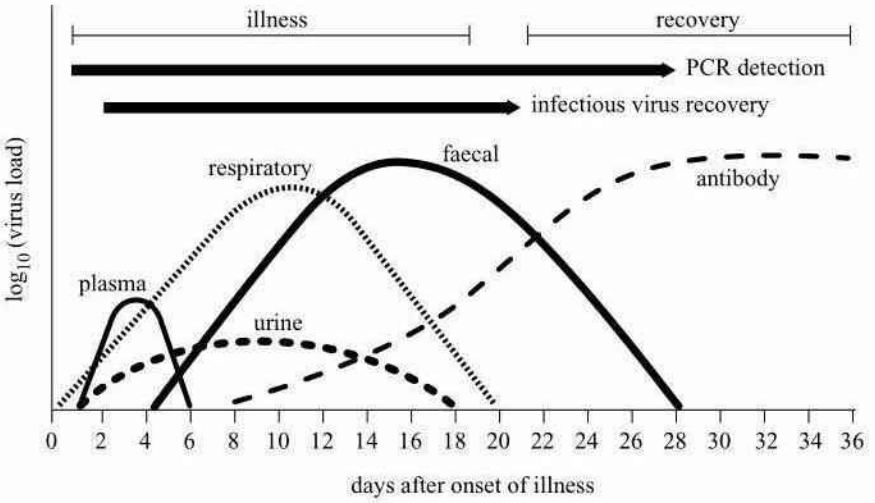

Figure 1. Schematic diagram of the course of virus shedding and detection in body fluids during SARS illness and recovery. Onset of illness is taken to be the onset of symptomatic fever.

amplified directly from clinical samples. RT–PCR protocols were developed with unprecedented speed as a result of the efforts of the WHO collaborative laboratory network. Samples of different body fluids such as blood, respiratory secretions, urine, stool and lung tissue from suspected and probable cases of SARS were analysed. The end point of detection for the SARS-CoV was similar to that found in previously described protocols for detection of known human coronaviruses (Vabret *et al.* 2001).

It is clear that viral load increases in respiratory samples in the second week of SARS illness (Peiris *et al.* 2003*b*), and that the viral load is greatest in samples taken from lower in the respiratory tract (Drosten *et al.* 2003), peaking around day 10, with the peak of viral detection in faeces coming slightly later. SARS-CoV RNA was detected in only 32% of individuals in nasopharyngeal aspirates at initial presentation (mean 3.2 days after illness onset), but in 68% at day 14 (Peiris *et al.* 2003*b*), and in over 90% of faecal samples collected in the second week of illness, peaking around days 15–17 (Chan *et al.* 2004). Quantification indicated that viral load in respiratory secretions peaked at day 10 with a geometric mean titre of 1.9×10^7 copies ml^{-1}. The clinical features of SARS illness therefore appear to be a good reflection of the body compartments/fluids in which SARS virus has been detected or recovered, with a clear time course. The detection of virus replication in different body compartments over several weeks, before resolution or progression to death, underlies the suggested use of different clinical samples to detect virus at different times after illness onset (figure 1). More recently, analysis of sequential samples of plasma from patients with SARS during early illness using PCR indicates that there is an early peak of viraemia, with up to 70% of samples containing detectable virus in the first few days after onset of illness (figure 2; Grant *et al.* 2003). This suggests that a viraemic phase is then most probably followed by increasing virus replication in the lower airways and gastrointestinal tract. Taken together, these observations indicate that sampling to detect SARS-CoV in the first week after onset of illness should involve the simultaneous collection and analysis of different clinical samples, including respiratory samples from as low in the respiratory tract as is practicable, blood, faeces and

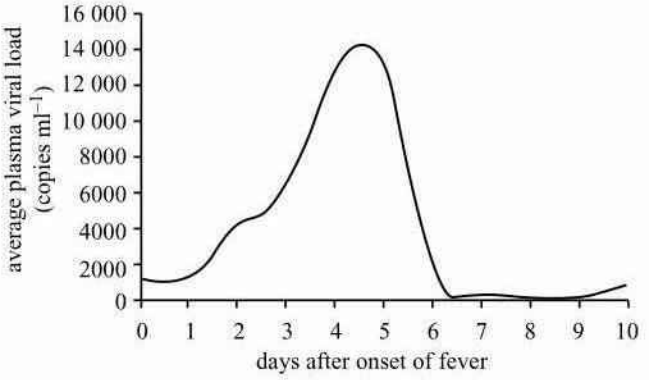

Figure 2. Schematic diagram of the detection of SARS viral RNA using RT–PCR in plasma in early SARS illness. Compiled from Grant *et al.* (2003).

urine. Detection of virus in the second week after the onset of illness is actually more likely, given the higher viral load, and should also involve sampling from multiple sites.

3. MOLECULAR DETECTION

Despite reasonably high rates of detection of virus in clinical samples, and good analytical sensitivity of the tests themselves, the predictive value of molecular diagnostic tests in the early stages of illness are still sub-optimal as they cannot rule out the presence of SARS-CoV. This is partly a reflection of the variable viral load in clinical samples, particularly in respiratory samples, which are most likely to be taken from the upper respiratory tract where the priority is to minimize aerosol generation when sampling to prevent infection of healthcare workers. This and the fact that viral replication does not appear to peak until some time after the onset of disease may result in sub-optimal samples. Obtaining a clear diagnosis may be difficult when the disease symptoms are least specific.

Parallel testing of samples for other infectious agents such as influenza, *Mycoplasma pneumoniae*, *Legionella pneumophila* and human metapneumovirus, which are capable of causing a similar clinical syndrome, is essential in the differential diagnosis early after disease onset and

may help to exclude SARS, particularly in returning travellers from countries where SARS is considered likely to re-emerge from an animal reservoir, although co-infection of SARS with other respiratory pathogens can occur (Poutanen *et al.* 2003). If the presence of an alternative diagnosis is to be used as the justification for discontinuing SARS-specific isolation procedures, the diagnosis should be based on tests with a high predictive value and the clinical illness should be fully explicable by the alternative diagnosis. Testing of multiple sequential samples increases the reliability of laboratory diagnosis, and reduces the likelihood of false-positive results, which is always of concern when using sensitive molecular diagnostic techniques. These findings underlie the current stringent WHO recommendations about the confirmation and quality control of SARS laboratory diagnosis: 'laboratories performing SARS specific PCR tests should adopt strict criteria for confirmation of positive results, especially in low prevalence areas where the predictive values might be lower' (Galen & Gambino 1975). This guidance includes the current requirement for detection of virus by RT–PCR in two different samples (e.g. respiratory and faecal), or sequential samples from the same body site on different days and robust confirmatory strategies. Examples of laboratory-acquired infection that occurred in Southeast Asia in 2003–2004, leading to extensive deployment of healthcare resources for contact tracing and quarantine, emphasize the necessity of stringent biosafety considerations in laboratories diagnosing SARS.

4. VIRUS TARGETS FOR DIAGNOSIS

Initial diagnostic work focused on the molecular detection of SARS-CoV RdRp(*Pol*) gene, because the *Pol* gene sequences were the first available (Drosten *et al.* 2003), and the *Pol* region of the coronavirus genome is well conserved across all coronaviruses. The use of detection probes involving degenerate primer sets that can detect all known coronaviruses (Stephensen *et al.* 1999) remains a useful screening approach, because this allows the deployment of a pan-corona molecular strategy, which will detect all known human coronaviruses, some of which may possibly cause diseases that overlap with the clinical syndrome of SARS. This approach can be run in parallel with RT–PCRs which are absolutely specific for SARS-CoV (Yam *et al.* 2003). The sequence conservation in the *Pol* region across all coronaviruses is such that diagnostic SARS-CoV tests based on the *Pol* region of the genome should, as part of a validation process, exclude detection of 229E (group 1 coronaviruses) and OC43 (group 2 coronaviruses) to avoid false-positive detections of human coronaviruses.

Coronaviruses have unusually long RNA genomes of *ca.* 30 000 bases. Viral replication and transcription is complex. As data have developed about the nature of SARS-CoV replication *in vitro*, it is evident that there is a transcription gradient across the viral genome in common with other coronaviruses (Thiel *et al.* 2003). The genomic organization of the coronavirus, with the non-structural genes at the 5′ end and structural genes at the 3′ end, reflects this transcription strategy. Differential transcription generates a gradient of nested sgRNAs sharing a common 3′ end. Genes encoded at the 3′ end are transcribed at high levels and represent the most abundant sgRNA species at least during infection in cell culture. Products of non-structural genes, such as the RdRp(*Pol*), responsible for replication and transcription of the viral genome, are needed in smaller amounts than structural genes, such as the NC protein involved in assembly of the virions. Consequently, sgRNA for the NC gene should be more abundant than sgRNA for the *Pol* gene in infected cells. This feature of coronavirus biology may be relevant for improving its detection in clinical practice. There are considerable differences in the concentration of viral RNA fragments in infected cells, with several log-fold increases in the amount of NC (mRNA) RNA in infected cells, compared with the transcripts of *Pol* genes (Thiel *et al.* 2003). This finding suggests that there may be some diagnostic advantages to targeting NC genes for molecular detection as well as other genes, to improve the overall sensitivity of detection, because the amount of viral template will be much higher, if clinical material contains virus infected cells as well as whole virus. Using clinical samples spiked with a mixture of SARS-CoV virus and infected cells, it is evident that detection of NC genes does provide some additional sensitivity (table 1). Several laboratories have developed diagnostic PCRs for the detection of other regions of the genome, particularly the viral NC gene (Emery *et al.* 2004). This approach is consistent with the observation that targeting the SARS-CoV NC region improved the sensitivity of detection more than a 100-fold in experimentally infected animals (Kuiken *et al.* 2003).

5. DIAGNOSTIC DEVELOPMENTS

As might be expected in the first several months after the emergence of a new human pathogen, there has been an explosion of diagnostic developments, particularly in the commercial sector. One of the difficulties in validating new diagnostic tests is the availability of clinical material because over 90% of the cases worldwide occurred in Southeast Asia. It is likely that incremental gains in sensitivity of SARS-CoV PCR tests will occur over the next few years as there is increasing use of real-time PCR platforms capable of detecting multiple targets and concurrent or multiplexing of SARS-specific and pan-corona tests. Greater gains in sensitivity may also come from techniques that concentrate the biological sample before processing for nucleic acid extraction (Grant *et al.* 2003; Chan *et al.* 2004).

6. VIRUS PROPAGATION

It is fortunate that the SARS-CoV virus, in contrast to many animal coronaviruses, can be cultured easily in a variety of continuous cell lines, including FRhK and Vero E6 cells, produces a recognizable and distinct widespread CPE (figure 3), and grows well at 33 °C and 37 °C . This has allowed the recovery of infectious virus from affected individuals, which in turn expedited sequencing of the entire virus genome (Marra *et al.* 2003). Moreover, the development of infectivity assays has allowed quantification of virus infectivity and development of neutralization assays (plaque reduction neutralization tests are shown in figure 4). Infectious virus has not been recovered beyond three weeks after illness onset even though virus

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Table 1. Detection of SARS-CoV in spiked simulated clinical specimens using different molecular detection strategies.

sample type	number of samples	*Pol* degenerate primers 2Bp/4Bma[c] (block)	N5/N6 primers[d] (block)	N5/N6 primers[e] (light cycler)	N primers[f] (light cycler)	SARS-specific *Pol* primers[g] (light cycler)
SARS-CoV spiked samples						
faecal[a]	38	15 (39.5%)	28 (73.7%)	32 (84.2%)	32 (84.2%)	30 (78.9%)
plasma	15	13 (86.7%)	14 (93.3%)	15 (100%)	15 (100%)	15 (100%)
respiratory[b]	35	34 (97.1%)	27 (77.1%)	28 (80.0%)	30 (85.7%)	28 (80%)
urine	9	7 (77.8%)	8 (88.9%)	9 (100%)	9 (100%)	9 (100%)
total spiked	97	69 (71.1%)	77 (79.4%)	84 (86.6%)	86 (88.7%)	82 (84.5%)
negative controls						
negative faecal	12	12	0	0	1	2
negative plasma	5	0	0	0	0	0
negative respiratory	5	5	0	0	1	2
negative urine	1	0	0	0	0	0
total negative	23	17	0	0	2	4
overall sensitivity (%)		71.1%	79.4%	86.6%	88.7%	84.5%
overall specificity (%)		57.5%	100%	100%	92%	85.2%
positive predictive value		80.2%	100%	100%	97.7%	95.3%

[a] Twelve out of 38 faecal samples were co-inoculated with rotavirus.
[b] Fourteen out of 35 respiratory samples were co-inoculated with influenza A virus.
[c] Stephensen *et al.* (1999).
[d] SARS-specific NC primers: N5: 5′ GGTGACGGCAAAATGAAAGAGC 3′ (for primer); N6: 5′ ATGAGGAGCGAGAAGAGGCTTGAC 3′ (reverse primer).
[e] Probe for light cycler assay: NC LCR probe: 5′ LC red 640-ATTGGCACCCGCAATCC-phosphate 3′; NC Flu probe: 5′ GAGCCTTGAATACACCCAAAGACC-fluorescein 3′.
[f] SARSNP fpr1/SARSNP rpr1/SARSNP prb1 (Kuiken *et al.* 2003).
[g] SARSTM frp1/SARSTM rpr1/SARSTM prb1 (Kuiken *et al.* 2003).

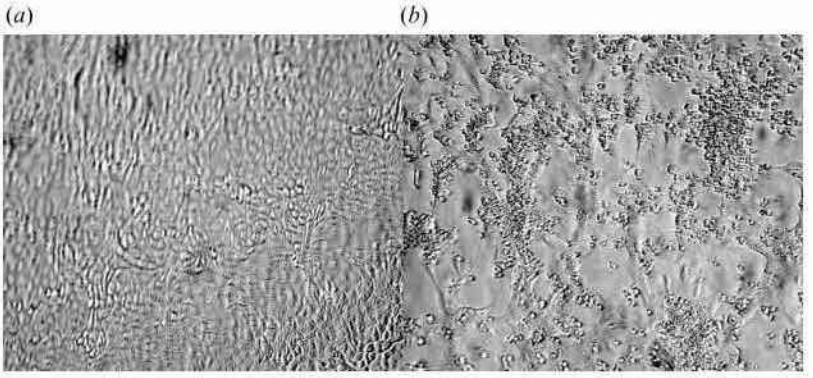

Figure 3. Mock infected Vero E6 cells (*a*) compared with CPE of SARS in Vero E6 cells (*b*) at 4 days after infection.

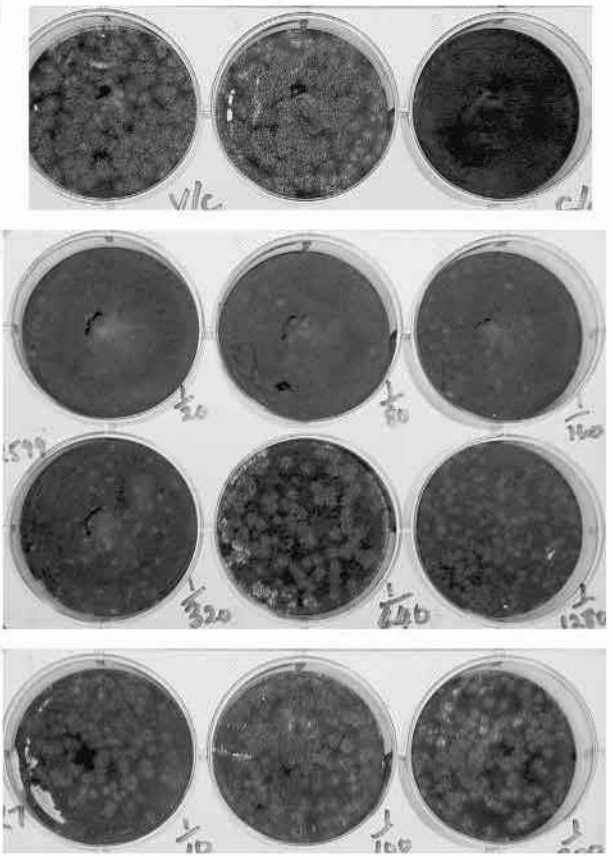

Figure 4. Neutralizing antibody tests. Infectivity (*a*) and plaque reduction assays (*b*,*c*) for the detection of SARS-neutralizing antibodies. Virus-infected cells are shown in the first two wells of (*a*), indicating clear plaque formation in Vero E6 cells 4 days after inoculation, with mock infected cell control in the third well. Infection of virus in the presence of increasing dilution of SARS convalescent serum is shown in (*b*) and indicates total inhibition of virus growth at day 4 after inoculation with an IC_{50} serum titre of *ca.* 1 in 320. Non-SARS serum with no neutralizing activity is shown in (*c*).

is still detectable by RT–PCR for several days or weeks after this. The inability to detect infectious virus indicates the natural cessation of viral replication or the development of the antibody response (detectable from about day 10 after onset of illness) which may form complexes with virus, thereby affecting the ability to detect infectious particles.

7. SEROLOGICAL ASSAYS

As the virus produced a CPE in FRhK cells, virus-infected cells were used as an antigen substrate before the aetiological agent had been described. Seroconversion using IF was the earliest serological test used to detect SARS (Peiris *et al.* 2003*a*). Use of IF indicated that seroconversion took place *ca.* 10 days after illness onset, but might not actually be evident in all cases until *ca.* 28 days after onset, as *ca.* 10–20% of individuals did not have detectable antibodies until after day 21 (Peiris *et al.* 2003*b*). The late seroconversions noted may reflect the fact that many patients were treated with high-dose steroids, which is likely to have delayed the antibody response, although this cannot be firmly concluded from the clinical datasets available. The only available laboratory method for excluding the diagnosis of SARS-CoV infection is to obtain a negative result on serological testing of a convalescent phase serum at 28 days after onset of symptoms. It is therefore essential for understanding the true disease burden to have robust and reliable serological tests.

The development of SARS ELISA tests followed rapidly after the identification of the virus, and the use of virally infected cells to prepare antigen for indirect ELISAs for the detection of SARS antibodies (IgM and IgG) has been possible because of the ability to culture virus to reasonable titre, and to use virus-infected cells as a source of antigens (figure 5; Ksiazek *et al.* 2003; Kuiken *et al.* 2003).

Analysis of antibody responses to SARS-CoV has so far shown limited cross reactivity with antibodies to human group 1 or group 2 coronaviruses. Although full evaluations are not complete yet and further data are required, some limited cross reactivity to group 1 animal coronaviruses has been noted (Ksiazek *et al.* 2003). The method of preparation of antigens and the formulation of serological tests may impact substantially on the ability to detect any cross-reacting antibody. Understanding the impact of serological responses to other human coronaviruses on antibody response to SARS-CoV is important because it will affect the specificity of tests and conclusions about exposure to SARS-CoV in the absence of clinical illness. Serological data are developing rapidly and early data suggest that high levels of neutralizing antibodies are formed after SARS infection and last for at least several months after infection. The use of neutralizing antibody tests (such as shown in figure 4) indicates that antibody to SARS may also cross neutralize related animal viruses, perhaps with a slightly lower titre, and this is taken as a

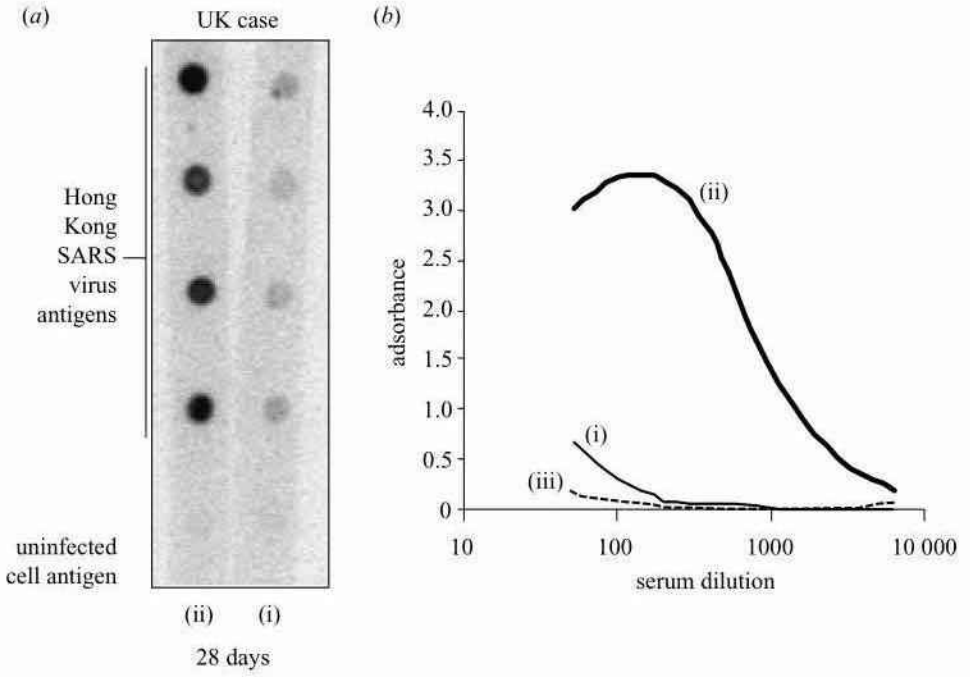

Figure 5. Detection of antibodies to SARS-infected cell antigen by dot blot (*a*)(i,ii) and ELISA (*b*). (*a*) Sera from SARS-positive UK probable case (Kuiken *et al.* 2003) at (i) day 7 acute, and (ii) day 28 convalescent, is shown in dot blot assay formats indicating the detection of low levels of antibody early after illness onset and seroconversion at day 28. (*b*) ELISA reactivity of serial dilutions of serum taken from: (i) acute SARS day 7; (ii) day 28 convalescent SARS; and (iii) day 28 after influenza A illness presenting with a clinical syndrome fulfilling the WHO case definition for 'probable SARS'.

suggestion of more than one serogroup of SARS-CoV (Zheng *et al.* 2004).

The specificity of the SARS-CoV antibody response has allowed seroprevalence studies to be undertaken using IF, which have concluded that there was little spread of SARS-CoV in the general population in Hong Kong, based on blood donor screening (Donnelly *et al.* 2003). However, up to 40% of humans who are market traders of live animals or who are restaurant workers preparing exotic meat of the putative wild animal reservoir (members of the vivverid, mustelid and canid families), showed evidence of exposure to SARS viruses, which has been taken to support the zoonotic origin of the SARS-CoV (Guan *et al.* 2003). Screening of archived healthy adult sera in Hong Kong (Zheng *et al.* 2004) taken before the SARS outbreak indicated that a few had detectable antibody to the SARS-CoV, suggesting pre-existing evidence of exposure to a related virus.

One of the difficulties of screening individual sera, whether from cases of illness, for serosurveillance or for contact tracing, is the sensitivity and specificity of ELISAs or IF assays, which typically have sensitivities and specificities between 90% and 98%. This is true for almost all ELISAs used to screen human sera for many viral diseases, and usually leads to an algorithm of a screening assay followed by a confirmatory assay. Invariably, a small proportion of reactive sera will not be true positives after the first ELISAs. To improve the certainty of diagnosis, a serological strategy needs to be adopted, involving a second tier of tests (figure 6) with or without an additional second serum to test for seroconversion. Many laboratories have adopted a neutralization test as a 'gold standard' confirmatory assay, with typical neutralizing antibody titres of between several hundred and several

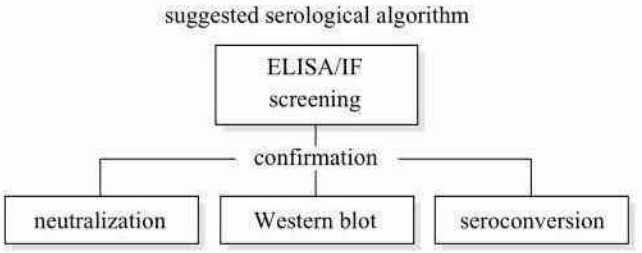

Figure 6. Suggested algorithm for serological testing of SARS.

thousand detectable at 28 days after onset of illness. The rise in neutralizing antibody may not exactly parallel the rise in total antibody detection, and may be somewhat slower to develop. However, tests that use virus-infected cells, or live virus, as required for whole-cell lysate ELISA assays, IF or neutralization tests, require the growth of virus (figures 4 and 5), which in turn requires a biosafety level 3 laboratory and prevents the tests being used widely. It is likely that trends in serological assay development will be towards the use of recombinant antigen ELISAs and finding surrogate methods for neutralization tests such as receptor binding assays, which may be a safer alternative for the serological diagnosis of SARS. The limited data available internationally so far suggest good correlation between recombinant protein ELISAs, Western blots and IF results (Wu *et al.* 2004), but much more evaluation will be required to fully understand the relationships between antibodies to different coronaviruses.

There remain many unanswered questions about the nature of serological responses to infection with the SARS-CoV, despite the astonishing rapidity of development of robust diagnostic tests. The next few years will

undoubtedly see the unravelling of the relationship between neutralizing and functional antibody and total antibodies to specific virus proteins, the duration and magnitude of antibody response in the context of disease protection and a comparison of antibody response in children and adults. An attempt to understand serological relationships between different SARS-CoV viruses as well as between SARS-CoV and other human and non-human coronaviruses will benefit our understanding of the biology of coronaviruses as a whole, and assist understanding of the severity of SARS disease in humans. A very significant side effect of SARS-related research is likely to be much more focus on the burden of illness as a result of human coronaviruses and their role in acute respiratory and gastrointestinal infections, a neglected backwater of human virology.

The authors acknowledge the excellent technical work of the following members of the Health Protection Agency ERNVL laboratory staff: Ruth Reith, Jo Smith, Tracey Kesting, Ian Putwain, Nelita du Plessis, Victoria Gould, Carol Sadler and Brian Megson who assisted in the development of diagnostic tests for SARS in the UK, and the support and advice of colleagues including Dr Robin Gopal, Dr Dhan Samuels, Dr Joanna Ellis, Dr Joanne Stockton, Pam Litton, Judy Mitchell and Dr Kirstin Edwards.

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GLOSSARY

CPE: cytopathic effect
ELISA: enzyme linked immunosorbent assay
IF: immunofluorescence
NC: nucleocapsid
RdRp(*Pol*): RNA-dependent RNA polymerase
RT–PCR: reverse transcription–polymerase chain reaction
SARS: severe acute respiratory syndrome
SARS-CoV: severe acute respiratory syndrome coronavirus
sgRNA: sub-genomic RNA
WHO: World Health Organization

SARS and MERS: recent insights into emerging coronaviruses

Emmie de Wit[1], Neeltje van Doremalen[1], Darryl Falzarano[2] and Vincent J. Munster[1]

Abstract | The emergence of Middle East respiratory syndrome coronavirus (MERS-CoV) in 2012 marked the second introduction of a highly pathogenic coronavirus into the human population in the twenty-first century. The continuing introductions of MERS-CoV from dromedary camels, the subsequent travel-related viral spread, the unprecedented nosocomial outbreaks and the high case-fatality rates highlight the need for prophylactic and therapeutic measures. Scientific advancements since the 2002–2003 severe acute respiratory syndrome coronavirus (SARS-CoV) pandemic allowed for rapid progress in our understanding of the epidemiology and pathogenesis of MERS-CoV and the development of therapeutics. In this Review, we detail our present understanding of the transmission and pathogenesis of SARS-CoV and MERS-CoV, and discuss the current state of development of measures to combat emerging coronaviruses.

Nosocomial transmission
Transmission of an infectious agent by staff, equipment or the environment in a health care setting.

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This century has seen the global spread of two previously unknown coronaviruses. In November 2002, the first known case of severe acute respiratory syndrome (SARS) occurred in Foshan, China[1]. New cases emerged in mainland China, and by February 2003, more than 300 cases had been reported, around one-third of which were in health care workers[1]. Individuals who were infected and subsequently travelled spread the outbreak to Hong Kong[2] and from there to Vietnam, Canada and several other countries[3]. In March 2003, the WHO established a network of laboratories to determine the causative agent of SARS. A remarkable global effort led to the identification of SARS coronavirus (SARS-CoV) in early April of that year[4–6]. By July 2003 and after a total of 8,096 reported cases, including 774 deaths in 27 countries[7], no more infections were detected, and the SARS pandemic was declared to be over. Five additional SARS cases, resulting from zoonotic transmission, occurred in December 2003–January 2004 (REF. 8), but no human SARS cases have been detected since. Measures of infection control, rather than medical interventions, ended the SARS pandemic. However, certain SARS-CoV-like viruses found in bats have recently been shown to be able to infect human cells without prior adaptation[9,10], which indicates that SARS could re-emerge.

In June 2012, 10 years after the first emergence of SARS-CoV, a man in Saudi Arabia died of acute pneumonia and renal failure. A novel coronavirus, Middle East respiratory syndrome coronavirus (MERS-CoV), was isolated from his sputum[11]. A cluster of cases of severe respiratory disease had occurred in April 2012 in a hospital in Jordan and was retrospectively diagnosed as MERS[12], and a cluster of three cases of MERS in the UK was identified in September 2012 (REF. 13). MERS-CoV continued to emerge and spread to countries outside of the Arabian Peninsula as a result of travel of infected persons; often, these imported MERS cases resulted in nosocomial transmission. In May 2015, a single person returning from the Middle East started a nosocomial outbreak of MERS in South Korea that involved 16 hospitals and 186 patients[14]. As of 26 April 2016, there have been 1,728 confirmed cases of MERS, including 624 deaths in 27 countries[15].

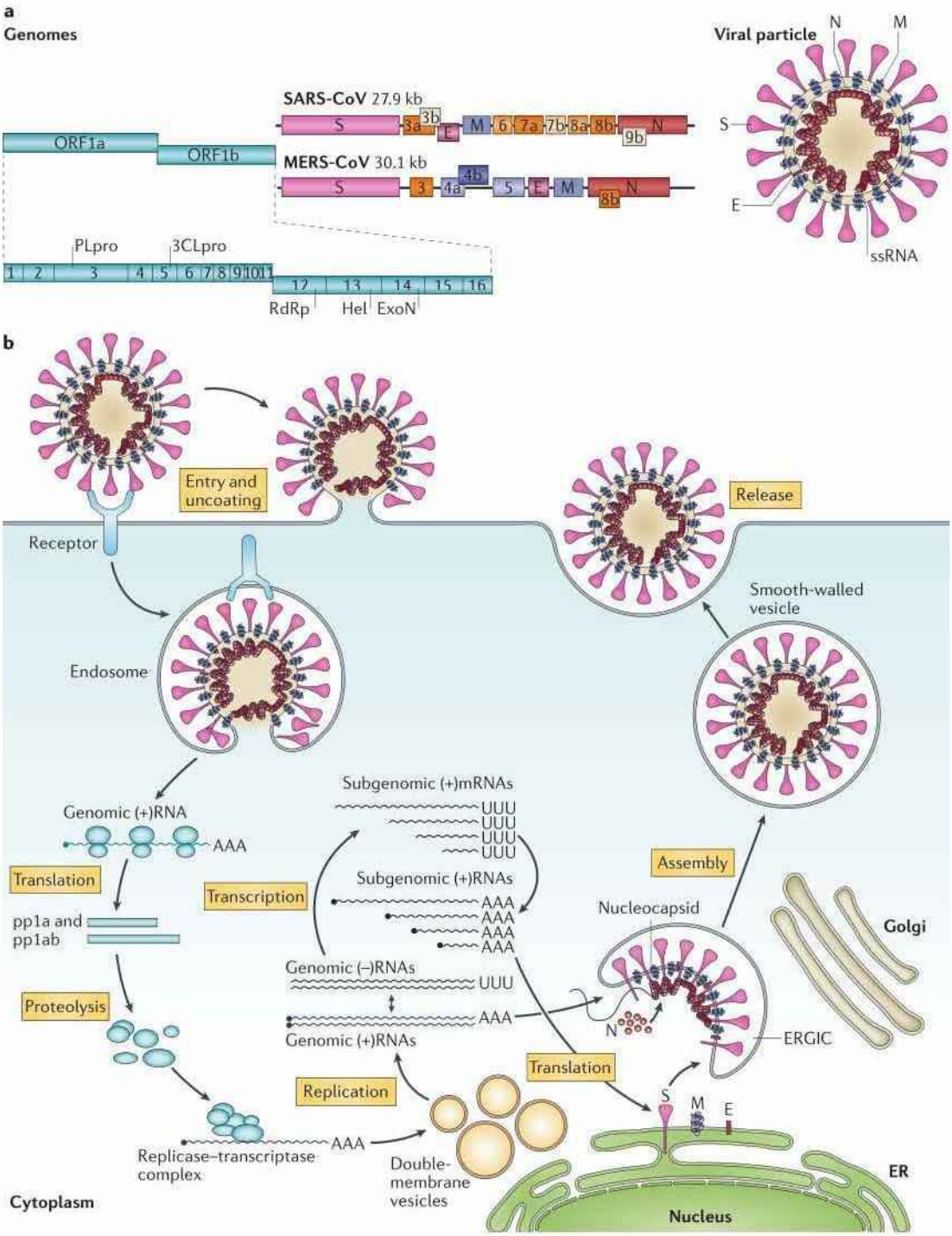
This Review highlights the pandemic and epidemic potential of emerging coronaviruses and discusses our current knowledge of the biology of SARS-CoV and MERS-CoV, including their transmission, their pathogenesis and the development of medical countermeasures. Key features of these viruses are the dominance of nosocomial transmission, and pathogenesis that is driven by a combination of viral replication in the lower respiratory tract and an aberrant host immune response. Several potential treatments for SARS and MERS have been identified in animal and *in vitro* models, including small-molecule protease inhibitors, neutralizing antibodies and inhibitors of the host immune response. However, efficacy data from human clinical trials are lacking but are needed to move these potential countermeasures forward.

Replication of SARS-CoV and MERS-CoV

SARS-CoV and MERS-CoV belong to the Coronavirus genus in the *Coronaviridae* family and have large, positive-sense RNA genomes of 27.9 kb and 30.1 kb,

Proofreading
The correction of errors that are acquired during the replication of DNA or RNA.

respectively (FIG. 1a). Similarly to all viruses in the order *Nidovirales*, SARS-CoV and MERS-CoV have a unique coding strategy: two-thirds of the viral RNA is translated into two large polyproteins, and the remainder of the viral genome is transcribed into a nested set of subgenomic mRNAs[16,17] (FIG. 1b). The two polyproteins, pp1a and pp1ab, encode 16 non-structural proteins (nsp1–nsp16)[18] that make up the viral replicase–transcriptase complex. The polyproteins are cleaved by two proteases, papain-like protease (PLpro; corresponding to nsp3) and a main protease, 3C-like protease (3CLpro; corresponding to nsp5). The nsps rearrange membranes that are derived from the rough endoplasmic reticulum (RER) into double-membrane vesicles, in which viral replication and transcription occur[19]. One unique feature of coronaviruses is the exoribonuclease (ExoN) function of nsp14 (REF. 20), which provides the proofreading capability required to maintain a large RNA genome without the accumulation of detrimental mutations[21,22]. SARS-CoV and MERS-CoV transcribe 12 and 9 subgenomic RNAs,



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CORONAVIRUSES

2|3

SUSAN I. GERBER AND JOHN T. WATSON

s0030 ## DEFINITION

p0010 Human coronaviruses were, until 2003, recognized as a frequent cause of common cold symptoms, occasionally a cause of lower respiratory tract disease, but rarely if ever a cause of serious disease. In 2003 a novel coronavirus was recognized in humans as the etiologic agent of the outbreak of severe acute respiratory syndrome (SARS).[1,2] The SARS outbreak demonstrated that coronaviruses can be serious human pathogens and led to discovery of other novel human coronaviruses as well as multiple novel coronaviruses in bats, the likely reservoir for SARS coronavirus. Furthermore, in 2012 the Middle East respiratory syndrome (MERS) coronavirus emerged and provided another example of coronavirus's ability to cause severe human disease.[3,4]

s0035 ## The Pathogens

p0015 Coronaviruses are members of the family Coronaviridae, which includes two subfamilies, Coronavirinae and Torovirinae. Coronaviruses are single-stranded positive-sense RNA viruses with a genome of approximately 30 kb, the largest genome among RNA viruses. These viruses were named coronaviruses because by electron microscopy they have club-shaped surface projections that give them a crown-like appearance. The genome encodes four or five structural proteins (a spike protein [S], a small envelope protein [E], a membrane protein [M], a nucleocapsid protein [N], and sometimes a hemagglutinin-esterase protein [HE]), a varying number of open reading frames scattered among the structural genes, and a polyprotein that is processed into multiple (usually 16) nonstructural proteins. These nonstructural proteins participate in virus replication but are not incorporated into the virion. Coronaviruses have also been isolated from a variety of animals and birds and, in their respective species, cause a wide range of respiratory, gastrointestinal (GI), neurologic, and systemic illnesses. The coronaviruses are divided into four genera: alpha, beta, gamma, and delta. The 229E and NL63 viruses are alphacoronaviruses, whereas OC43 and HKU1 are betacoronaviruses. SARS coronavirus and MERS coronavirus are both betacoronaviruses but belong to different lineages. Detection and characterization of novel coronaviruses in bats has greatly expanded our understanding of diversity among coronaviruses and will likely continue to do so.

s0040 ## EPIDEMIOLOGY

p0020 The common human coronaviruses—229E, OC43, NL63, and HKU1—appear to be transmitted through close contact that probably includes contamination of hands from person-to-person contact or from fomites, followed by autoinoculation to the mucosal surfaces of the mouth, nose, or eyes or inhalation of infectious droplets and possibly aerosols. Symptoms occur 2 to 4 days after infection. These coronaviruses are detected in patients with acute respiratory illnesses, most often a mild upper respiratory tract illness (i.e., common cold) but also in patients with more serious respiratory illnesses, including pneumonia, bronchiolitis, and croup. Coronavirus infections are detected early in childhood, and repeated infections can occur throughout life. About 50% of children have antibodies against OC43 by 3 years of age, and about 70% of adults have such antibodies. Up to 75% of children have antibodies against NL63 and 229E by 3 to 4 years of age. Studies looking for 229E- and OC43-like infections suggest that coronaviruses are associated with about 15% of cases of the common cold and with up to 10% of cases of acute respiratory illnesses in children and adults. Individually, 229E, OC43, HKU1, and NL63 are detected in less than 1 to 4% of cases, and their individual contributions will vary by location and year. Serious illness has been reported in outbreaks among elderly patients in nursing homes. In one outbreak associated with OC43 infection, for example, 23 residents and 24 staff reported influenza-like illness, and three residents died. However, some reports have found rates of detection of coronaviruses among hospitalized children with acute respiratory illness and/or fever to be similar to the rates of asymptomatic controls, thereby raising questions about the virus's role in more severe disease and hospitalization. The 229E, OC43, NL63, and HKU1 coronaviruses can be detected throughout the year, but peak detection is often during fall and winter months in temperate climates. A second respiratory viral pathogen can be detected in 20 to 60% of specimens positive for one of these coronaviruses.

p0025 Most documented SARS coronavirus infections in humans occurred in persons ill with a SARS-like illness during the 2002–2003 global outbreak. It is likely that wild animal markets in Guangdong Province, China, played a key role in amplifying and introducing the virus into humans, but the original source of the outbreak virus was likely bats. Detection of multiple SARS-like and other coronaviruses in bats suggests that they are a rich source of coronaviruses. A coronavirus recently isolated from bats has 95% nucleotide sequence identity to the SARS viruses and can infect humans via the ACE2 receptor. Although animals were the original source of human infections, global spread of SARS coronavirus occurred through human-to-human transmission and involved droplet, fomite transmission, and, in some instances, probably small-particle aerosol transmission. Most transmission occurred within households, hospitals, or other health care facilities; little transmission occurred in the community.

p0030 More recently, MERS coronavirus emerged in the Arabian Peninsula in 2012. Coronaviruses similar to the MERS coronavirus have been detected in bats, suggesting that bats may be a source of this virus. Dromedary camels, however, appear to act as a reservoir for the virus and a vehicle for human transmission. Dromedary camels in the Middle East and Africa may harbor live MERS coronavirus, and young camels in these areas nearly universally have antibody titers detected by the age of 2 years. Furthermore, in humans without known preillness exposure to other human MERS cases, direct exposure to dromedary camels during the prior 2 weeks is independently associated with developing MERS.[5] Person-to-person spread occurs within health care settings and is associated with the majority of reported transmission. For example, an outbreak of 186 cases in the Republic of Korea in 2015 resulted from a single infected traveler who returned from the Arabian peninsula.[6] Transmission among household family members also has been reported; but, so far, there has been no evidence of sustained community transmission. The incubation period is estimated at just over 5 days (range, 2 to 14 days), and sporadic human cases and clusters of MERS coronavirus infections continue to be reported.

s0045 ## PATHOBIOLOGY

p0035 The human coronaviruses characterized to date infect humans through the respiratory tract. The sites where the virus then replicates is determined at least in part by which cells express the respective receptors. The receptors for 229E and NL63 coronaviruses are aminopeptidase N and angiotensin-converting enzyme 2 (ACE2), respectively. The receptors for OC43 and HKU1 coronaviruses have not yet been determined, but OC43 may use several cell surface molecules as receptors, including 9-*O*-acetylated neuraminic acid. The primary receptor for SARS coronavirus is ACE2, but the virus also binds to two C-type lectins expressed on dendritic cells, DC-SIGN and L-SIGN. Aminopeptidase N is expressed in various cells, including respiratory, GI, kidney epithelial, and myeloid cells, but 229E is known to infect only respiratory epithelial cells. ACE2 is found in various tissues, including the lung, GI tract, heart, and kidneys. The SARS coronavirus has consistently been detected in pneumocytes in the lung and enterocytes in the GI tract and is occasionally found in other cells, including distal tubular cells in the kidney and macrophages in various tissues. Autopsy studies suggest that infection in the lung leads initially to diffuse alveolar damage and later may lead to a repair process that includes fibrosis in the alveolar walls. It is not known whether NL63, which also uses ACE2 as its receptor, infects sites other than the respiratory tract. The MERS coronavirus receptor is the exopeptidase dipeptidyl peptidase 4 (DPP4), also known as CD26. DPP4 is found on many different cell types including nonciliated bronchial epithelial cells, bronchiolar epithelial cells, alveolar epithelial cells, endothelial cells, and lung ex vivo organ cultures. In addition, DPP4 is expressed on the epithelial cells in kidney, small intestine, liver, and prostate as well as in activated leukocytes.

p0040 It is likely that the illness associated with coronavirus infections results from both the cytopathic effect of the virus and the host immune and inflammatory response to the viral infection. How this interplay contributes to disease, however, is not understood. The biphasic course of SARS in some patients, with the onset of severe disease in the second week of illness and the decrease in lymphocyte numbers, suggests a role for the host response and virus-induced immune suppression in the disease process. Similarly, it appears that the host response and virus-induced immune suppression may also contribute to MERS coronavirus disease.

s0050 ## CLINICAL MANIFESTATIONS

p0045 229E, OC43, NL63, and HKU1 coronavirus infections are commonly associated with acute respiratory illnesses that are usually mild and consistent with

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ABSTRACT

abs0010 Human coronaviruses were, until 2003, recognized frequently as a cause of common cold symptoms, occasionally as a cause of lower respiratory tract disease, but rarely if ever as a cause of serious disease. In 2003, however, a novel coronavirus was recognized as the cause of the severe acute respiratory syndrome (SARS). The SARS outbreak demonstrated that coronaviruses can be serious human pathogens and led to discovery of other novel human coronaviruses as well as multiple novel coronaviruses in bats, the likely reservoir for SARS coronavirus. In 2012 the Middle East respiratory syndrome (MERS) coronavirus emerged and provided another example of coronavirus's ability to cause severe human disease.

KEYWORDS

coronavirus
severe acute respiratory syndrome (SARS)
Middle East respiratory syndrome (MERS)
human-animal interface

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t0010 **TABLE 342-1** PERCENTAGE OF HOSPITALIZED SARS AND MERS CORONAVIRUS–INFECTED PATIENTS WITH SELECTED CLINICAL AND LABORATORY FEATURES OF SARS AND MERS CORONAVIRUS INFECTIONS

	SARS	*MERS*
CLINICAL OR LABORATORY FINDING	**AT HOSPITAL ADMISSION**	**AT PRESENTATION**
Fever	90-100%	≈90-100%
Cough or shortness of breath	40-75%	83%
Diarrhea	20-30%	26%
Chest radiograph abnormalities	65-90%	100%
Lymphopenia*	50-90%	34%

*Both $CD4^+$ and $CD8^+$ lymphocyte counts are decreased.
MERS = Middle East respiratory syndrome; SARS = severe acute respiratory syndrome.
From Assiri A, Al-Tawfiq JA, Al-Rabeeah AA, et al. Epidemiological, demographic, and clinical characteristics of 47 cases of Middle East respiratory syndrome coronavirus disease from Saudi Arabia: a descriptive study. *Lancet Infect Dis.* 2013;13:752-761.

the common cold (Chapter 337) but can also result in the full range of acute respiratory illnesses, including pneumonia (Chapter 91), croup (Chapter 401), EDI bronchiolitis (Chapter 86), and bronchitis (Chapter 86). The best studied of these coronaviruses, human coronaviruses 229E and OC43, cause respiratory symptoms (e.g., rhinorrhea, nasal congestion, sore throat, cough) as well as systemic symptoms (e.g., fever, headache, malaise) when they are inoculated intranasally into adult volunteers. Symptoms develop 2 to 4 days after inoculation, but about 30% of volunteers who excrete virus have no associated illness. Symptoms usually persist for about 1 week but sometimes for as long as 3 weeks. Previous infection does not induce high levels of protective immunity. Humans can be reinfected with respiratory coronaviruses throughout life, and human volunteers can be symptomatically reinfected with the same strain of coronavirus 1 year after the first infection. As with other infections, the severity of disease varies among individual patients during the same outbreak and among groups of patients during different outbreaks in the same community.

p0050 In contrast to the mild illness associated with 229E and OC43, SARS coronavirus infection nearly always results in a serious illness that requires hospitalization, often in an intensive care unit (ICU), and a high fatality rate. Radiologic evidence of pneumonia was seen in nearly all SARS coronavirus–infected persons, and acute respiratory distress syndrome (Chapter 96) requiring admission to an ICU and mechanical ventilation developed in 20% or more of patients. The initial clinical manifestation of SARS was often systemic symptoms of fever, malaise, and myalgias from 2 to 10 days (rarely >10 days) after exposure. Several days after the onset of systemic symptoms, lower respiratory tract symptoms of nonproductive cough and shortness of breath were noted. Unlike patients with other respiratory virus infections, the majority of patients never experience upper respiratory tract symptoms such as rhinorrhea, sore throat, or nasal congestion (Table 342-1). During the course of their illness, most SARS coronavirus–infected patients had elevated liver enzyme levels and lymphopenia, including a substantial drop in numbers of both $CD4^+$ and $CD8^+$ T cells. In general, children had less severe illness than adults.

p0055 The clinical spectrum of MERS coronavirus illness ranges from asymptomatic infection to severe illness.[7] Symptoms include cough, fever, malaise, chills, arthralgias, rigors, and dyspnea. Approximately 25% of patients have GI symptoms that include diarrhea, vomiting, and abdominal pain. Patients who are severely ill have pneumonia that sometimes progresses to acute respiratory distress syndrome.

p0060 Laboratory findings include leukopenia and lymphopenia, and some patients have thrombocytopenia and abnormal liver enzymes. Chest radiographic findings have included patchy infiltrates, lobar opacities, and similar to the SARS coronavirus, a ground-glass appearance.

DIAGNOSIS

s0055

p0065 Because illness is usually mild and there is no effective treatment, the diagnosis of 229E, OC43, NL63, and HKU1 coronavirus infections has not been important to the management of patients. The accurate diagnosis of SARS and MERS coronavirus infections is, however, critical for the management of individual patients and to mount an appropriate public health response.

229E, OC43, HKU1, and NL63 Coronavirus Infections

s0060

p0070 Coronavirus polymerase chain reaction (PCR) assays are the assays of choice for diagnosis of infection. Most coronavirus PCR assays are type specific—that is, specific to MERS coronavirus, SARS coronavirus, 229E, OC43, HKU1, or NL63 RNA. Coronavirus diagnostic assays are becoming more generally available and are sometimes part of a PCR panel designed to detect respiratory viruses. Presence of the virus can also be inferred by electron microscopy and confirmed by in situ or immunohistologic assays of affected tissues. Positive immunohistologic and in situ hybridization studies document the site of infection and help support a link between the virus and the disease process. A variety of enzyme or fluorescent immunoassays for antibodies have been used successfully to detect infection. Most assays detect immunoglobulin G (IgG) antibodies, but virus neutralization antibody assays are more specific. Serologic tests to detect a diagnostic rise in antibodies between acute and convalescent serum specimens for 229E, OC43, HKU1, and NL63 coronavirus infections are not helpful for managing an acute illness but can be helpful for epidemiologic studies.

SARS

s0065

p0075 Three features of SARS cases help guide approach to its diagnosis. First, SARS has been documented only in persons who have some potential exposure—that is, to patients with SARS, to a location with SARS transmission, to a laboratory working on SARS coronavirus, or to a setting where SARS-infected animals might be located (e.g., southern China). Second, nearly 100% of infected patients develop chest radiographic abnormalities by day 10 of their illness. Finally, SARS nearly always develops within 10 days of exposure. Thus a suspicion of SARS and a diagnostic evaluation can be limited to patients who have a severe lower respiratory tract illness and some potential exposure to SARS within 10 days before the onset of illness.

p0080 Laboratory confirmation of SARS coronavirus infection early in the illness proved to be difficult even with sensitive real-time PCR assays. Unlike in most respiratory viral infections, the highest titer of virus or viral RNA was found in clinical specimens from the beginning of the second week of illness. During the first week of illness, the best way to detect infection is by a sensitive PCR assay or a sensitive enzyme immunoassay for N protein antigen applied to respiratory and serum specimens. During the second week of illness, respiratory and stool specimens are most likely to be positive for viral RNA. Antibodies were sometimes detected early in the second week of illness but at times were not detected until 4 weeks into the illness. Because antibodies to SARS coronavirus were rarely present before the 2003 outbreak, a single positive antibody test result from an ill person could be considered diagnostic of an acute SARS coronavirus infection. However, because the reemergence of SARS coronavirus will have substantial public health, social, and economic impact, and because of occasional cross-reacting antibodies induced by other coronaviruses, a neutralization antibody test and confirmatory testing by a reference laboratory are required to confirm the diagnosis. Public health departments should be consulted for questions about SARS diagnostic tests.

MERS

s0070

p0085 A diagnosis of MERS coronavirus infection should be considered in patients with severe acute respiratory infection of unknown cause and a possible exposure or epidemiologic link to the Arabian Peninsula.[8] PCR assays have been used to detect RNA in upper respiratory tract specimens (nasopharyngeal, oropharyngeal) and preferably in lower respiratory tract specimens (sputum, tracheal aspirate, and bronchoalveolar lavage fluid have the highest viral loads), as well as in serum, stool, and urine. A confirmed case of MERS coronavirus infection requires a positive PCR on at least two specific gene targets or a single positive target with sequencing on a second.

p0090 A number of serologic assays can detect antibodies to the nucleocapsid and spike proteins. The sensitivity and specificity of these assays for diagnosing current or past MERS coronavirus infection have not yet been determined. Public health departments should be consulted for questions about MERS diagnostic tests.

TREATMENT

b0010

p0095 There is no virus-specific treatment for 229E, OC43, HKU1, and NL63 coronavirus infections, but the illnesses are mild and usually resolve in a few days to a week. Patients require symptomatic therapy or, uncommonly, management of complications of infection.

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p0100 Treatment of SARS and MERS coronavirus infections is more complex. Currently, no antiviral drug has proved to be effective for either. With the high death rate associated with both of these viruses and the lack of clinical or in vitro data to guide treatment, supportive measures, including mechanical ventilation and oxygenation regimens (Chapter 96), are used. In the SARS coronavirus outbreak, in vitro data showed little if any antiviral effect with ribavirin and suggested that interferon alfa, SARS convalescent phase immune globulin, and lopinavir plus ritonavir might have been useful. Although many people were treated during the outbreak, lack of control groups makes it impossible to determine which if any therapies were beneficial. For MERS coronavirus, in vitro data and animal models demonstrate inhibitory effects for a number of antiviral agents, including interferons, ribavirin, and lopinavir/ritonavir. Immunotherapeutic options undergoing evaluation include convalescent plasma and monoclonal and polyclonal antibodies. However, no consensus is currently available regarding their efficacy for treating human infection.

s0075

PREVENTION

p0105 Handwashing and other infection-control measures probably decrease the spread of coronaviruses in the home, health care facilities, and other settings. These strategies focus on reinforcing the need for patients with respiratory illnesses to cover the nose and mouth when coughing or sneezing, to use tissues to contain respiratory secretions, and to wash the hands after contact with respiratory secretions. Staff should use good infection-control practices.

p0110 Within 4 months of the initiation of the 2003 SARS outbreak, the outbreak was contained and human-to-human transmission stopped without a vaccine or effective antiviral therapy but thorough implementation of the classic public health tools of early case detection, isolation, and contact tracing and management, including quarantine of contacts. For MERS, the effectiveness of these measures in interrupting transmission also has been repeatedly demonstrated, most notably for outbreaks associated with health care facilities.

p0115 The cases of laboratory-acquired SARS coronavirus infection and the subsequent transmission of disease to others after one such case reinforces the importance of strict attention to safe laboratory practices. Because the reemergence of SARS could lead to global spread, the local, national, and global public health and health care communities must be alerted quickly and updated regularly about new cases and the status of transmission.

p0120 Strict attention to standard contact and airborne precautions is recommended for SARS and MERS coronavirus–infected patients within hospital settings. MERS coronavirus infections continue to occur in the Middle East, and local, national, and global public health and health care communities should be immediately notified of a case. Vaccine development is underway for both SARS and MERS coronaviruses.

s0080

PROGNOSIS

p0125 Patients with typical community-acquired coronavirus infections typically recover completely. However, patients with compromised cardiac, pulmonary, or immune systems are at increased risk of more serious lower respiratory tract illness, and outbreaks of human coronavirus infections in elderly patients in chronic care facilities can cause severe lower respiratory illnesses and deaths. In the SARS outbreak, nearly 10% of patients died. The death rate was especially high, approaching 50%, in elderly patients and patients with underlying illnesses. Although most survivors of SARS coronavirus infection appeared to achieve full recovery, as many as 25% had abnormal pulmonary findings such as ground-glass opacities on chest radiograph or abnormal pulmonary function test results (e.g., decreased diffusing capacity) 6 months or more after their illness. The MERS fatality rate initially was reported to be about 40%, but is now lower as less severe cases and seropositive persons without obvious infection have been identified.[9]

s0085

GENERAL REFERENCES

p0130 *For the General References and other additional features, please visit Expert Consult at https://expertconsult.inkling.com.*

em0010

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REVIEW QUESTIONS

p0135 **1.** Middle East respiratory syndrome (MERS) coronavirus has been detected in which patient specimens?

o0015 A. Respiratory tract specimen
o0020 B. Serum
o0025 C. Stool
o0030 D. Urine
o0035 E. All of the above

Answer: E Virus has been demonstrated to be detectable in all of these patient specimens. Although respiratory tract specimens are most important for diagnosis, specimens from additional sites may aid in the diagnosis of patients.

2. What statement is most true about common human coronaviruses (OC43, 229E, NL63, and HKU1)? o0040

A. Whenever a common human coronavirus is detected, there are associated severe clinical symptoms. o0045
B. Common human coronaviruses are detected in individuals with mild or no clinical symptoms. o0050
C. All common colds are associated with common human coronaviruses. o0055
D. Common human coronaviruses have never been associated with croup or pneumonia. o0060

Answer: B Human coronaviruses may be detected from clinical specimens from mildly ill or asymptomatic individuals. Human coronaviruses are only one cause of the common cold, and these viruses also have been associated with croup and pneumonia.

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From: Schuchat, Anne MD (CDC/OD)
Sent: Mon, 6 Jan 2020 21:24:10 +0000
To: Redfield, Robert R. (CDC/OD)
Cc: Messonnier, Nancy (CDC/DDID/NCIRD/OD);McGowan, Robert (Kyle) (CDC/OD/OCS)
Subject: pneumonia investigation update
Attachments: Pneumonia in China.pdf, SITREP PUE 20200106.docx, China PUE_HAN_draft.docx

The IMS for pneumonia in china is being stood up under coordination of NCIRD OD w/ engagement of multiple centers (global, ezid, cpr, etc). Today's sitrep, a draft han, and the travel notice are attached. Travel notice has posted and is at the link below

https://wwwnc.cdc.gov/travel/notices/watch/pneumonia-china.

Attached please also find our draft HAN. This has cleared through our IMS structure. HAN is under clearance but aim to get it out today if feasible

Pneumonia of Unknown Cause in China

Warning - Level 3, Avoid Nonessential Travel

Alert - Level 2, Practice Enhanced Precautions

Watch - Level 1, Practice Usual Precautions

Key Points

- There is cluster of cases of pneumonia in Wuhan, China. The cause is not yet known, nor is the mode of transmission.
- The cluster is centered at the Wuhan South China Seafood City (also called the South China Seafood Wholesale Market and the Hua Nan Seafood Market). The market has been closed since January 1, 2020, for cleaning and disinfection.
- Travelers to Wuhan, China, should avoid living or dead animals, animal markets, and contact with sick people.
- The situation is evolving. This notice will be updated as more information becomes available.

What is the current situation?

There is a cluster of cases of pneumonia in Wuhan, China. As of January 5, 2020, local, provincial, and national health commissions in China have reported a total of 59 cases with no deaths. The cluster is centered at the Wuhan South China Seafood City (also called the South China Seafood Wholesale Market and the Hua Nan Seafood Market). In addition to seafood, the market sells chickens, bats, marmots, and other wild animals. The market has been closed since January 1, 2020, for cleaning and disinfection.

Health authorities in China are monitoring more than 150 close contacts for illness. To date, there have been no reports of spread from person to person or to health care workers.

Symptoms include fever and difficulty breathing. Though the cause of this cluster is unknown, there is concern that it is a virus. Local authorities have reported negative laboratory results for seasonal influenza, avian influenza, adenovirus, and two specific coronaviruses known to cause respiratory illness (severe acute respiratory syndrome [SARS] and Middle East respiratory syndrome [MERS]).

What can travelers do to protect themselves?

Travelers to Wuhan should

- Avoid animals (alive or dead), animal markets, and products that come from animals (such as uncooked meat).

- Avoid contact with sick people.
- Wash hands often with soap and water.

If you traveled to Wuhan and feel sick, you should

- Stay home. Except for seeking medical care, avoid contact with others.
- Don't travel while sick.
- Seek medical care right away. Before you go to a doctor's office or emergency room, call ahead and tell the doctor about your recent travel and your symptoms.
- Cover your mouth and nose with a tissue or your sleeve (not your hands) when coughing or sneezing.

Clinician Information

As of this posting, case-patients in the cluster reportedly have had fever, difficulty breathing, and bilateral lung infiltrates on chest radiograph. For patients with similar respiratory symptoms who recently traveled to Wuhan, consider pneumonia related to the cluster and notify infection control personnel and your local health department immediately.

Although the etiology and transmission dynamics have yet to be determined, CDC recommends a cautious approach to symptomatic patients with a history of travel to Wuhan. Ask such patients to don a surgical mask as soon as they are identified. Conduct their evaluation in a private room with the door closed. Personnel entering the room to evaluate the patient should use contact precautions and wear an N95 disposable facepiece respirator. For patients admitted for inpatient care, implement contact and airborne isolation precautions, in addition to standard precautions, until further information becomes available. For additional infection control guidance see: https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html.

China Pneumonia of Unknown Etiology
Situational Report
January 6, 2020
EPI Week 1
Day 6 (Update)

Topline Messages

- The current situation relates to a cluster of pneumonia of unknown etiology centralizing on a local seafood market, Hua Nan Seafood Market in Wuhan, China. The seafood market has since undergone environmental remediation, and remains closed.
- Official updates are being provided by Wuhan Health Commission. The last report was 1/5/2019. As of January 5, 2020, there are 59 cases of unexplained pneumonia of suspected viral etiology, some cases have been severe.
- Influenza, avian influenza, adenovirus, SARS-CoV, and MERS have reportedly been ruled out; etiologic investigation is in progress.
- There is no confirmed human-to-human transmission nor infected healthcare workers.
- CDC posted a Level 1 travel notice on January 6, 2020 (https://wwwnc.cdc.gov/travel/notices/watch/pneumonia-china).
- A HAN and partner notification will be sent on January 6, 2020 to inform clinical providers and public health.
- NCIRD is establishing an Incident Management Structure (2020 China Pneumonia Response) to be fully operational by January 7, 2020. The main objectives of the IM are to prepare for potential domestic cases and to support the investigation in China if requested.

Actions in China

Responses in outbreak-affected areas

- The focus of the cluster is the Hua Nan Seafood Market. Huanan Seafood market is a large market that not only sells seafood but produce and live exotic animals such as beaver, porcupine and deer. The market is nearly one square mile in size. The market is also located next to Hankou train station which serves as a transportation hub at the center of China's domestic train routes and will soon be especially congested as we enter Chinese New Year.
- Earliest case onset was December 12, 2019, most recent December 29, 2019.
- Local, provincial, and national authorities continue to investigate.
- All cases are undergoing treatment at Wuhan medical facilities, most at Wuhan Jinyintan Hospital.
- 163 close contacts have been traced and are under medical observation. No fever or abnormal symptoms have been reported among contacts.
- Wuhan authorities have conveyed 7 priority prevention and control measures:
    - Treat all patients
    - Isolate patients
    - Continue case finding and ascertainment and retrospective investigations of possible cases
    - Contact investigations with active monitoring for symptoms

  - Close the seafood market for environmental remediation
  - Carry out epidemiologic investigation
  - Collaborate with state and provincial authorities to conduct pathogen identification, including doing nucleic acid testing, virus isolation, and culture
- Health experts locally are recommending that citizens pay attention to maintaining indoor air circulation, avoid closed and airless public places and crowded places, and wear masks when necessary. Persons with symptoms are instructed to seek medical attention.

Communications and Policy Outreach

- The official update from the Wuhan Health Commission are available at http://wjw.wuhan.gov.cn/ (Chinese language site)
- CDC Country Office has worked closely with the U.S. Consulate in Wuhan and the U.S. Embassy to develop appropriate messaging to include prevention messages.
- US Embassy Health Committee (including HHS, CDC, ESTH, APHIS, PAS, MED, CON) convened to share information and updates. Following posting of CDC's Travel Health Notice, CON will post link on embassy website to direct all inquiries to it.
- WHO China office is preparing to provide any requested technical support but thus far China has not requested.

Laboratory testing

- Based on Wuhan official reports, Influenza, avian influenza, adenovirus, SARS-CoV, and MERS have reportedly been ruled out.

Travelers and travel industry

- Hong Kong, Taiwan, Singapore and the Amur Region of Russia have implemented border screening of people traveling from Wuhan
- Hong Kong has posted information related to 16 cases with recent travel history to Wuhan as of January 5. Most with results have influenza, along with some other positive respiratory virus detections. https://www.chp.gov.hk/files/pdf/enhanced_sur_pneumonia_wuhan_eng.pdf
- Taiwan CDC reported on their website that the hospitalized patient who traveled from Wuhan to Hong Kong rapid screening tests negative for SARS, Avian influenza and seasonal influenza
- Despite some media reports of cases in other countries in travelers from Wuhan, there is no confirmed exposure to the implicated Seafood Market.

US CDC Actions

- Developing a Level 1 Travel Notice to be posted January 6, 2020. Media and partner messaging will be conducted to socialize the notice.
- Established an Incident Management Structure (2020 China Pneumonia Response) to be fully operational by January 7, 2020.
- Preparing a team of scientists to deploy to China if requested.
- Conducting Air Connectivity Analysis of passengers arriving in US from Wuhan, China.
- Developing Health Alert Notice for state and local health departments and other partners.
- Shared information with WHO and global partners.

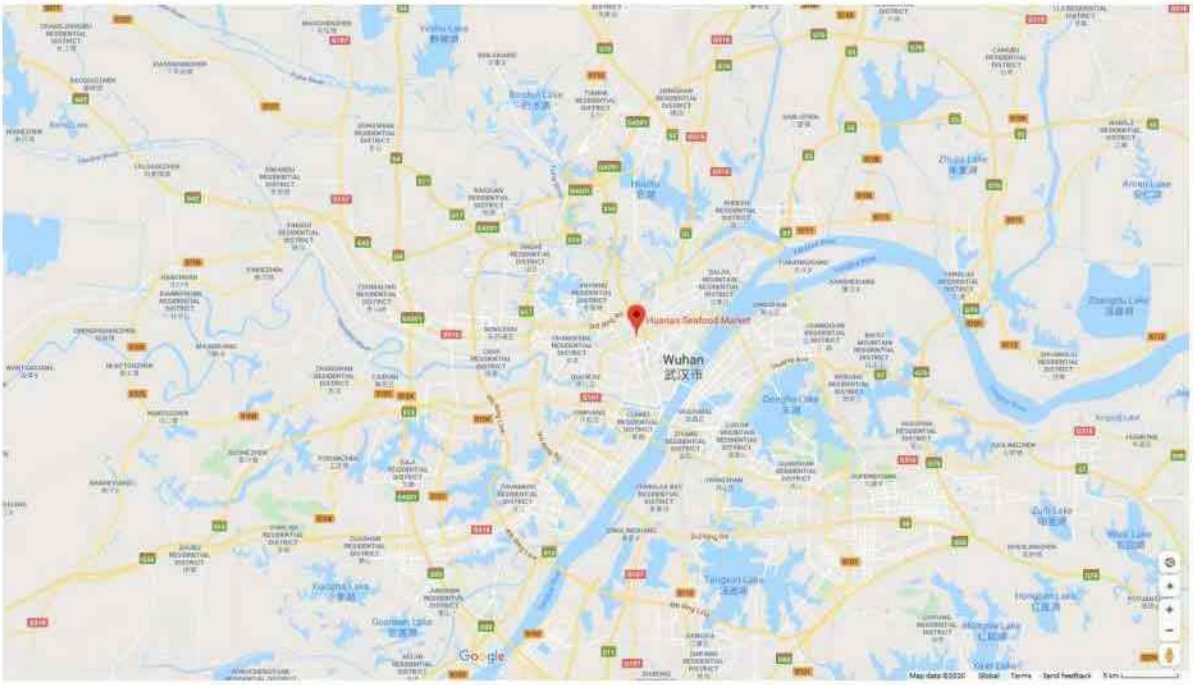
Media Coverage

- Media continue to report "SARS-like" illness, however official reports indicate SARS-CoV has been ruled out.
- Viral pneumonia in Wuhan has been a hot topic on Chinese social media for the past week, with the hashtag #武汉发现不明原因肺炎# (Wuhan reported mysterious pneumonia) receiving 870 million views with 77,000 discussions to date. However, it's also a heavily censored topic and has not been listed in any trending topics lists on Sina Weibo. Before SARS was ruled out as a cause of the mystery pneumonia by the Chinese government, many netizens commented that it reminded them of the SARS epidemic of 2003. Most netizen comments express concern and hope that the Chinese government can disclose information whenever possible. Some comments express confidence in Chinese government's ability to handle the problem.

Situational Awareness

- The cases so far have been limited to Wuhan

- Location of the Seafood market within Wuhan (武汉市华南海鲜批发市场)



Outbreak of Pneumonia of Unknown Etiology In Wuhan, China

Distributed via the CDC Health Alert Network
January 6, 2020

CDCHAN-XX

Summary

The Centers for Disease Control and Prevention (CDC) is closely monitoring a reported cluster of pneumonia of unknown cause centered around a seafood market in Wuhan, China. While an outbreak investigation by local officials is ongoing in China, with World Health Organization (WHO) as the lead international public health agency, CDC has established an Incident Management Structure to lead a potential CDC response.

The purpose of this HAN Advisory is to inform state and local health departments and health care providers about this outbreak and to remind clinicians to ask patients with severe respiratory disease about travel history to Wuhan City, Hubei Province, China, (a major transportation hub about 700 miles south of Beijing with a population of about 19 million people). Please disseminate this information to health care providers, especially infectious diseases specialists, intensive care physicians, internists, infection preventionists, and to emergency departments and microbiology laboratories.

Background

Per report from the Wuhan Health Commission as of 1/5/2019, the outbreak is centered on Hua Nan Seafood Market, which also sells animals, such as chickens, bats, marmots, and other wild animals suggesting a possible zoonotic origin to the outbreak. The market has been closed for cleaning and disinfection. As of 5 January 2020, a total of 59 patients with pneumonia of unknown etiology have been reported to WHO by the national authorities in China. Of the 59 cases reported, 7 are critically ill, while the remaining patients are in stable condition. Local authorities have reported negative laboratory results for seasonal influenza, avian influenza, adenovirus, severe acute respiratory syndrome-associated coronavirus (SARS-CoV), and Middle East respiratory syndrome (MERS) among patients associated with this cluster. No deaths have been reported, no health care providers have been reported to be ill, and no confirmed human-to-human transmission has been documented. Laboratory testing is ongoing to determine the source of the outbreak. Health authorities are monitoring more than 150 contacts of patients for illness. CDC has issued a Level 1 Travel Watch. (hyperlink).

On January the World Health Organization posted an update on this situation, including an early risk assessment, which is available at: https://www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/.

Clinician Information

As of this update, case-patients involved in the cluster reportedly have had fever, dyspnea, and bilateral lung infiltrates on chest radiograph. For patients with severe respiratory symptoms who recently traveled to Wuhan City, and who do not have another known diagnosis for their illness, providers should consider pneumonia related to the cluster and notify infection control personnel and local and state health departments immediately. State health departments should notify CDC after identifying a case under investigation.

Multiple respiratory tract specimens should be collected from persons with infections suspected to be associated with this cluster, including nasopharyngeal, nasal, and throat swabs. Patients with severe respiratory

disease also should have lower respiratory tract specimens collected, if possible. Consider saving urine, stool , serum, and respiratory pathology specimens if available.

Guidance will be updated as more information becomes available.

Although the etiology and transmission dynamics have yet to be determined, CDC currently recommends a cautious approach to symptomatic patients with a history of travel to Wuhan City. Such patients should be asked to wear a surgical mask as soon as they are identified and be evaluated in a private room with the door closed. Personnel entering the room to evaluate the patient should use contact precautions and wear an N95 disposable facepiece respirator. For patients admitted for inpatient care, contact and airborne isolation precautions, in addition to standard precautions, are recommended until further information becomes available. For additional information see: https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html.

From: Butler, Jay C. (CDC/DDID/OD)
Sent: Mon, 6 Jan 2020 22:50:20 +0000
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Subject: FW: China PUI udpate
Attachments: Pneumonia in China.pdf, SITREP PUE 20200106.docx, China PUI_HAN_draft.docx

I spoke with John, and he concurs with what you have proposed below. The other two items I called about can keep until tomorrow. But always happy to take your calls as needed!

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Sent: Monday, January 6, 2020 4:12 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; Redd, Stephen (CDC/DDPHSIS/OD) <scr1@cdc.gov>; Dreyzehner, John (CDC/DDPHSIS/CPR/OD) <PWN3@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Cc: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Subject: China PUI udpate

Attached please find today's Sit Rep. One thing we did not discuss was sharing this with Dr. Redfield but I am presuming Anne or Kyle will be doing that. Please let me know if you want me to email it to him directly.

I am sorry to report that the travel notice was already posted. Our SMEs did review it but then it was cleared using the normal DGMQ clearance process. I apologize but that is one of the reasons we are now moving into IMS structure.
https://wwwnc.cdc.gov/travel/notices/watch/pneumonia-china.

Attached please also find our draft HAN. This has cleared through our IMS structure. (b)(5) (b)(5) but am happy if you can facilitate shortening it so we can send this out as a formal HAN. In the meantime, we'd like to send this information out to our partners by email and to discuss by phone (as needed). Please let me know ASAP if you have questions/concerns about the information within this document or our plan.

Nancy

Pneumonia of Unknown Cause in China

Warning - Level 3, Avoid Nonessential Travel

Alert - Level 2, Practice Enhanced Precautions

Watch - Level 1, Practice Usual Precautions

Key Points

- There is cluster of cases of pneumonia in Wuhan, China. The cause is not yet known, nor is the mode of transmission.
- The cluster is centered at the Wuhan South China Seafood City (also called the South China Seafood Wholesale Market and the Hua Nan Seafood Market). The market has been closed since January 1, 2020, for cleaning and disinfection.
- Travelers to Wuhan, China, should avoid living or dead animals, animal markets, and contact with sick people.
- The situation is evolving. This notice will be updated as more information becomes available.

What is the current situation?

There is a cluster of cases of pneumonia in Wuhan, China. As of January 5, 2020, local, provincial, and national health commissions in China have reported a total of 59 cases with no deaths. The cluster is centered at the Wuhan South China Seafood City (also called the South China Seafood Wholesale Market and the Hua Nan Seafood Market). In addition to seafood, the market sells chickens, bats, marmots, and other wild animals. The market has been closed since January 1, 2020, for cleaning and disinfection.

Health authorities in China are monitoring more than 150 close contacts for illness. To date, there have been no reports of spread from person to person or to health care workers.

Symptoms include fever and difficulty breathing. Though the cause of this cluster is unknown, there is concern that it is a virus. Local authorities have reported negative laboratory results for seasonal influenza, avian influenza, adenovirus, and two specific coronaviruses known to cause respiratory illness (severe acute respiratory syndrome [SARS] and Middle East respiratory syndrome [MERS]).

What can travelers do to protect themselves?

Travelers to Wuhan should

- Avoid animals (alive or dead), animal markets, and products that come from animals (such as uncooked meat).

- Avoid contact with sick people.
- Wash hands often with soap and water.

If you traveled to Wuhan and feel sick, you should

- Stay home. Except for seeking medical care, avoid contact with others.
- Don't travel while sick.
- Seek medical care right away. Before you go to a doctor's office or emergency room, call ahead and tell the doctor about your recent travel and your symptoms.
- Cover your mouth and nose with a tissue or your sleeve (not your hands) when coughing or sneezing.

Clinician Information

As of this posting, case-patients in the cluster reportedly have had fever, difficulty breathing, and bilateral lung infiltrates on chest radiograph. For patients with similar respiratory symptoms who recently traveled to Wuhan, consider pneumonia related to the cluster and notify infection control personnel and your local health department immediately.

Although the etiology and transmission dynamics have yet to be determined, CDC recommends a cautious approach to symptomatic patients with a history of travel to Wuhan. Ask such patients to don a surgical mask as soon as they are identified. Conduct their evaluation in a private room with the door closed. Personnel entering the room to evaluate the patient should use contact precautions and wear an N95 disposable facepiece respirator. For patients admitted for inpatient care, implement contact and airborne isolation precautions, in addition to standard precautions, until further information becomes available. For additional infection control guidance see: https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html.

China Pneumonia of Unknown Etiology
Situational Report
January 6, 2020
EPI Week 1
Day 6 (Update)

Topline Messages

- The current situation relates to a cluster of pneumonia of unknown etiology centralizing on a local seafood market, Hua Nan Seafood Market in Wuhan, China. The seafood market has since undergone environmental remediation, and remains closed.
- Official updates are being provided by Wuhan Health Commission. The last report was 1/5/2019. As of January 5, 2020, there are 59 cases of unexplained pneumonia of suspected viral etiology, some cases have been severe.
- Influenza, avian influenza, adenovirus, SARS-CoV, and MERS have reportedly been ruled out; etiologic investigation is in progress.
- There is no confirmed human-to-human transmission nor infected healthcare workers.
- CDC posted a Level 1 travel notice on January 6, 2020 (https://wwwnc.cdc.gov/travel/notices/watch/pneumonia-china).
- A HAN and partner notification will be sent on January 6, 2020 to inform clinical providers and public health.
- NCIRD is establishing an Incident Management Structure (2020 China Pneumonia Response) to be fully operational by January 7, 2020. The main objectives of the IM are to prepare for potential domestic cases and to support the investigation in China if requested.

Actions in China

Responses in outbreak-affected areas

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- All cases are undergoing treatment at Wuhan medical facilities, most at Wuhan Jinyintan Hospital.
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- Wuhan authorities have conveyed 7 priority prevention and control measures:
    - Treat all patients
    - Isolate patients
    - Continue case finding and ascertainment and retrospective investigations of possible cases
    - Contact investigations with active monitoring for symptoms

  - Close the seafood market for environmental remediation
  - Carry out epidemiologic investigation
  - Collaborate with state and provincial authorities to conduct pathogen identification, including doing nucleic acid testing, virus isolation, and culture
- Health experts locally are recommending that citizens pay attention to maintaining indoor air circulation, avoid closed and airless public places and crowded places, and wear masks when necessary. Persons with symptoms are instructed to seek medical attention.

Communications and Policy Outreach

- The official update from the Wuhan Health Commission are available at http://wjw.wuhan.gov.cn/ (Chinese language site)
- CDC Country Office has worked closely with the U.S. Consulate in Wuhan and the U.S. Embassy to develop appropriate messaging to include prevention messages.
- US Embassy Health Committee (including HHS, CDC, ESTH, APHIS, PAS, MED, CON) convened to share information and updates. Following posting of CDC's Travel Health Notice, CON will post link on embassy website to direct all inquiries to it.
- WHO China office is preparing to provide any requested technical support but thus far China has not requested.

Laboratory testing

- Based on Wuhan official reports, Influenza, avian influenza, adenovirus, SARS-CoV, and MERS have reportedly been ruled out.

Travelers and travel industry

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- Hong Kong has posted information related to 16 cases with recent travel history to Wuhan as of January 5. Most with results have influenza, along with some other positive respiratory virus detections. https://www.chp.gov.hk/files/pdf/enhanced_sur_pneumonia_wuhan_eng.pdf
- Taiwan CDC reported on their website that the hospitalized patient who traveled from Wuhan to Hong Kong rapid screening tests negative for SARS, Avian influenza and seasonal influenza
- Despite some media reports of cases in other countries in travelers from Wuhan, there is no confirmed exposure to the implicated Seafood Market.

US CDC Actions

- Developing a Level 1 Travel Notice to be posted January 6, 2020. Media and partner messaging will be conducted to socialize the notice.
- Established an Incident Management Structure (2020 China Pneumonia Response) to be fully operational by January 7, 2020.
- Preparing a team of scientists to deploy to China if requested.
- Conducting Air Connectivity Analysis of passengers arriving in US from Wuhan, China.
- Developing Health Alert Notice for state and local health departments and other partners.
- Shared information with WHO and global partners.

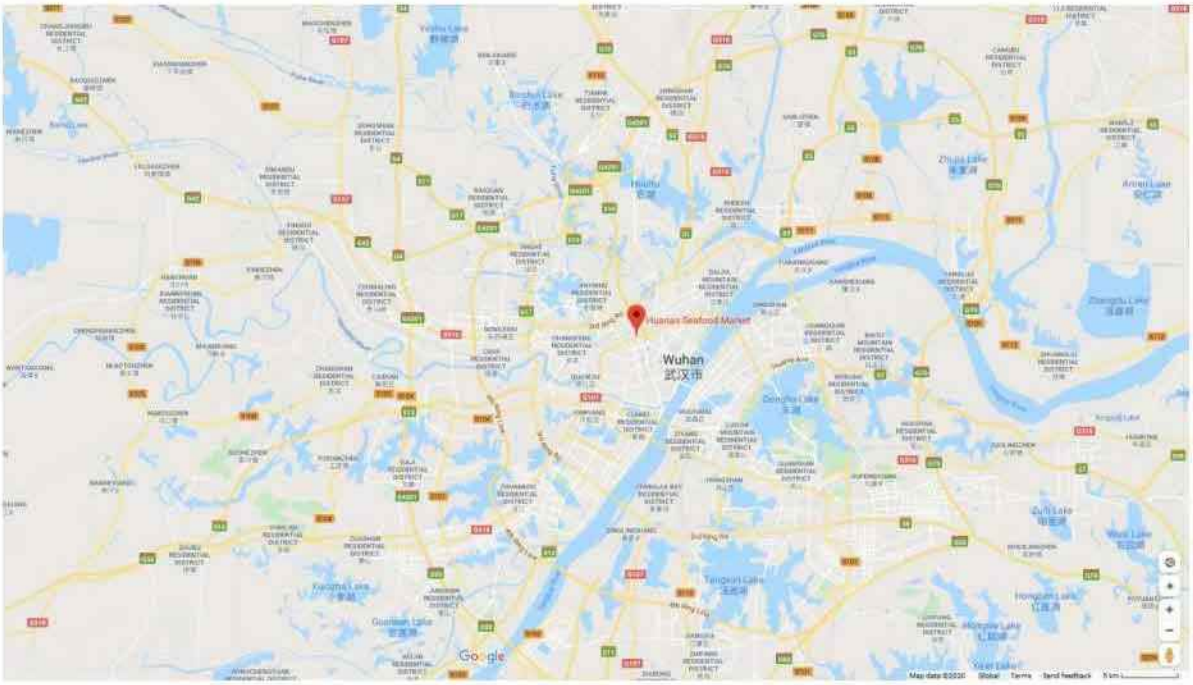
Media Coverage

- Media continue to report "SARS-like" illness, however official reports indicate SARS-CoV has been ruled out.
- Viral pneumonia in Wuhan has been a hot topic on Chinese social media for the past week, with the hashtag #武汉发现不明原因肺炎# (Wuhan reported mysterious pneumonia) receiving 870 million views with 77,000 discussions to date. However, it's also a heavily censored topic and has not been listed in any trending topics lists on Sina Weibo. Before SARS was ruled out as a cause of the mystery pneumonia by the Chinese government, many netizens commented that it reminded them of the SARS epidemic of 2003. Most netizen comments express concern and hope that the Chinese government can disclose information whenever possible. Some comments express confidence in Chinese government's ability to handle the problem.

Situational Awareness

- The cases so far have been limited to Wuhan

- Location of the Seafood market within Wuhan (武汉市华南海鲜批发市场)



Outbreak of Pneumonia of Unknown Etiology In Wuhan, China

Distributed via the CDC Health Alert Network

(b)(5)

Outbreak of Pneumonia of Unknown Etiology In Wuhan, China

(b)(5)

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Tue, 7 Jan 2020 14:15:57 +0000
To: Dreyzehner, John (CDC/DDPHSIS/CPR/OD)
Cc: Cohn, Amanda (CDC/DDID/NCIRD/OD);Frank, Mark (CDC/DDPHSIS/CPR/DEO);Burns, Erin (CDC/DDID/NCIRD/ID)
Subject: FW: HANs
Attachments: HAN_draft (002)_ac_JW_sig_final_small dbj edit.docx

John,
I need your help expediting clearance of this HAN. I would certainly like it cleared by COB so we can get it posted. Anne, Sherri and Kyle already saw it and except for the question about title/abbreviation, had no comments. Can you assist?
Nancy

From: Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Sent: Tuesday, January 7, 2020 9:07 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Cc: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Subject: FW: HANs

Nancy- See below the email regarding the HAN.

Amanda

From: Khan, Ibad (CDC/DDPHSIS/CPR/DEO) <vpu5@cdc.gov>
Sent: Monday, January 6, 2020 3:39 PM
To: St. Pierre, Jeanette (CDC/DDID/NCIRD/DVD) <zcr5@cdc.gov>; Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; HAN Editor (CDC) <haneditor@cdc.gov>; Anderson, Jessica L. (CDC/DDID/NCIRD/DVD) <xlw4@cdc.gov>
Cc: Davenport, Elizabeth (Bess) (CDC/DDID/NCIRD/ID) <moy9@cdc.gov>; LaPorte, Kathleen (CDC/DDID/NCIRD/ID) <wng2@cdc.gov>
Subject: RE: HANs

Hi Jeanette,

Thank you for following up. I understand and appreciate the urgency. As you may recall from previous HANs, there is a process and timeframe involved with HAN development and clearance. (b)(5)

(b)(5)

(b)(5) The team member working the HAN Editor box will be sending a comprehensive email that lists the process requirements, deadlines, etc. associated with doing a HAN.

Yes, HANs are also posted on our Facebook page for our clinical audience.

Thanks,

Ibad

Ibad Khan, PharmD, MPH
CDR, US Public Health Service
Team Lead, COCA & HAN
Emergency Risk Communication Branch
Division of Emergency Operations
Center for Preparedness and Response

Centers for Disease Control and Prevention (CDC)
1600 Clifton Road, NE, MS H21-4, Atlanta, GA 30329
404-639-0880 Office | (b)(6) Cell
ikhan@cdc.gov | Telework: Tuesdays & Fridays

From: St. Pierre, Jeanette (CDC/DDID/NCIRD/DVD) <zcr5@cdc.gov>
Sent: Monday, January 6, 2020 3:30 PM
To: Khan, Ibad (CDC/DDPHSIS/CPR/DEO) <vpu5@cdc.gov>; Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; HAN Editor (CDC) <haneditor@cdc.gov>; Anderson, Jessica L. (CDC/DDID/NCIRD/DVD) <xlw4@cdc.gov>
Cc: Davenport, Elizabeth (Bess) (CDC/DDID/NCIRD/ID) <moy9@cdc.gov>; LaPorte, Kathleen (CDC/DDID/NCIRD/ID) <wng2@cdc.gov>
Subject: RE: HANs

Thanks Ibad. Any updates? We need the unexplained pneumonia HAN posted today.

Also, I assume you post social media messages accompanying HANs, correct?

Sorry for the pressure.

Jeanette

From: Khan, Ibad (CDC/DDPHSIS/CPR/DEO) <vpu5@cdc.gov>
Sent: Monday, January 6, 2020 2:49 PM
To: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; HAN Editor (CDC) <haneditor@cdc.gov>
Cc: St. Pierre, Jeanette (CDC/DDID/NCIRD/DVD) <zcr5@cdc.gov>; Davenport, Elizabeth (Bess) (CDC/DDID/NCIRD/ID) <moy9@cdc.gov>; LaPorte, Kathleen (CDC/DDID/NCIRD/ID) <wng2@cdc.gov>
Subject: RE: HANs
Importance: High

Hi Erin,

Thank you for reaching out. I'm including the HAN Editor box for further assistance with process and timeline.

Thanks,

Ibad

Ibad Khan, PharmD, MPH
CDR, US Public Health Service
Team Lead, COCA & HAN
Emergency Risk Communication Branch
Division of Emergency Operations
Center for Preparedness and Response

Centers for Disease Control and Prevention (CDC)
1600 Clifton Road, NE, MS H21-4, Atlanta, GA 30329
404-639-0880 Office | (b)(6) Cell
ikhan@cdc.gov | Telework: Tuesdays & Fridays

From: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>
Sent: Monday, January 6, 2020 2:45 PM
To: Khan, Ibad (CDC/DDPHSIS/CPR/DEO) <vpu5@cdc.gov>
Cc: St. Pierre, Jeanette (CDC/DDID/NCIRD/DVD) <zcr5@cdc.gov>; Davenport, Elizabeth (Bess) (CDC/DDID/NCIRD/ID) <moy9@cdc.gov>; LaPorte, Kathleen (CDC/DDID/NCIRD/ID) <wng2@cdc.gov>
Subject: HANs

Ibad,
Just checking in on a couple of potential HANs.

1. (b)(5)
   (b)(5)
2. I have been asked to help on the response to the China Pneumonia Response and there is a HAN in development in DVD, with the intention of getting that out in the next couple of days per NCIRD and OD leadership.

I just wanted to give you a heads up on those and check in on process.
Thanks,
ERin

From: LaPorte, Kathleen (CDC/DDID/NCIRD/ID) <wng2@cdc.gov>
Sent: Monday, January 6, 2020 2:21 PM
To: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>
Subject: HAN contact

Ibad Khan is the lead for both COCA and HAN: vpu5@cdc.gov

Bess mention the comms contact is Marcia Friedman djx9@cdc.gov

Kathleen LaPorte
Influenza Division – Communication Office
National Center for Immunizations & Respiratory Diseases
Centers for Disease Control and Prevention
Email: KLaPorte@cdc.gov | Phone: 404-639-6017

Outbreak of Pneumonia of Unknown Etiology In Wuhan, China

Distributed via the CDC Health Alert Network

(b)(5)

Outbreak of Pneumonia of Unknown Etiology In Wuhan, China

(b)(5)

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Tue, 7 Jan 2020 23:03:34 +0000
To: Nordlund, Kristen (CDC/DDID/NCIRD/OD)
Cc: Barry, Brooke (CDC/DDID/NCIRD/OD);Patel, Anita (CDC/DDID/NCIRD/OD);Burns, Erin (CDC/DDID/NCIRD/ID)
Subject: Re: Okay to send China email to media and CDCW?

Yes sounds good.
From: Nordlund, Kristen (CDC/DDID/NCIRD/OD) <hok4@cdc.gov>
Sent: Tuesday, January 7, 2020 5:58:55 PM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Cc: Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>
Subject: Okay to send China email to media and CDCW?

Nancy,

This is the email that was sent to state and locals by DSLR and CSTLTS.

We have two other requests for this:

1. From media. Lena Sun at the WashPost is interested in the latest.
2. CDCW and OA are asking for the latest.

If you're okay with it, we'll send the below. The only thing new in this is the acknowledgement that we've stood up an incident command structure.

Thanks,
Kristen

--
Subject Line: **Pneumonia of Unknown Etiology: CDC update for health department partners**
Dear Public Health Partners,
On Monday, January 6, 2020, the Centers for Disease Control and Prevention (CDC) released a level 1 travel notice ("practice usual precautions") related to a human outbreak of pneumonia with no known cause where there are possible epidemiologic links to a large wholesale fish and live animal market in Wuhan City, Hubei Province, China. Currently there are no known U.S. cases nor any cases in any countries outside of China, but outbreaks of unknown respiratory disease are always of concern, particularly when there are possible zoonotic origins to the outbreak.
We want to proactively inform you that in response to this outbreak, CDC has established an Incident Management Structure to optimize domestic and international coordination in the event additional public health actions are required. Later this week, a Health Alert Notice (HAN) will be disseminated, along with a summary of the current situation and guidance. Our goal is to provide public health partners with the most current information and guidance as this situation evolves through routine channels.

Anita Patel, PharmD, MS
Incident Manager

2020 Pneumonia of Unknown Etiology Response
Centers for Disease Control and Prevention

From: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>
Sent: Tuesday, January 7, 2020 4:22 PM
To: Nordlund, Kristen (CDC/DDID/NCIRD/OD) <hok4@cdc.gov>; Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Cc: Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; LaPorte, Kathleen (CDC/DDID/NCIRD/ID) <wng2@cdc.gov>
Subject: RE: HAN/partner email

I recommend (b)(5) I suggest (b)(5)

(b)(5)

Erin

(b)(5)

(b)(5)

(b)(5)

From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Tuesday, January 7, 2020 4:00 PM
To: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Cc: Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; Nordlund, Kristen (CDC/DDID/NCIRD/OD) <hok4@cdc.gov>
Subject: Re: HAN/partner email

Yes - (b)(5)

Email you in 30 minutes. Can you also send the language for the partner email?

From: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>
Sent: Tuesday, January 7, 2020 3:54 PM
To: Patel, Anita (CDC/DDID/NCIRD/OD); Cohn, Amanda (CDC/DDID/NCIRD/OD)
Cc: Barry, Brooke (CDC/DDID/NCIRD/OD); Nordlund, Kristen (CDC/DDID/NCIRD/OD)
Subject: RE: HAN/partner email

(b)(5)

Erin

From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Tuesday, January 7, 2020 3:40 PM
To: Kosmos, Christine (CDC/DDPHSIS/CPR/DSLR) <htv4@cdc.gov>; Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Pietz, Harald (CDC/DDPHSIS/CPR/DSLR) <hwp1@cdc.gov>
Cc: Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>; Tierney, Linda (CDC/DDPHSIS/CPR/DSLR) <fvi8@cdc.gov>
Subject: RE: HAN/partner email
Importance: High

(b)(5)

From: Kosmos, Christine (CDC/DDPHSIS/CPR/DSLR) <htv4@cdc.gov>
Sent: Tuesday, January 7, 2020 3:35 PM
To: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; Cohn, Amanda

(CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Pietz, Harald (CDC/DDPHSIS/CPR/DSLR) <hwp1@cdc.gov>
Cc: Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>; Tierney, Linda (CDC/DDPHSIS/CPR/DSLR) <fvi8@cdc.gov>
Subject: RE: HAN/partner email

Ok- thanks. Our plan is to send to the Preparedness email distro list.

From: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>
Sent: Tuesday, January 7, 2020 3:34 PM
To: Kosmos, Christine (CDC/DDPHSIS/CPR/DSLR) <htv4@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Cc: Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>; Tierney, Linda (CDC/DDPHSIS/CPR/DSLR) <fvi8@cdc.gov>
Subject: RE: HAN/partner email

This version was cleared by NCIRD and cross-cleared by DGMQ/NCEZID and DHQP.
It is in HAN clearance now, but I think you could send it as a preview to a forthcoming HAN.
Erin

From: Kosmos, Christine (CDC/DDPHSIS/CPR/DSLR) <htv4@cdc.gov>
Sent: Tuesday, January 7, 2020 3:32 PM
To: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Cc: Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>; Tierney, Linda (CDC/DDPHSIS/CPR/DSLR) <fvi8@cdc.gov>
Subject: RE: HAN/partner email

Thanks much. So this is cleared?

From: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>
Sent: Tuesday, January 7, 2020 11:31 AM
To: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Cc: Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>; Kosmos, Christine (CDC/DDPHSIS/CPR/DSLR) <htv4@cdc.gov>
Subject: RE: HAN/partner email

Also need to send to Chris Kosmos for her to forward on.

From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Tuesday, January 7, 2020 10:23 AM
To: Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Cc: Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>
Subject: RE: HAN/partner email

This looks good - (b)(5)

(b)(5)

Thanks,
Anita

From: Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>
Sent: Tuesday, January 7, 2020 10:11 AM
To: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Cc: Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>
Subject: RE: HAN/partner email

Below is a list of core partners that I would suggest for a start. I may be missing some (and not sure if we want to ask the other Centers or OD). (b)(5)

(b)(5)

Thanks,
Brooke

(b)(5)

From: Barry, Brooke (CDC/DDID/NCIRD/OD)
Sent: Tuesday, January 7, 2020 9:51 AM
To: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Cc: Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>
Subject: RE: HAN/partner email
Importance: High

Since I am going to be offline from about 11 (after the call this morning) until about 2 or 2:30, I wanted to send the latest draft of the partner email. I used a version of a HAN Erin sent earlier this morning and now realize it's probably not updated and it still seems edits to the HAN are ongoing; however, I wanted to share so that if we need to send the partner email out while I am offline, you all have a version to use/work from. And this may be too much info so feel free to edit.

(b)(5)

(b)(5)

From: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>
Sent: Tuesday, January 7, 2020 9:36 AM
To: Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>
Cc: Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>
Subject: RE: HAN/partner email

Latest version of HAN, but with 2 (maybe 3) unresolved comments/questions from umesh and anita.
E

From: Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Sent: Tuesday, January 7, 2020 8:59 AM
To: Burns, Erin (CDC/DDID/NCIRD/ID) <eub5@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>
Cc: Greene, Carolyn M. (CDC/DDID/NCIRD/ID) <cqg4@cdc.gov>
Subject: HAN/partner email

Hi all,

I just got clarity from Nancy about what she wants to see for today. (b)(5) (b)(5) Brooke, your framing and last section was really good yesterday, we may just need to adapt based off the final version.

(b)(5) I have a call I have to do at 9:30 but otherwise it would be good to get this sorted before 10. Happy to help or let you all figure it out.

Thanks!
Amanda

Amanda Cohn, MD
CAPT, USPHS
Chief Medical Officer
National Center for Immunization
And Respiratory Diseases
Centers for Disease Control and Prevention
Phone: 404-639-6039

Email: acohn@cdc.gov

From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Wed, 8 Jan 2020 21:28:08 +0000
To: Campbell, Amanda (CDC/OD/OCS)
Subject: Fwd: Sit Rep 1/8
Attachments: SITREP Pneumonia of Unknown Etiology. 20200108_.pdf, HAN-Wuhan-City-Pneumonia-Outbreak-01-08-2020_Final.docx, Coronavirus background info_1-8-2020.docx

FYI.
Get Outlook for iOS
From: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Sent: Wednesday, January 8, 2020 4:23:49 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Cc: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; Dreyzehner, John (CDC/DDPHSIS/CPR/OD) <PWN3@cdc.gov>; Redd, Stephen (CDC/DDPHSIS/OD) <scr1@cdc.gov>
Subject: Sit Rep 1/8

Attached please find today's Sit rep, the final HAN that should be going out shortly, and a primer on Coronoviruses.
Nancy

2020 Pneumonia of Unknown Etiology
Situational Report
January 8, 2020
Day 8 (new information in blue)

Topline Messages

- The current situation relates to a cluster of pneumonia of unknown etiology with some epidemiologic links to a large local seafood and animal market, Hua Nan Seafood Market in Wuhan City, Hubei Province, China. The seafood market has undergone environmental remediation and remains closed.
- Official updates are being provided by Wuhan Municipal Health Commission. The last report was 1/5/2019.
    - As of January 5, 2020, there were 59 cases of unexplained pneumonia of suspected viral etiology, some of the cases have been severe.
    - Influenza, avian influenza, adenovirus, SARS-CoV, and MERS have reportedly been ruled out; etiologic investigation is in progress.
    - There is no confirmed human-to-human transmission
    - No deaths have been reported and no health care providers have been reported to be ill.
- CDC has issued a level 1 travel notice ("practice usual precautions") for this destination: https://wwwnc.cdc.gov/travel/notices/watch/pneumonia-china.
- A HAN and partner notification will be sent once cleared to inform clinical providers and public health officials.
- On January 7, 2020, CDC's National Center for Immunization and Respiratory Diseases established an Incident Management Structure (2020 Pneumonia of Unknown Etiology Response). The main objectives of the IM are to optimize domestic and international coordination if additional public health actions are required.

Outbreak and Response

Status of outbreak (Information source: official update from the Wuhan Municipal Health Commission, available at http://wjw.wuhan.gov.cn/ , a Chinese language site)

- Reports indicate that some of the patients were vendors at the Wuhan South China Seafood City (South China Seafood Wholesale Market) where, in addition to seafood, chickens, bats, marmots, and other wild animals are sold. The market is located next to Hankou train station which serves as a transportation hub at the center of China's domestic train routes and will soon be especially congested around Lunar New Year (January 24-29).
- The earliest case onset of illness reported was December 12, 2019, and the most recent was December 29, 2019.
- Local, provincial, and national authorities continue to investigate. Per CDC's contacts in China, China FETP is playing an active role.
- All case patients are being treated at Wuhan medical facilities163 close contacts have been traced and are under medical observation. No fever or abnormal symptoms have been reported among contacts.
- Wuhan authorities have conveyed 7 priority prevention and control measures:
    1. Treat all patients
    2. Isolate patients
    3. Continue case finding and ascertainment and retrospective investigations of possible cases

4. Contact investigations with active monitoring for symptoms
5. Close the seafood market for environmental remediation
6. Carry out epidemiologic investigation
7. Collaborate with state and provincial authorities to conduct pathogen identification, including doing nucleic acid testing, virus isolation, and culture

- Health experts locally are recommending that citizens pay attention to maintaining indoor air circulation, avoid closed and airless public places and crowded places, and wear masks when necessary. Persons with symptoms are instructed to seek medical attention.

Laboratory testing

- Based on Wuhan official reports, influenza, avian influenza, adenovirus, SARS-CoV, and MERS have reportedly been ruled out.

Communications and Policy Outreach

- The official update from the Wuhan Municipal Health Commission are available at http://wjw.wuhan.gov.cn/ (Chinese language site)
- WHO China office is preparing to provide any requested technical support but thus far China has not requested.
- Hong Kong Centre for Health Protection has included 'Severe Respiratory Disease associated with a Novel Infectious Agent' as a statutorily notifiable infectious disease. (https://www.info.gov.hk/gia/general/202001/07/P2020010700603.htm)

Travelers and travel industry

- Hong Kong, Taiwan, Singapore, the Amur Region of Russia, Thailand, and Vietnam have implemented entry border screening of people traveling from Wuhan
- Hong Kong has posted information related to cases with recent travel history to Wuhan. Most with results have influenza, along with some other positive respiratory virus detections. https://www.chp.gov.hk/files/pdf/enhanced_sur_pneumonia_wuhan_eng.pdf
- Despite some media reports of cases in other countries in travelers from Wuhan, there is no confirmed exposure to the implicated Seafood Market.

Mission China Actions (USG Staff in China)

- US Embassy Health Committee (including HHS, CDC, ESTH, APHIS, PAS, MED, CON) convened to share information and updates. Following posting of CDC's Travel Health Notice, CON posted link on embassy website to direct all inquiries to it (https://china.usembassy-china.org.cn/health-alert-pneumonia-of-unknown-cause-in-china/)
- Per US Embassy staff in Beijing, Wuhan consulate shared the following observations
  - Clinics are screening ill patients with a checklist and referring symptomatic cases to the Infectious Disease Hospital (Jinyintan); staff and guards are wearing masks, hair nets and gloves.
  - Health care workers seeing affected patients are wearing gowns, gloves and surgical masks (not N95 respirators)
  - Wuhan city operations appear as usual and no specific screening is seen at train stations or airports
- CDC sitrep is being shared with relevant sections in embassy each morning.
- Per China CDC Weekly editors, a Notes from the Field report on the outbreak is being prepared.

US CDC HQ Actions

- CDC has issued a level 1 travel notice ("practice usual precautions") on January 6, 2020: https://wwwnc.cdc.gov/travel/notices/watch/pneumonia-china.
- CDC/NCIRD established an Incident Management Structure (IMS) on January 7, 2020, (2020 Pneumonia of Unknown Etiology Response). The main objectives of the IMS is to prepare for potential domestic cases and to support the investigation in China or other countries if requested.
- Preparing a team of scientists and responders to deploy to China if requested.
- Completed air travel pattern analysis for passengers arriving in the United States from Wuhan, China.
- Developing Health Alert Notice for clinicians, state and local health departments, and other partners.
- Developing questions and answers to field clinical and other inquiries.
- Sharing information with WHO, global partners, public health partners and PPE supply chain.
- PPE supply chain partners engaged to increase awareness on supply chain status

Media Coverage

- Media continue to report "SARS-like" illness, however official reports indicate SARS-CoV has been ruled out.
- Wall Street Journal reporting that China have discovered a new strain of coronavirus: https://www.wsj.com/articles/new-virus-discovered-by-chinese-scientists-investigating-pneumonia-outbreak-11578485668
- Viral pneumonia in Wuhan has been a hot topic on Chinese social media for the past week, with the hashtag #武汉发现不明原因肺炎# (Wuhan reported mysterious pneumonia) receiving 870 million views with 77,000 discussions to date.
- Media has begun to report high demand of N95 respirators in China and reports of shortages.
- A Wikipedia article has been started on the outbreak: https://en.wikipedia.org/wiki/2019%E2%80%9320_China_pneumonia_outbreak
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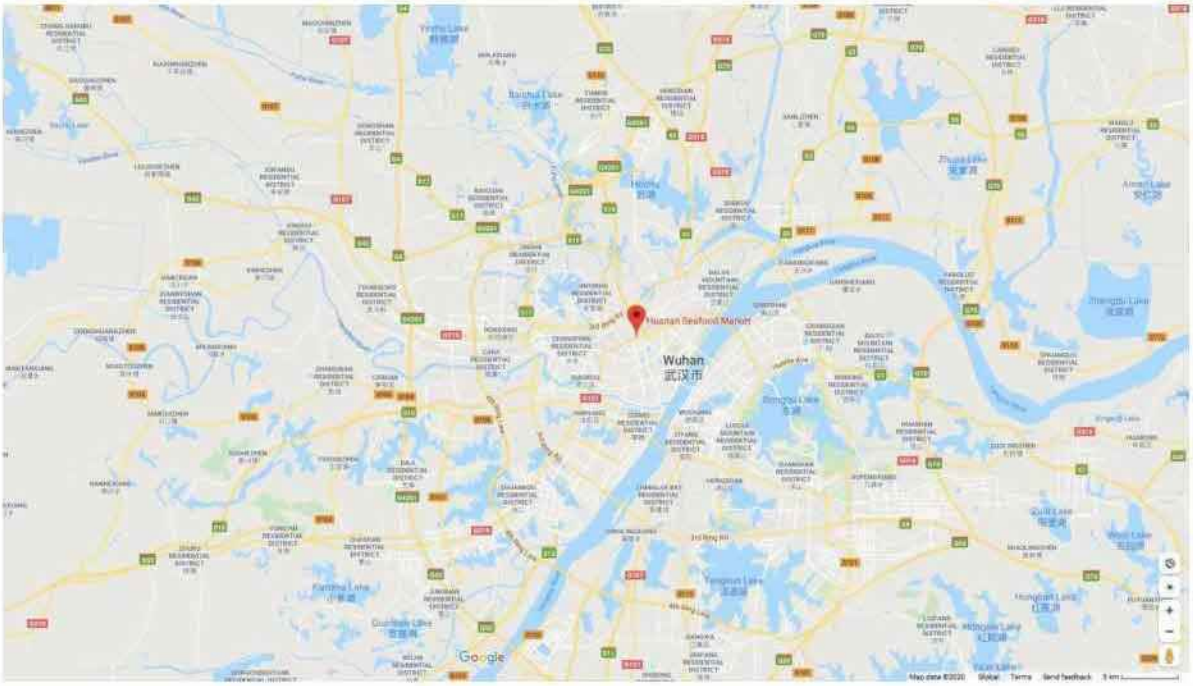
Situational Awareness

- The cases so far have been limited to Wuhan

- Location of the Seafood market within Wuhan (武汉市华南海鲜批发市场)



This is an official

CDC HEALTH ADVISORY

Distributed via the CDC Health Alert Network
January 8, 2020, xxxx ET (xx:xx PM ET)
CDCHAN-0042x

Outbreak of Pneumonia of Unknown Etiology (PUE) In Wuhan, China

Summary
The Centers for Disease Control and Prevention (CDC) is closely monitoring a reported cluster of pneumonia of unknown etiology (PUE) with possible epidemiologic links to a large wholesale fish and live animal market in Wuhan City, Hubei Province, China. An outbreak investigation by local officials is ongoing in China; the World Health Organization (WHO) is the lead international public health agency. Currently, there are no known U.S. cases nor have cases been reported in countries other than China. CDC has established an Incident Management Structure to optimize domestic and international coordination if additional public health actions are required.

This HAN Advisory informs state and local health departments and health care providers about this outbreak and requests that health care providers ask patients with severe respiratory disease about travel history to Wuhan City. Wuhan City is a major transportation hub about 700 miles south of Beijing with a population of more than 11 million people.

Background
According to a report from the Wuhan Municipal Health Commission, as of January 5, 2020, the national authorities in China have reported 59 patients with PUE to WHO. The patients had symptom onset dates from December 12 through December 29, 2019. Patients involved in the cluster reportedly have had fever, dyspnea, and bilateral lung infiltrates on chest radiograph. Of the 59 cases, seven are critically ill, and the remaining patients are in stable condition. No deaths have been reported and no health care providers have been reported to be ill. The Wuhan Municipal Health Commission has not reported human-to-human transmission.

Reports indicate that some of the patients were vendors at the Wuhan South China Seafood City (South China Seafood Wholesale Market) where, in addition to seafood, chickens, bats, marmots, and other wild animals are sold, suggesting a possible zoonotic origin to the outbreak. The market has been closed for cleaning and disinfection. Local authorities have reported negative laboratory test results for seasonal influenza, avian influenza, adenovirus, severe acute respiratory syndrome-associated coronavirus (SARS-CoV), and Middle East respiratory syndrome coronavirus (MERS-CoV) among patients associated with this cluster. Additional laboratory testing is ongoing to determine the source of the outbreak. Health authorities are monitoring more than 150 contacts of patients for illness.

CDC has issued a level 1 travel notice ("practice usual precautions") for this destination. (https://wwwnc.cdc.gov/travel/notices/watch/pneumonia-china). On January 5, 2020, WHO posted an update on this situation, including an early risk assessment, which is available at: https://www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/.

Recommendations for Health Care Providers
1. Providers should consider pneumonia related to the cluster for patients with severe respiratory symptoms who traveled to Wuhan since December 1, 2019 and had onset of illness within two weeks of returning, *and* who do not have another known diagnosis that would explain their illness. Providers should notify infection control personnel and local and state health departments immediately if any

patients meet these criteria. State health departments should notify CDC after identifying a case under investigation by calling CDC's Emergency Operations Center at (770) 488-7100.

2. Multiple respiratory tract specimens should be collected from persons with infections suspected to be associated with this cluster, including nasopharyngeal, nasal, and throat swabs. Patients with severe respiratory disease also should have lower respiratory tract specimens collected, if possible. Consider saving urine, stool, serum, and respiratory pathology specimens if available.
3. Although the etiology and transmissibility have yet to be determined, and to date, no human-to-human transmission has been reported and no health care providers have been reported ill, CDC currently recommends a cautious approach to symptomatic patients with a history of travel to Wuhan City. Such patients should be asked to wear a surgical mask as soon as they are identified and be evaluated in a private room with the door closed. Personnel entering the room to evaluate the patient should use contact precautions and wear an N95 disposable facepiece respirator. For patients admitted for inpatient care, contact and airborne isolation precautions, in addition to standard precautions, are recommended until further information becomes available. For additional information see: https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html.

This guidance will be updated as more information becomes available.

For More Information
1-800-CDC-INFO
https://www.cdc.gov/cdc-info/index.html
CDC's Emergency Operations Center: 770-488-7100

The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.

Categories of Health Alert Network messages:

Health Alert	Requires immediate action or attention; highest level of importance
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Health Update	Unlikely to require immediate action; provides updated information regarding an incident or situation
HAN Info Service	Does not require immediate action; provides general public health information

##This message was distributed to state and local health officers, state and local epidemiologists, state and local laboratory directors, public information officers, HAN coordinators, and clinician organizations##

Coronavirus General Information Jan. 8, 2020

Coronaviruses (CoVs) are single-stranded positive-sense RNA viruses. Common human CoVs, including types 229E, NL63, OC43, and HKU1, usually cause only mild to moderate upper-respiratory tract illnesses. Human CoVs were, until 2003, recognized as a frequent cause of common cold symptoms, occasionally a cause of lower respiratory tract disease, but rarely if ever a cause of serious disease. In 2003, a novel coronavirus was recognized in humans as the etiologic agent of the outbreak of severe acute respiratory syndrome (SARS). The SARS outbreak demonstrated that CoVs can be serious human pathogens and led to discovery of other novel human CoVs as well as multiple novel CoVs in bats, the likely reservoir for SARS-CoV. In 2012, the Middle East respiratory syndrome (MERS) CoV emerged and provided another example of the emergence of a novel CoV capable of causing severe human disease, and dromedary camels were implicated as a reservoir.

CoVs have also been isolated from a variety of animals and birds and, in their respective species, cause a wide range of respiratory, gastrointestinal (GI), neurologic, and systemic illnesses. Detection and characterization of novel CoVs in bats has greatly expanded our understanding of diversity among CoVs.

The common human CoVs—229E, OC43, NL63, and HKU1—appear to be transmitted through close contact that probably includes contamination of hands from person-to-person contact or from fomites, followed by autoinoculation to the mucosal surfaces of the mouth, nose, or eyes or inhalation of infectious droplets and possibly aerosols. Symptoms occur 2 to 4 days after infection. These CoVs are detected in patients with acute respiratory illnesses, most often a mild upper respiratory tract illness but also in patients with more serious respiratory illnesses including pneumonia, bronchiolitis, and croup. These CoV infections are detected early in childhood, and repeated infections can occur throughout life.

SARS was first reported in Asia in February 2003, spreading to more than two dozen countries before transmission was interrupted. No cases of SARS-CoV infection have been reported since April 2004 in an outbreak in China resulting from laboratory-acquired infections. Wild animal markets in Guangdong Province, China, likely played a key role in amplifying and introducing the virus into humans, but the original source of the outbreak virus was likely bats, a rich source of CoVs. Although animals were the original source of human infections, global spread of SARS-CoV occurred through human-to-human transmission and involved droplet, fomite transmission and, in some instances, probably small-particle aerosol transmission. SARS-CoV was easily detectable in stool and sewage samples and was epi-linked to fomite transmission through stool contamination. Most transmission occurred within households, hospitals, or other health care facilities; little transmission occurred in the community.

Many cases of SARS-CoV infection resulted in a serious illness requiring hospitalization, often in an intensive care unit (ICU); a high fatality rate was documented in the 2003 outbreak. Radiologic evidence of pneumonia was seen in nearly all SARS CoV–infected persons, and acute respiratory distress syndrome - requiring admission to an ICU and mechanical ventilation - developed in 20% or more of patients. The initial clinical manifestation of SARS was often systemic symptoms of fever, malaise, and myalgias from 2 to 10 days (rarely > 10 days) after exposure. Several days after the onset of systemic symptoms, lower respiratory tract symptoms of nonproductive cough and shortness of breath were noted. Unlike patients with other respiratory virus infections, the majority of patients never experience upper respiratory tract symptoms such as rhinorrhea, sore throat, or nasal congestion

More recently, MERS-CoV emerged in the Arabian Peninsula, with the first documented cases reported from Saudi Arabia and Jordan during 2012. Current evidence suggests that bats are a likely source of this virus. Dromedary camels appear to act as a reservoir for MERS-CoV; isolation of live MERS-CoV as well as detection of antibodies that neutralize MERS-CoV have been widely reported among

dromedary camels in the Middle East and Africa. Person-to-person transmission has been repeatedly documented within healthcare settings and is associated with the majority of reported transmission overall. Transmission among household family members has been reported on a more limited basis. To date, there has been no evidence of sustained community transmission. Routes of transmission are not clearly known, though secretions and close contact likely play a role. MERS-CoV has been detected in stool, however, at lower titers as compared to SARS-CoV. It is not clear if MERS-CoV-contaminated stool plays a significant role in person to person transmission. The incubation period has been estimated to be just over 5 days (range, 2 to 14 days), and sporadic human cases and clusters of MERS-CoV infections continue to be seen.

There is no virus-specific treatment currently recommended for CoV infections. With the high death rate for SARS- and MERS-CoV and the lack of clinical or in vitro data to guide treatment, supportive measures, including mechanical ventilation and oxygenation regimens, are used. Strict attention to standard, contact and airborne precautions are recommended for SARS and MERS CoV–infected patients within hospital settings. Control of outbreaks relies upon thorough implementation of the classic public health tools of early case detection, isolation, and contact tracing and management, including quarantine of contacts.

Initial Identification and Diagnostic Aspects Regarding SARS-CoV and MERS-CoV

SARS was initially identified as a Coronavirus by cell culture and EM, followed by some pre-existing experimental PCR assays, some cross-reactive serology and ultimately by complete genomic sequencing, all in a couple of months. This was the technology in 2003. For MERS, the detection was by Dr. Ali Zaki using cell culture. He was unable to determine what he had growing so sent the isolate for sequencing, which is how it was identified as a novel coronavirus. Once sequence is available, all routine diagnostics eventually becomes PCR. Serology had a primary diagnostic role for SARS. However, since current serologic assays for MERS are not sufficiently sensitive in patients with mild illness, these assays are primary used for epidemiologic studies. There are no commercial generic tests for coronaviruses, but several commercial tests for specific human coronaviruses, 229E, OC43, NL63, and HKU1. CDC gas a broadly reactive test for coronaviruses, that is not simple to scale and needs sequence confirmation for specific identification. States do not have the capacity to diagnose SARS, but they do have the MERS PCR assay in the LRN labs. In addition, our MERS PCR assay has been distributed to US government partners and ministries of health in several other countries.

Commercial diagnostic availability:

- Several companies offer FDA cleared tests for detection of some, or most, of the common 14 respiratory viruses, including the 4 common human coronaviruses
- Commercial options are not available for characterization of respiratory viruses by real-time PCR. Two tests are available that perform RSV A/B subtyping.
- Commercial options are not available for genetic characterization/detection by genetic sequence analysis (Sanger or NGS)

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 8 Jan 2020 21:48:29 +0000
To: Redfield, Robert R. (CDC/OD)
Cc: McGowan, Robert (Kyle) (CDC/OD/OCS);Berger, Sherri (CDC/OCOO/OD)
Subject: FW: Sit Rep 1/8
Attachments: SITREP Pneumonia of Unknown Etiology. 20200108_.pdf, HAN-Wuhan-City-Pneumonia-Outbreak-01-08-2020_Final.docx, Coronavirus background info_1-8-2020.docx

Here is today's sitrep as well as a backgrounder on Coronaviruses (program prepared that for potential deployers, more technically dense that what may be needed for (b)(5) .

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Sent: Wednesday, January 8, 2020 4:24 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Cc: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; Dreyzehner, John (CDC/DDPHSIS/CPR/OD) <PWN3@cdc.gov>; Redd, Stephen (CDC/DDPHSIS/OD) <scr1@cdc.gov>
Subject: Sit Rep 1/8

Attached please find today's Sit rep, the final HAN that should be going out shortly, and a primer on Coronoviruses.
Nancy

2020 Pneumonia of Unknown Etiology
Situational Report
January 8, 2020
Day 8 (new information in blue)

Topline Messages

- The current situation relates to a cluster of pneumonia of unknown etiology with some epidemiologic links to a large local seafood and animal market, Hua Nan Seafood Market in Wuhan City, Hubei Province, China. The seafood market has undergone environmental remediation and remains closed.
- Official updates are being provided by Wuhan Municipal Health Commission. The last report was 1/5/2019.
    - As of January 5, 2020, there were 59 cases of unexplained pneumonia of suspected viral etiology, some of the cases have been severe.
    - Influenza, avian influenza, adenovirus, SARS-CoV, and MERS have reportedly been ruled out; etiologic investigation is in progress.
    - There is no confirmed human-to-human transmission
    - No deaths have been reported and no health care providers have been reported to be ill.
- CDC has issued a level 1 travel notice ("practice usual precautions") for this destination: https://wwwnc.cdc.gov/travel/notices/watch/pneumonia-china.
- A HAN and partner notification will be sent once cleared to inform clinical providers and public health officials.
- On January 7, 2020, CDC's National Center for Immunization and Respiratory Diseases established an Incident Management Structure (2020 Pneumonia of Unknown Etiology Response). The main objectives of the IM are to optimize domestic and international coordination if additional public health actions are required.

Outbreak and Response

Status of outbreak (Information source: official update from the Wuhan Municipal Health Commission, available at http://wjw.wuhan.gov.cn/ , a Chinese language site)

- Reports indicate that some of the patients were vendors at the Wuhan South China Seafood City (South China Seafood Wholesale Market) where, in addition to seafood, chickens, bats, marmots, and other wild animals are sold. The market is located next to Hankou train station which serves as a transportation hub at the center of China's domestic train routes and will soon be especially congested around Lunar New Year (January 24-29).
- The earliest case onset of illness reported was December 12, 2019, and the most recent was December 29, 2019.
- Local, provincial, and national authorities continue to investigate. Per CDC's contacts in China, China FETP is playing an active role.
- All case patients are being treated at Wuhan medical facilities163 close contacts have been traced and are under medical observation. No fever or abnormal symptoms have been reported among contacts.
- Wuhan authorities have conveyed 7 priority prevention and control measures:
    1. Treat all patients
    2. Isolate patients
    3. Continue case finding and ascertainment and retrospective investigations of possible cases

4. Contact investigations with active monitoring for symptoms
5. Close the seafood market for environmental remediation
6. Carry out epidemiologic investigation
7. Collaborate with state and provincial authorities to conduct pathogen identification, including doing nucleic acid testing, virus isolation, and culture

- Health experts locally are recommending that citizens pay attention to maintaining indoor air circulation, avoid closed and airless public places and crowded places, and wear masks when necessary. Persons with symptoms are instructed to seek medical attention.

Laboratory testing

- Based on Wuhan official reports, influenza, avian influenza, adenovirus, SARS-CoV, and MERS have reportedly been ruled out.

Communications and Policy Outreach

- The official update from the Wuhan Municipal Health Commission are available at http://wjw.wuhan.gov.cn/ (Chinese language site)
- WHO China office is preparing to provide any requested technical support but thus far China has not requested.
- Hong Kong Centre for Health Protection has included 'Severe Respiratory Disease associated with a Novel Infectious Agent' as a statutorily notifiable infectious disease. (https://www.info.gov.hk/gia/general/202001/07/P2020010700603.htm)

Travelers and travel industry

- Hong Kong, Taiwan, Singapore, the Amur Region of Russia, Thailand, and Vietnam have implemented entry border screening of people traveling from Wuhan
- Hong Kong has posted information related to cases with recent travel history to Wuhan. Most with results have influenza, along with some other positive respiratory virus detections. https://www.chp.gov.hk/files/pdf/enhanced_sur_pneumonia_wuhan_eng.pdf
- Despite some media reports of cases in other countries in travelers from Wuhan, there is no confirmed exposure to the implicated Seafood Market.

Mission China Actions (USG Staff in China)

- US Embassy Health Committee (including HHS, CDC, ESTH, APHIS, PAS, MED, CON) convened to share information and updates. Following posting of CDC's Travel Health Notice, CON posted link on embassy website to direct all inquiries to it (https://china.usembassy-china.org.cn/health-alert-pneumonia-of-unknown-cause-in-china/)
- Per US Embassy staff in Beijing, Wuhan consulate shared the following observations
  - Clinics are screening ill patients with a checklist and referring symptomatic cases to the Infectious Disease Hospital (Jinyintan); staff and guards are wearing masks, hair nets and gloves.
  - Health care workers seeing affected patients are wearing gowns, gloves and surgical masks (not N95 respirators)
  - Wuhan city operations appear as usual and no specific screening is seen at train stations or airports
- CDC sitrep is being shared with relevant sections in embassy each morning.
- Per China CDC Weekly editors, a Notes from the Field report on the outbreak is being prepared.

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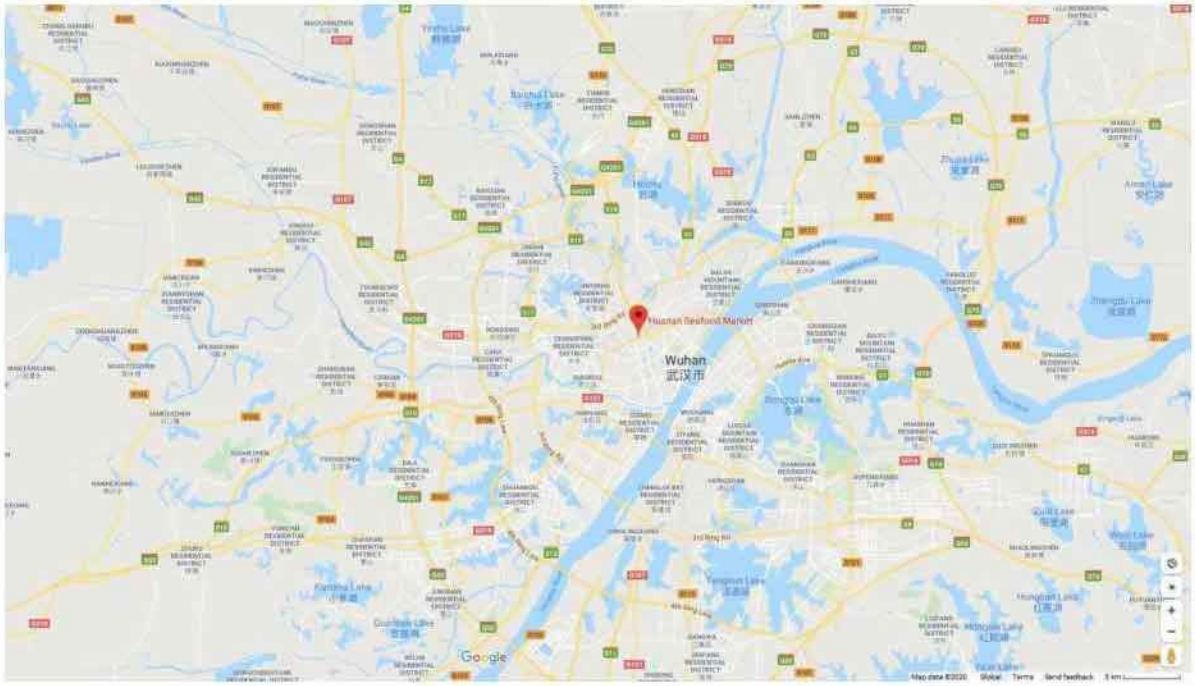

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CDC HEALTH ADVISORY

Distributed via the CDC Health Alert Network
January 8, 2020, xxxx ET (xx:xx PM ET)
CDCHAN-0042x

Outbreak of Pneumonia of Unknown Etiology (PUE) In Wuhan, China

Summary
The Centers for Disease Control and Prevention (CDC) is closely monitoring a reported cluster of pneumonia of unknown etiology (PUE) with possible epidemiologic links to a large wholesale fish and live animal market in Wuhan City, Hubei Province, China. An outbreak investigation by local officials is ongoing in China; the World Health Organization (WHO) is the lead international public health agency. Currently, there are no known U.S. cases nor have cases been reported in countries other than China. CDC has established an Incident Management Structure to optimize domestic and international coordination if additional public health actions are required.

This HAN Advisory informs state and local health departments and health care providers about this outbreak and requests that health care providers ask patients with severe respiratory disease about travel history to Wuhan City. Wuhan City is a major transportation hub about 700 miles south of Beijing with a population of more than 11 million people.

Background
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Reports indicate that some of the patients were vendors at the Wuhan South China Seafood City (South China Seafood Wholesale Market) where, in addition to seafood, chickens, bats, marmots, and other wild animals are sold, suggesting a possible zoonotic origin to the outbreak. The market has been closed for cleaning and disinfection. Local authorities have reported negative laboratory test results for seasonal influenza, avian influenza, adenovirus, severe acute respiratory syndrome-associated coronavirus (SARS-CoV), and Middle East respiratory syndrome coronavirus (MERS-CoV) among patients associated with this cluster. Additional laboratory testing is ongoing to determine the source of the outbreak. Health authorities are monitoring more than 150 contacts of patients for illness.

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Recommendations for Health Care Providers

1. Providers should consider pneumonia related to the cluster for patients with severe respiratory symptoms who traveled to Wuhan since December 1, 2019 and had onset of illness within two weeks of returning, *and* who do not have another known diagnosis that would explain their illness. Providers should notify infection control personnel and local and state health departments immediately if any

patients meet these criteria. State health departments should notify CDC after identifying a case under investigation by calling CDC's Emergency Operations Center at (770) 488-7100.

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The common human CoVs—229E, OC43, NL63, and HKU1—appear to be transmitted through close contact that probably includes contamination of hands from person-to-person contact or from fomites, followed by autoinoculation to the mucosal surfaces of the mouth, nose, or eyes or inhalation of infectious droplets and possibly aerosols. Symptoms occur 2 to 4 days after infection. These CoVs are detected in patients with acute respiratory illnesses, most often a mild upper respiratory tract illness but also in patients with more serious respiratory illnesses including pneumonia, bronchiolitis, and croup. These CoV infections are detected early in childhood, and repeated infections can occur throughout life.

SARS was first reported in Asia in February 2003, spreading to more than two dozen countries before transmission was interrupted. No cases of SARS-CoV infection have been reported since April 2004 in an outbreak in China resulting from laboratory-acquired infections. Wild animal markets in Guangdong Province, China, likely played a key role in amplifying and introducing the virus into humans, but the original source of the outbreak virus was likely bats, a rich source of CoVs. Although animals were the original source of human infections, global spread of SARS-CoV occurred through human-to-human transmission and involved droplet, fomite transmission and, in some instances, probably small-particle aerosol transmission. SARS-CoV was easily detectable in stool and sewage samples and was epi-linked to fomite transmission through stool contamination. Most transmission occurred within households, hospitals, or other health care facilities; little transmission occurred in the community.

Many cases of SARS-CoV infection resulted in a serious illness requiring hospitalization, often in an intensive care unit (ICU); a high fatality rate was documented in the 2003 outbreak. Radiologic evidence of pneumonia was seen in nearly all SARS CoV–infected persons, and acute respiratory distress syndrome - requiring admission to an ICU and mechanical ventilation - developed in 20% or more of patients. The initial clinical manifestation of SARS was often systemic symptoms of fever, malaise, and myalgias from 2 to 10 days (rarely > 10 days) after exposure. Several days after the onset of systemic symptoms, lower respiratory tract symptoms of nonproductive cough and shortness of breath were noted. Unlike patients with other respiratory virus infections, the majority of patients never experience upper respiratory tract symptoms such as rhinorrhea, sore throat, or nasal congestion

More recently, MERS-CoV emerged in the Arabian Peninsula, with the first documented cases reported from Saudi Arabia and Jordan during 2012. Current evidence suggests that bats are a likely source of this virus. Dromedary camels appear to act as a reservoir for MERS-CoV; isolation of live MERS-CoV as well as detection of antibodies that neutralize MERS-CoV have been widely reported among

dromedary camels in the Middle East and Africa. Person-to-person transmission has been repeatedly documented within healthcare settings and is associated with the majority of reported transmission overall. Transmission among household family members has been reported on a more limited basis. To date, there has been no evidence of sustained community transmission. Routes of transmission are not clearly known, though secretions and close contact likely play a role. MERS-CoV has been detected in stool, however, at lower titers as compared to SARS-CoV. It is not clear if MERS-CoV-contaminated stool plays a significant role in person to person transmission. The incubation period has been estimated to be just over 5 days (range, 2 to 14 days), and sporadic human cases and clusters of MERS-CoV infections continue to be seen.

There is no virus-specific treatment currently recommended for CoV infections. With the high death rate for SARS- and MERS-CoV and the lack of clinical or in vitro data to guide treatment, supportive measures, including mechanical ventilation and oxygenation regimens, are used. Strict attention to standard, contact and airborne precautions are recommended for SARS and MERS CoV–infected patients within hospital settings. Control of outbreaks relies upon thorough implementation of the classic public health tools of early case detection, isolation, and contact tracing and management, including quarantine of contacts.

Initial Identification and Diagnostic Aspects Regarding SARS-CoV and MERS-CoV

SARS was initially identified as a Coronavirus by cell culture and EM, followed by some pre-existing experimental PCR assays, some cross-reactive serology and ultimately by complete genomic sequencing, all in a couple of months. This was the technology in 2003. For MERS, the detection was by Dr. Ali Zaki using cell culture. He was unable to determine what he had growing so sent the isolate for sequencing, which is how it was identified as a novel coronavirus. Once sequence is available, all routine diagnostics eventually becomes PCR. Serology had a primary diagnostic role for SARS. However, since current serologic assays for MERS are not sufficiently sensitive in patients with mild illness, these assays are primary used for epidemiologic studies. There are no commercial generic tests for coronaviruses, but several commercial tests for specific human coronaviruses, 229E, OC43, NL63, and HKU1. CDC gas a broadly reactive test for coronaviruses, that is not simple to scale and needs sequence confirmation for specific identification. States do not have the capacity to diagnose SARS, but they do have the MERS PCR assay in the LRN labs. In addition, our MERS PCR assay has been distributed to US government partners and ministries of health in several other countries.

Commercial diagnostic availability:

- Several companies offer FDA cleared tests for detection of some, or most, of the common 14 respiratory viruses, including the 4 common human coronaviruses
- Commercial options are not available for characterization of respiratory viruses by real-time PCR. Two tests are available that perform RSV A/B subtyping.
- Commercial options are not available for genetic characterization/detection by genetic sequence analysis (Sanger or NGS)

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 8 Jan 2020 22:34:16 +0000
To: Berger, Sherri (CDC/OCOO/OD);McGowan, Robert (Kyle) (CDC/OD/OCS)
Subject: RE: CDC Health Alert Network (HAN) Health Advisory: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

received

From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Wednesday, January 8, 2020 5:33 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Subject: Re: CDC Health Alert Network (HAN) Health Advisory: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

I'm now voicing an official complaint that you can only use that card once a day. Kyle, agree?

From: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Sent: Wednesday, January 8, 2020 5:31 PM
To: Berger, Sherri (CDC/OCOO/OD)
Subject: RE: CDC Health Alert Network (HAN) Health Advisory: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

I have no opinion

From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Wednesday, January 8, 2020 5:18 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: FW: CDC Health Alert Network (HAN) Health Advisory: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

Not loving the orange logo….

From: Centers for Disease Control and Prevention <no-reply@emailupdates.cdc.gov>
Sent: Wednesday, January 8, 2020 5:15 PM
To: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Subject: CDC Health Alert Network (HAN) Health Advisory: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

Health Alert Network (HAN)

Distributed via the CDC Health Alert Network
January 08, 2020, 1615 EST (4:15 PM EST)
CDCHAN-00424

Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

Summary
The Centers for Disease Control and Prevention (CDC) is closely monitoring a reported cluster of pneumonia of unknown etiology (PUE) with possible epidemiologic links to a large wholesale fish and live animal market in Wuhan City, Hubei Province, China. An outbreak investigation by local officials is ongoing in China; the World Health Organization (WHO) is the lead international public health agency. Currently, there are no known U.S. cases nor have cases been reported in countries other than China. CDC has established an Incident Management Structure to optimize domestic and international coordination if additional public health actions are required.

This HAN Advisory informs state and local health departments and health care providers about this outbreak and requests that health care providers ask patients with severe respiratory disease about travel history to Wuhan City. Wuhan City is a major transportation hub about 700 miles south of Beijing with a population of more than 11 million people.

Background
According to a report from the Wuhan Municipal Health Commission, as of January 5, 2020, the national authorities in China have reported 59 patients with PUE to WHO. The patients had symptom onset dates from December 12 through December 29, 2019. Patients involved in the cluster reportedly have had fever, dyspnea, and bilateral lung infiltrates on chest radiograph. Of the 59 cases, seven are critically ill, and the remaining patients are in stable condition. No deaths have been reported and no health care providers have been reported to be ill. The Wuhan Municipal Health Commission has not reported human-to-human transmission.

Reports indicate that some of the patients were vendors at the Wuhan South China Seafood City (South China Seafood Wholesale Market) where, in addition to seafood,

chickens, bats, marmots, and other wild animals are sold, suggesting a possible zoonotic origin to the outbreak. The market has been closed for cleaning and disinfection. Local authorities have reported negative laboratory test results for seasonal influenza, avian influenza, adenovirus, severe acute respiratory syndrome-associated coronavirus (SARS-CoV), and Middle East respiratory syndrome coronavirus (MERS-CoV) among patients associated with this cluster. Additional laboratory testing is ongoing to determine the source of the outbreak. Health authorities are monitoring more than 150 contacts of patients for illness.

CDC has issued a level 1 travel notice ("practice usual precautions") for this destination. (https://wwwnc.cdc.gov/travel/notices/watch/pneumonia-china). On January 5, 2020, WHO posted an update on this situation, including an early risk assessment, which is available at: https://www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/.

Recommendations for Health Care Providers

1. Providers should consider pneumonia related to the cluster for patients with severe respiratory symptoms who traveled to Wuhan since December 1, 2019 and had onset of illness within two weeks of returning, *and* who do not have another known diagnosis that would explain their illness. Providers should notify infection control personnel and local and state health departments immediately if any patients meet these criteria. State health departments should notify CDC after identifying a case under investigation by calling CDC's Emergency Operations Center at (770) 488-7100.
2. Multiple respiratory tract specimens should be collected from persons with infections suspected to be associated with this cluster, including nasopharyngeal, nasal, and throat swabs. Patients with severe respiratory disease also should have lower respiratory tract specimens collected, if possible. Consider saving urine, stool, serum, and respiratory pathology specimens if available.
3. Although the etiology and transmissibility have yet to be determined, and to date, no human-to-human transmission has been reported and no health care providers have been reported ill, CDC currently recommends a cautious approach to symptomatic patients with a history of travel to Wuhan City. Such patients should be asked to wear a surgical mask as soon as they are identified and be evaluated in a private room with the door closed. Personnel entering the room to evaluate the patient should use contact precautions and wear an N95 disposable facepiece respirator. For patients admitted for inpatient care, contact and airborne isolation precautions, in addition to standard precautions, are recommended until further information becomes available. For additional information see: https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html.

This guidance will be updated as more information becomes available.

For More Information
1-800-CDC-INFO
https://www.cdc.gov/cdc-info/index.html
CDC's Emergency Operations Center: 770-488-7100

The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.

Categories of Health Alert Network messages:

Health Alert - Requires immediate action or attention; highest level of importance

Health Advisory - May not require immediate action; provides important information for a specific incident or situation

Health Update - Unlikely to require immediate action; provides updated information regarding an incident or situation

HAN Info Service - Does not require immediate action; provides general public health information

##This message was distributed to state and local health officers, state and local epidemiologists, state and local laboratory directors, public information officers, HAN coordinators, and clinician organizations##

Centers for Disease Control and Prevention

1600 Clifton Rd Atlanta, GA 30329 1-800-CDC-INFO (800-232-4636) TTY: 888-232-6348

From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Wed, 8 Jan 2020 22:34:28 +0000
To: Berger, Sherri (CDC/OCOO/OD);Schuchat, Anne MD (CDC/OD)
Subject: Re: CDC Health Alert Network (HAN) Health Advisory: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

I have no opinion on the color or the use of the phrase.
Get Outlook for iOS
From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Wednesday, January 8, 2020 5:33:06 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Subject: Re: CDC Health Alert Network (HAN) Health Advisory: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

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I have no opinion

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To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: FW: CDC Health Alert Network (HAN) Health Advisory: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

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To: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Subject: CDC Health Alert Network (HAN) Health Advisory: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

Health Alert Network (HAN)

From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Wed, 8 Jan 2020 22:37:42 +0000
To: Clark, Cynthia K. (CDC/OD/OCS)
Cc: CDC Reports (CDC);Campbell, Amanda (CDC/OD/OCS)
Subject: Re: CDC HAN 424: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

No. I'll send it up to her and ask if she has questions. Thanks.
Get Outlook for iOS
From: Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>
Sent: Wednesday, January 8, 2020 5:25:49 PM
To: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Cc: CDC Reports (CDC) <cdcreports@cdc.gov>; Campbell, Amanda (CDC/OD/OCS) <ons3@cdc.gov>
Subject: FW: CDC HAN 424: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

Kyle --- Wanted to check to see if you wanted us to forward to Danielle as a late breaker.

From: Health Alert Network Priority List <CDC-HAN-PRIORITY-LIST@LISTSERV.CDC.GOV> **On Behalf Of** Health Alert Network (CDC)
Sent: Wednesday, January 8, 2020 4:43 PM
To: CDC-HAN-PRIORITY-LIST@LISTSERV.CDC.GOV
Subject: CDC HAN 424: Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

This is an official

CDC HEALTH ADVISORY

Distributed via the CDC Health Alert Network
January 8, 2020, 1615 ET (04:15 PM ET)
CDCHAN-00424

Outbreak of Pneumonia of Unknown Etiology (PUE) in Wuhan, China

Summary

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This guidance will be updated as more information becomes available.

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CDC's Emergency Operations Center: 770-488-7100

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##This message was distributed to state and local health officers, state and local epidemiologists, state and local laboratory directors, public information officers, HAN coordinators, and clinician organizations##

If you would like to unsubscribe from this ListServ LIST, please send an email to LIST@cdc.gov, enter CDC in the email Subject, and include the following "one" line in the Body of the email: signoff CDC-HAN-PRIORITY-LIST

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Thu, 9 Jan 2020 18:26:38 +0000
To: Patel, Anita (CDC/DDID/NCIRD/OD)
Cc: Barry, Brooke (CDC/DDID/NCIRD/OD)
Subject: RE: Highlevel Summay. Response and Cov_v1-9-20.1pm
Attachments: Highlevel Summay. Response and Cov_v2-9-20.1pm.docx

I thought it was a good start but have a bunch of edits. (b)(5)
briefings of AMA but also what I think R3 wants to say. (b)(5)
(b)(5)

From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Thursday, January 9, 2020 1:05 PM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Cc: Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>
Subject: Highlevel Summay. Response and Cov_v1-9-20.1pm
Importance: High

Hi Nancy,
Please see high level talking points for the sec briefing today.

(b)(5)

Thanks,
Anita

(b)(5)

(b)(5)

(b)(5)

(b)(5)

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Thu, 16 Jan 2020 11:36:36 +0000
To: Cohn, Amanda (CDC/DDID/NCIRD/OD)
Subject: Re: nCoV PUI

per R3s direction last night, i'm going to also tell him. I will talk to Anne this morning.
From: Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Sent: Thursday, January 16, 2020 6:34 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Cc: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Subject: Re: nCoV PUI

We were still waiting for more info to determine that (health department needs to talk to person), but I feel like since call came through eoc it's possible they will hear from another source, so maybe you should give Anne a heads up
Get Outlook for iOS
From: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Sent: Thursday, January 16, 2020 6:32:06 AM
To: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Cc: Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Subject: Re: nCoV PUI

Are we calling this a PUI? If so, i should tell Anne and Kyle and R3.
From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Thursday, January 16, 2020 12:04 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Cc: Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Subject: Fwd: nCoV PUI

Nancy,
Summary is below. Investigation has started and LHD is getting more info.
From: Gerber, Susan I. (CDC/DDID/NCIRD/DVD) <bhx1@cdc.gov>
Sent: Wednesday, January 15, 2020 11:54 PM
To: Patel, Anita (CDC/DDID/NCIRD/OD); Cohn, Amanda (CDC/DDID/NCIRD/OD)
Cc: Schneider, Eileen (CDC/DDID/NCIRD/DVD); Watson, John (CDC/DDID/NCIRD/DVD)
Subject: FW: nCoV PUI

Hi All,

We are still waiting for more information on the below patient. Also, Eileen wrote down questions they asked that can be discussed for the future. It is not clear if this will turn out to be a PUI or not.

From: Schneider, Eileen (CDC/DDID/NCIRD/DVD) <ees2@cdc.gov>
Sent: Wednesday, January 15, 2020 9:59 PM
To: Gerber, Susan I. (CDC/DDID/NCIRD/DVD) <bhx1@cdc.gov>; Watson, John (CDC/DDID/NCIRD/DVD) <acq4@cdc.gov>
Subject: nCoV PUI

Hi Sue and John,

See email below from CA that Sue and I just received tonight. They have minimal info now and are starting an investigation (Riverside Co). They will contact us tomorrow when they have additional info.

They had several concerns in general (not specific to this PUI):

1. They need guidance on what should be done for those PUI's who are not necessarily ill enough to be hospitalized but need to be ruled out for nCoV. Where should they stay, especially if they are not residents and do not have access to lodging – how is that covered. How frequently should the HD check on them? Will the HD provide food, etc? Should PUI's wear a mask? CA HD took care of 2 measles rule outs and it required a lot of work and resources and with so many people coming into CA airports from Wuhan with fever/resp illness they are concerned. They also do not want to or have the capacity to keep people in the hospital while being ruled out (there are not enough beds that meet the need for airborne criteria if the number of PUI's become large which is a strong possibility).
2. What if a PUI has an identified resp pathogen such as flu – is nCoV testing required?

More to follow.
Eileen

Good evening Sue and Eileen,
We were notified this afternoon of a patient in California who returned from Wuhan, China with an illness. Based on initial communication with the local health department (LHD), we believe he had a respiratory illness but clinical details are pending. We expect to get more information from the LHD once they have been able to review the medical record. He sought care in the ED the evening of (b)(was not ill enough to be hospitalized, and returned home. He was placed in airborne and contact precautions in the ED. Respiratory samples were collected and sent to a commercial lab for respiratory panel, results are pending. Stool, urine, serum are likely still available and can be sent for further testing at CDC, if interested. The patient traveled to Wuhan for business and was part of a group of employees. We don't have dates, flights or locations of travel or anything more at this point. The LHD is in the process of getting information from the ED visit note and is starting an investigation. We wanted to let you know as a heads up. We are using the MERS PUI form as a template to collect data for now, pending updated guidance in the HAN.
We will be back in touch once we have more information. Please let me know who is the best point of contact there to receive PUI reports and if you have any other guidance or questions for us.
Thanks,
Lauren
Lauren Stockman, MPH
Epidemiologist Supervisor

California Department of Public Health
Immunization Branch
850 Marina Bay Parkway
Building P, 2nd Floor
Richmond, CA 94804
Phone: 510-620-3848
Email: Lauren.Stockman@cdph.ca.gov

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Fri, 17 Jan 2020 00:52:10 +0000
To: Cohn, Amanda (CDC/DDID/NCIRD/OD)
Subject: FW: PUI follow-up
Attachments: CDC RVDP Specimen Submission Guidelines v2.0.pdf, 20200116 Interim nCoV2019 PUI Form v1.0 1-16-20_draft.docx

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From: Watson, John (CDC/DDID/NCIRD/DVD) <acq4@cdc.gov>
Sent: Thursday, January 16, 2020 6:51 PM
To: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Subject: Fwd: PUI follow-up

From: Schneider, Eileen (CDC/DDID/NCIRD/DVD) <ees2@cdc.gov>
Sent: Thursday, January 16, 2020 4:53:57 PM
To: Stockman, Lauren@CDPH <Lauren.Stockman@cdph.ca.gov>; Murray, Erin@cdph.ca.gov (CDC cdph.ca.gov) <Erin.Murray@cdph.ca.gov>
Cc: Biggs, Holly (CDC/DDID/NCIRD/DVD) <xdc6@cdc.gov>; Kirking, Hannah L. (CDC/DDPHSIS/CGH/DGHT) <hrj7@cdc.gov>; Watson, John (CDC/DDID/NCIRD/DVD) <acq4@cdc.gov>; Gerber, Susan I. (CDC/DDID/NCIRD/DVD) <bhx1@cdc.gov>; Lindstrom, Stephen (CDC/DDID/NCIRD/DVD) <sql5@cdc.gov>; Thornburg, Natalie (CDC/DDID/NCIRD/DVD) <nax3@cdc.gov>; Tong, Suxiang (Sue) (CDC/DDID/NCIRD/DVD) <sot1@cdc.gov>; Midgley, Claire (CDC/DDID/NCIRD/DVD) <ydk5@cdc.gov>
Subject: PUI follow-up

Hi Lauren and Erin,

Thanks for the update. I have included a brief summary below (no identifiers included). As we discussed we recommend that:

1. the PUI be reevaluated today if possible to assess his clinical condition (improving, worsening, same), current symptoms, any changes, assess for lower respiratory infection including CXR if indicated and collect additional specimens using appropriate infection control precautions – NP/OP, sputum, stool, urine, serum if possible. At this time a serum and NP swab collected on Jan 14 in the ED are being sent to the county HD lab and they can send these overnight to CDC. I have attached our specimen submission guidelines and please tell the county lab to ship overnight and send us the tracking number when available. If the county lab cannot send the serum/NP today to CDC for arrival tomorrow, have them send it Friday for arrival Saturday and make it clear to deliver to CDC's main entrance using the address provided. If either of these delivery options are not possible, let me know and we can work with EOC re shipping. Any other

specimens collected during re-evaluation can be sent when available but do not delay sending the 2 specimens (serum/NP) to CDC. **General shipping info (see attached):** Store specimens at 2-8°C and ship overnight to CDC on ice pack. Label each specimen container with the patient's ID number, unique specimen ID, specimen type and the date the sample was collected. Complete a CDC Form 50.34 for each specimen submitted (see attached spec submission guidelines for link – note that the form recently was updated in Dec, so go to the link to get the updated form. In the upper left box of the form, 1) for *test requested* select "Respiratory virus molecular detection (non-influenza) CDC-10401" and 2) for *At CDC, bring to the attention of* enter "Stephen Lindstrom: nCoV 2019 PUI". Send us the tracking number when available.

2. I have attached a draft of the nCoV PUI short form – please complete and email or fax to me or the EOC as instructed on the form.

3. In addition, it would be helpful to confirm the departure date, onset dates (we estimated based on clinical notes). Also it would be very helpful to get additional info/clarification on the PUI's possible exposure – interacting (interacting how?) with a person (relationship to hospitalized patient/case, father? Was this person symptomatic? This person had a daughter who was in a Wuhan hospital with "the disease" – if possible could we get a name of the person and daughter, name of the hospital, and find out if she was a lab confirmed nCoV case? If we have some info we could possibly back track to China and ask. Also, were any of the PUI's coworkers ill?
4. Currently, the PUI is in home isolation (after state spoke with the county last night). I have attached MERS guidance on this (we are updating for nCoV) Home Guidance: http://www.cdc.gov/coronavirus/mers/hcp/home-care.html Monitoring/movement: https://www.cdc.gov/coronavirus/mers/hcp/monitoring-movement-guidance.html If the PUI becomes hospitalized airborne precautions are needed. Please have the county HD follow-up daily with the PUI to ask re condition, close contacts, any changes etc and let us know.

Brief summary PUI: (b)(6) with a PMH HTN who travelled with co-workers to Wuhan and departure on Jan 2 and returned to the US on Jan 9 (the group returned early because their company was concerned re nCoV cases). Symptom onset was Jan 12 - left-sided chest pain, fever (ED 36.4), chills, body aches, cough and sore throat. The PUI went to see his PCP on Jan 14?. The PCP was concerned re nCoV and referred the PUI to the ED who saw the PUI on Jan 14. No cough was noted on exam. A CXR was normal, WBC – 8.3, neutrophils 72%, rapid flu neg. O2sat on room air was 95%. An NP swab was sent to LabCorp for a RVP (the NP swab is currently at LabCorp in Burlington NC and test results are expected on Sat, the swab will be available to CDC after that). ED d/c diagnosis – URI and follow=up recommended in 1-2 days (no antibiotics given). An NP swab and serum collected on Jan 14 in the ED are available and are being sent to the county lab who will send directly to CDC. The PUI lives at home with his wife and mother-in-law who both are asymptomatic (the county HD spoke with the PUI last night).

Thanks so much and let me know if you have any questions.

Eileen

Eileen Schneider, MD, MPH
CAPT USPHS
Respiratory Viruses Branch
CDC/NCIRD/DVD
1600 Clifton Road NE, MS H24-5
Atlanta, Georgia, USA, 30333

office: 404.639.5345
cell: (b)(6)
fax: 404.315.4932
e-mail: ees2@cdc.gov

CDC RESPIRATORY VIRUS DIAGNOSTICS PROGRAM
SPECIMEN SUBMISSION GUIDELINES

The Respiratory Virus Diagnostic Program, located within Division of Viral Diseases, Centers for Disease Control and Prevention (CDC), is responsible for the detection and identification of respiratory viruses (non-influenza), including respiratory syncytial virus, human parainfluenza viruses 1-4, human metapneumovirus, adenovirus, rhinovirus, coronavirus (including SARS-coronavirus and MERS) and human bocavirus. Diagnostic testing for human parvovirus B19 is also available on a limited basis. The successful diagnosis of respiratory virus infections depends on the timing of specimen collection, the type and quality of specimen collected, the conditions of storage and the prompt transport of the specimen to the CDC laboratory. Useful information on how to investigate a respiratory outbreak, including sample data collection forms can be found at: http://emergency.cdc.gov/urdo/index.asp

Prior to submitting any specimens, consultation is required

SAFETY NOTE

Health care personnel collecting clinical samples from potentially infectious patients should follow standard precautions and all pertinent biosafety guidelines. Sample processing should be performed in at least a Class II biological safety cabinet following a minimum of biosafety level 2 guidelines. Please refer to the CDC website for specimen handling biosafety guidelines: http://www.cdc.gov/biosafety/

TIMING OF SPECIMEN COLLECTION

Virus detection: Specimens should be collected as soon as possible after onset of illness, preferably within the first 3-4 days. Although some viruses may be detected after longer time periods, the likelihood of recovering most respiratory viruses diminishes after 3-4 days.

Serodiagnosis: Serum specimens should be collected during the acute stage of the disease, preferably during the first week after onset of illness, and again during convalescence, 2 to 3 weeks later. A single serum specimen collected during the acute phase of illness can be used in certain situations, such as for detection of human parvovirus B19. For MERS detection, a single serum specimen should be collected ≥2 weeks after symptom onset.

SPECIMEN TYPE

A variety of specimens are suitable and include nasopharyngeal (NP) swab, oropharyngeal (OP) swab, NP aspirate, NP wash, OP wash, bronchoalveolar lavage, tracheal aspirate, sputum, serum, blood, urine, stool, conjunctival swab, viral isolate, and cerebral spinal fluid. Multiple respiratory specimen types of ample volume are preferred. NP and OP swabs collected from the same patient can be placed together in a single vial. Swab specimens should be collected using only swabs with a synthetic tip (e.g., polyester, Dacron®) and an aluminum or plastic shaft. Swabs with cotton tips and wooden shafts are not recommended. Specimens collected with swabs made of calcium alginate are not acceptable. Cell culture medium from a virus isolate can be sent in a screw-cap vial.

SPECIMEN COLLECTION AND STORAGE

Detailed specimen collection and handling guidelines are available at: http://www.cdc.gov/urdo/specimen.html
Specific specimen collection/handling instructions and biosafety guidelines for MERS-CoV specimens are available at: http://www.cdc.gov/coronavirus/mers/lab/index.html

Refrigerate all specimens promptly after collection. If specimens can be shipped to CDC within 72 hours of collection, they should be kept refrigerated at 4°C and shipped on gel ice-packs. Freezing should be avoided if possible, as this will reduce virus viability. If specimens must be held for >72 hours, they should be promptly frozen at -70°C and shipped on dry ice. Liquid specimens should be aliquoted into properly labeled, leakproof, unbreakable screw-cap vials. Samples should be collected and processed in a manner that prevents cross-contamination between specimens, including changing gloves between specimens. Virus isolates can be shipped on gel ice-packs.

Continued on next page

SPECIMEN LABELING AND DOCUMENTATION

LABEL: All specimens must be labeled with a unique identifier assigned to the patient. The type of specimen and date collected should also be on the label.
FORM: Each specimen should be accompanied by a completed CDC Form 50.34 (also known as a DASH form). A copy of the form is available at: http://www.cdc.gov/laboratory/specimen-submission/form.html
LINE LIST: For multiple specimens, please include a line list of all specimens containing the unique patient and specimen identifiers, specimen type, date specimen collected, onset date of illness, previous test results, tests requested, and patient clinical description. Hard-copy and electronic versions should be provided.
SUBMITTER: Include the full name, title, complete mailing address, email address, telephone, and fax number of the submitter. This will be the person to whom the final report will be mailed.

SHIPPING GUIDELINES

Specimens should be packed according to International Air Transport Association (IATA) regulations http://www.iata.org/whatwedo/cargo/dgr/Pages/index.aspx. Shipments from outside of the United States may require an importation permit that can be obtained from the CDC. For specific instructions, see the "Packing, Shipping, and Transport" section from this CDC webpage document (last section): http://www.cdc.gov/coronavirus/mers/guidelines-lab-biosafety.html

Specimens should be stored and shipped at the temperatures indicated in the *Specimen Collection and Storage* section above. If samples are unable to be shipped within 72 hours of collection, they should be stored at -70°C and shipped on dry ice. Virus isolates can be shipped on gel ice-packs. When shipping a frozen specimen from long distances or from international locations, it is best to use a combination of dry ice and frozen gel ice-packs. The gel ice-packs will remain frozen for a day or two after the dry ice has dissipated.

All specimens must be prepacked to prevent breakage and spillage. Specimen containers should be sealed with Parafilm® and placed in ziplock bags. Place enough absorbent material to absorb the entire contents of the Secondary Container (containing Primary Container) and separate the Primary Containers (containing specimen) to prevent breakage. Send specimens with cold packs or other refrigerant blocks that are self-contained, not actual wet ice. This prevents leaking and the appearance of a spill. When large numbers of specimens are being shipped, they should be organized in a sequential manner in boxes with separate compartments for each specimen.

Some things ***not to do***:

- Do not place any dry ice in the "Primary Container" or "Secondary Container", foam envelopes, ziplock bags, cryovial boxes, or hermetically sealed containers.
- Do not place Primary Containers sideways or upside down in ziplock bags.
- Do not place any paperwork in the Secondary Containers or ziplock bags, so as not to damage the paperwork.
- Do not use biohazard/autoclave bags to prepack your materials due the inadequate seal of these bags.

Specimens should be shipped for overnight delivery for arrival at CDC. ***If testing on a Saturday/Sunday/Holiday has been approved, make sure that the shipping instructions specify a Saturday/Sunday/Holiday arrival at the main CDC gate.*** Please email CDC laboratory staff (sgk5@cdc.gov) the shipping information, including the tracking number. All packages should be sent to:

ATTN: STAT Lab
c/o Shifaq Kamili (Unit 84)
Respiratory Virus Diagnostics Program / DVD
Centers for Disease Control and Prevention
1600 Clifton Road, NE
Atlanta, Georgia 30333
Phone: 404-639-3727
Fax: 404-639-4416
Email: sgk5@cdc.gov

Interim Novel coronavirus (nCoV)- 2019 patient under investigation (PUI) form

As soon as possible, notify and send completed form to: 1) your local/state health department, and 2) CDC: email (eocreport@cdc.gov, subject line: nCoV PUI Form) or fax (770-488-7107). If you have questions, contact the CDC Emergency Operations Center (EOC) at 770-488-7100.

Today's date_____ **State patient ID**_____ **State**_____ **County**_____ **CDC nCoV ID**_____

Interviewer's name_____ **Phone**_____ **Email**_____

Physician's Name _____ **Phone**_____ **Pager or Email** _____

Sex M F **Age**_____☐ yr ☐ mo **Residency** ☐ US resident ☐ Non-US resident, country_____

Date of symptom onset_____

PUI Definition (Please consult CDC website with current PUI case definitions at X.cdc.gov)

Does the patient have the following clinical findings (check all that apply)?

Fever[1] ☐ Y ☐ N Pneumonia (clinical or radiologic) ☐ Y ☐ N

Acute respiratory distress syndrome (ARDS) ☐ Y ☐ N Symptoms of respiratory illness[2] ☐ Y ☐ N

In the 14 days before symptom onset, did the patient:

Spend time in Wuhan City, China? ☐ Y ☐ N ☐ Unknown

Date arrived in Wuhan City_____ or ☐ Lives in Wuhan

Date departed Wuhan City_____ Date arrived in US _____

Have close contact[3] with an ill traveler who developed fever & acute respiratory illness (not necessarily pneumonia or ARDS; e.g. cough, shortness of breath) within 14 days of being in Wuhan City? ☐ Y ☐ N ☐ Unknown

Have history of being in a healthcare facility (as a patient, worker, or visitor) in Wuhan City, China? ☐ Y ☐ N ☐ Unknown

Have close contact[3] with a nCoV case while the case was ill? ☐ Y ☐ N ☐ Unknown

Is patient a member of a cluster of patients with severe acute respiratory illness (e.g., fever and pneumonia requiring hospitalization) of unknown etiology in which nCoV is being evaluated? ☐ Y ☐ N ☐ Unknown

Signs and symptoms (check all that apply) ☐ Fever[1] ☐ Dry cough ☐ Productive cough ☐ Chills ☐ Sore throat ☐ Headache ☐ Muscle aches ☐ Shortness of breath ☐ Vomiting ☐ Abdominal pain ☐ Diarrhea ☐ Other, Specify_____

Is the patient a health care worker (HCW)? ☐ Y ☐ N ☐ Unknown

Comorbid conditions (check all that apply): ☐ None ☐ Unknown ☐ Pregnancy ☐ Diabetes ☐ Cardiac disease ☐ Hypertension ☐ Chronic pulmonary disease ☐ Chronic kidney disease ☐ Chronic liver disease ☐ Immunocompromised ☐ Other

Is/was the patient: Hospitalized? ☐ Y, Admit Date_____ ☐ N ☐ Unknown **Admitted to ICU?** ☐ Y ☐ N ☐ Unknown

Intubated? ☐ Y ☐ N ☐ Unknown **On ECMO?** ☐ Y ☐ N ☐ Unknown

Does the patient have another diagnosis/etiology for their respiratory illness? ☐ Y, Specify_____ ☐ N ☐ Unknown

Has the patient died? ☐ Y ☐ N ☐ Unknown

Respiratory diagnostic results

Test	Pos	Neg	Pending	Not done
Influenza rapid Ag ☐ A ☐ B	☐	☐	☐	☐
Influenza PCR ☐ A ☐ B	☐	☐	☐	☐
RSV	☐	☐	☐	☐
H. metapneumovirus	☐	☐	☐	☐
Parainfluenza (1-4)	☐	☐	☐	☐
Adenovirus	☐	☐	☐	☐

Test	Pos	Neg	Pending	Not done
Rhinovirus/enterovirus	☐	☐	☐	☐
Coronavirus (OC43, 229E, HKU1, NL63)	☐	☐	☐	☐
M. pneumoniae	☐	☐	☐	☐
C. pneumoniae	☐	☐	☐	☐
Other, Specify_____	☐	☐	☐	☐

Novel coronavirus specimens for testing

Specimen type	Specimen ID	Date collected	Sent to CDC?
NP/OP swab			☐
Sputum			☐
BAL fluid			☐
Tracheal aspirate			☐

Specimen type	Specimen ID	Date collected	Sent to CDC?
Stool			☐
Urine			☐
Serum			☐
Other, Specify____			☐

[1]*Fever may not be present in some patients, such as those who are very young, elderly, immunosuppressed, or taking certain medications. Clinical judgement should be used to guide testing of patients in such situations*

[2]*Not necessarily pneumonia or ARDS; e.g. cough, shortness of breath*

[3]*Close contact is defined as: a) being within approximately 6 feet (2 meters) or within the room or care area for a prolonged period of time (e.g., healthcare personnel, household members) while not wearing recommended personal protective equipment (i.e., gowns, gloves, respirator, eye protection); or b) having direct contact with infectious secretions (e.g., being coughed on) while not wearing recommended personal protective equipment. Data to inform the definition of close contact are limited. At this time, brief interactions, such as walking by a person, are considered low risk and do not constitute close contact.*

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 22 Jan 2020 13:23:08 +0000
To: Warner, Agnes (CDC/OD/OCS)
Subject: Items to make bullets of

(b)(5)

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From: Redfield, Robert R. (CDC/OD)
Sent: Wed, 22 Jan 2020 13:48:49 +0000
To: (b)(6)
Subject: Fwd: nCoV OD Daily Update 1/22

To print
Dr. Robert Redfield
From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Wednesday, January 22, 2020 8:12:57 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>
Cc: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>
Subject: nCoV OD Daily Update 1/22

Dear All,

Please see the Daily OD update on the nCoV response. Let us know if there are any questions.

Thanks,

LeAnne

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Patients Being Medically Evaluated in US:

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Airport Screening:

Screening continues at 3 airports (JFK, SFO and LAX), 163 flights and over 1700 passengers screened, **no passengers referred for medical evaluation**, no issues reported.

CDC increased Travel Health Alert to Level 2 (Practice Enhanced Precautions) and is in the process of instituting airport screening at Atlanta and Chicago, O'Hare airports and funneling flights (reticketing) from Wuhan to the 5 US airports with screening.

International Updates

Countries with confirmed cases: Japan (1), Republic of Korea (1), Thailand (4), Taiwan (1)

Media reports of a confirmed case in Hong Kong and Macau

Jan 21, **Taiwan confirmed its first case of nCoV** – Female who worked in Wuhan. Upon returning to Taiwan on 1/20, the patient was quarantined at the airport with fever, cough, and shortness of breath. **Confirmation of nCoV 1/21**. Contact tracing of airline crew and passengers has been initiated.

WHO Visit to Wuhan:

Attendees included WR Gauden Galea, CK Lee, Shen Zhongdan from the WHO Country Office and Babatunde from WPRO**;** The two day visit consisted of visits to the airport where the team observed exit screening with the thermal monitor and a visit to a "screening hospital". The planned events for the 2nd day were changed from the original plans to focus on a discussion of infections in healthcare workers with health authorities from the national, provincial, and local level.

Patient triage in Wuhan: Patients undergo a fever triage at a "screening" hospital where patients are interviewed and specimens are collected. Depending on whether the patient was considered to be highly suspicious for nCoV by a group a physicians, the patient would be treated at the screening hospital or would be transferred to Jinyintan Hospital. We do not have specifics on whether transfer to Jinyintan Hospital depends on a positive lab test or not.

Healthcare worker Infection:
Per the WHO mission to Wuhan, there are currently **16 HCWs that are likely considered infected**.

- **2 healthcare clusters in Wuhan:**
    - **6/10** HCWs involved in the cluster on the neurosurgical ward reported **no direct contact with the case** (although 2 nurses developed symptoms prior to first contact with the patient)
    - **4/5** HCWs (nurses working on unrelated wards) involved in the 2nd cluster reported **no direct contact with the case**
    - The health care workers are primarily nurses. 1 ER doctor, who is known to have been involved in collecting samples, is infected.

Market investigation:
Most of the cases found in the seafood section of the **Western side of the Huanan market** (as opposed to the Eastern side). On the Westside of Huanan market, there was a section for seafood, janitorial services, and stalls for other animals (specific species not mentioned).

Travel Screening In China

CDC China office could not find evidence of an official ban on travel to Wuhan. Temperature screening has begun at Beijing Capital airport.

-

China – 440 cases in 13/23 provinces (not including Taiwan), 9 deaths

On Jan 21, the NHC had received **440 confirmed cases of nCoV in 13 provinces** (regions and cities) (**10 in Beijing**, 2 in Tianjin, **9 in Shanghai**, 5 in Zhejiang Province, 2 cases in Jiangxi, 1 in Shandong Province, 1 case in Henan Province, **375 cases in Wuhan/Hubei Province**, 1 case in Hunan Province, **26 cases in Guangdong Province**, 5 cases in Chongqing, 2 cases in Sichuan Province and 1 case in Yunnan Province).

Of the 440 cases, 102 are severely ill and **9 deaths** (all from Wuhan/Hubei Province);

Thailand – 4 cases

The Thai Prime Minister held a press conference officially confirming the 3 and 4th case in Thailand. In addition, there is a **possible 5th case** (spouse of case #4 who also visited Wuhan)

CDC Thailand Office has heard from WHO that Thai Minister agreed to share viral specimens with 5 labs worldwide including CDC. **WHO DG has advocated for sample sharing as well.**

Other:

Emergency Committee ongoing now. **Press conference scheduled for 7:15 pm** (GVA time)

LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

Chief, Meningitis and Vaccine Preventable Diseases
Division of Bacterial Diseases
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Wed, 22 Jan 2020 13:59:31 +0000
To: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD)
Subject: Re: nCoV OD Daily Update 1/22

Should IM
From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Wednesday, January 22, 2020 8:12:57 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>
Cc: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>
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1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Butler, Jay C. (CDC/DDID/OD)
Sent: Wed, 22 Jan 2020 14:01:58 +0000
To: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID);Patel, Anita (CDC/DDID/NCIRD/OD)
Cc: Schuchat, Anne MD (CDC/OD)
Subject: Re: nCoV OD Daily Update 1/22

Yeah, they noticed.
Get Outlook for iOS
From: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>
Sent: Wednesday, January 22, 2020 9:01:29 AM
To: Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Cc: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: RE: nCoV OD Daily Update 1/22

Will do, looks like Kyle and Sherri not added as well.
Dan.

From: Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Sent: Wednesday, January 22, 2020 8:45 AM
To: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Cc: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: Fwd: nCoV OD Daily Update 1/22

Can you please make sure I am on this list? Thanks.

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From: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Sent: Wednesday, January 22, 2020 8:42:18 AM
To: Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Subject: Fwd: nCoV OD Daily Update 1/22

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From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
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CDC increased Travel Health Alert to Level 2 (Practice Enhanced Precautions) and is in the process of instituting airport screening at Atlanta and Chicago, O'Hare airports and funneling flights (reticketing) from Wuhan to the 5 US airports with screening.

International Updates

Countries with confirmed cases: Japan (1), Republic of Korea (1), Thailand (4), Taiwan (1)

Media reports of a confirmed case in Hong Kong and Macau

Jan 21, **Taiwan confirmed its first case of nCoV** – Female who worked in Wuhan. Upon returning to Taiwan on 1/20, the patient was quarantined at the airport with fever, cough, and shortness of breath. **Confirmation of nCoV 1/21**. Contact tracing of airline crew and passengers has been initiated.

WHO Visit to Wuhan:

Attendees included WR Gauden Galea, CK Lee, Shen Zhongdan from the WHO Country Office and Babatunde from WPRO**;** The two day visit consisted of visits to the airport where the team observed exit screening with the thermal monitor and a visit to a "screening hospital". The planned events for the 2nd day were changed from the original plans to focus on a discussion of infections in healthcare workers with health authorities from the national, provincial, and local level.

Patient triage in Wuhan: Patients undergo a fever triage at a "screening" hospital where patients are interviewed and specimens are collected. Depending on whether the patient was considered to be highly suspicious for nCoV by a group a physicians, the patient would be treated at the screening hospital or would be transferred to Jinyintan Hospital. We do not have specifics on whether transfer to Jinyintan Hospital depends on a positive lab test or not.

Healthcare worker Infection:
Per the WHO mission to Wuhan, there are currently **16 HCWs that are likely considered infected**.

- **2 healthcare clusters in Wuhan:**
    - **6/10** HCWs involved in the cluster on the neurosurgical ward reported **no direct contact with the case** (although 2 nurses developed symptoms prior to first contact with the patient)
    - **4/5** HCWs (nurses working on unrelated wards) involved in the 2nd cluster reported **no direct contact with the case**
    - The health care workers are primarily nurses. 1 ER doctor, who is known to have been involved in collecting samples, is infected.

Market investigation:
Most of the cases found in the seafood section of the **Western side of the Huanan market** (as opposed to the Eastern side). On the Westside of Huanan market, there was a section for seafood, janitorial services, and stalls for other animals (specific species not mentioned).

Travel Screening In China
CDC China office could not find evidence of an official ban on travel to Wuhan. Temperature screening has begun at Beijing Capital airport.

China – 440 cases in 13/23 provinces (not including Taiwan), 9 deaths

On Jan 21, the NHC had received **440 confirmed cases of nCoV in 13 provinces** (regions and cities) (**10 in Beijing**, 2 in Tianjin, **9 in Shanghai**, 5 in Zhejiang Province, 2 cases in Jiangxi, 1 in Shandong Province, 1 case in Henan Province, **375 cases in Wuhan/Hubei Province**, 1 case in Hunan Province, **26 cases in Guangdong Province**, 5 cases in Chongqing, 2 cases in Sichuan Province and 1 case in Yunnan Province).

Of the 440 cases, 102 are severely ill and **9 deaths** (all from Wuhan/Hubei Province);

Thailand – 4 cases

The Thai Prime Minister held a press conference officially confirming the 3 and 4th case in Thailand. In addition, there is a **possible 5th case** (spouse of case #4 who also visited Wuhan)

CDC Thailand Office has heard from WHO that Thai Minister agreed to share viral specimens with 5 labs worldwide including CDC. **WHO DG has advocated for sample sharing as well.**

Other:

Emergency Committee ongoing now. **Press conference scheduled for 7:15 pm** (GVA time)

LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

Chief, Meningitis and Vaccine Preventable Diseases
Division of Bacterial Diseases
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Wed, 22 Jan 2020 14:03:43 +0000
To: Butler, Jay C. (CDC/DDID/OD)
Subject: Re: nCoV OD Daily Update 1/22

Absolutely. I delegated sending this. Did not notice until today.
From: Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Sent: Wednesday, January 22, 2020 9:01:18 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Subject: Re: nCoV OD Daily Update 1/22

Thanks, Nancy. Please make sure this is fixed.
Get Outlook for iOS
From: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Sent: Wednesday, January 22, 2020 9:00:29 AM
To: Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Subject: Fwd: nCoV OD Daily Update 1/22

Apologies. This was supposed to go to you. Fixing it.
From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Wednesday, January 22, 2020 8:12:57 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>
Cc: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>
Subject: nCoV OD Daily Update 1/22

Dear All,

Please see the Daily OD update on the nCoV response. Let us know if there are any questions.

Thanks,

LeAnne

Domestic Updates

Patients Being Medically Evaluated in US:

17 patients are/have been medically evaluated for possible nCoV infection
13 patients are being tested for nCoV
3 patients have tested negative for nCoV
1 confirmed nCoV patient

Over 60 calls received and triaged to discuss medical evaluation of patients

Confirmed nCoV Patient in US remains stable in the hospital in isolation and under airborne precautions. CDC team has arrived in Washington State and is working with state and local health authorities and hospital staff on patient assessment and follow-up and contact tracing.

Extensive communications within US and USG, WHO, China CDC and China National Health Commission on first US n CoV patient. IHR notification of PHEIC has been filed with WHO, through PAHO.

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1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 22 Jan 2020 17:57:15 +0000
To: Warner, Agnes (CDC/OD/OCS)
Subject: RE: Lessons Learned SARS and MERS
Attachments: Lessons Learned SARS and MERS as.docx

Some revisions. (b)(5)

(b)(5)

From: Warner, Agnes (CDC/OD/OCS) <bli8@cdc.gov>
Sent: Wednesday, January 22, 2020 12:27 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: Lessons Learned SARS and MERS

Please see attached.
Happy to make changes as need.

Agnes

(b)(5)

(b)(5)

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 22 Jan 2020 20:10:49 +0000
To: Berger, Sherri (CDC/OCOO/OD)
Subject: Fwd: Lessons Learned SARS and MERS
Attachments: Lessons Learned SARS and MERS as_v2.docx

Not ready for r3 yet but has a lot of points.
Get Outlook for iOS
From: Warner, Agnes (CDC/OD/OCS) <bli8@cdc.gov>
Sent: Wednesday, January 22, 2020 1:45:35 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: RE: Lessons Learned SARS and MERS

Revised version is attached.

(b)(5)

Agnes

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Agnes

(b)(5)

(b)(5)

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 22 Jan 2020 22:04:59 +0000
To: Redd, Stephen (CDC/DDPHSIS/OD)
Subject: FW: Lessons Learned SARS and MERS
Attachments: Lessons Learned SARS and MERS as_v2.docx

Its still quite rough but any thoughts welcome. (b)(5)

(b)(5)

From: Warner, Agnes (CDC/OD/OCS) <bli8@cdc.gov>
Sent: Wednesday, January 22, 2020 1:46 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: RE: Lessons Learned SARS and MERS

Revised version is attached.

(b)(5)

Agnes

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Agnes

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 22 Jan 2020 22:33:34 +0000
To: Warner, Agnes (CDC/OD/OCS)
Subject: RE: Lessons Learned SARS and MERS
Attachments: Lessons Learned SARS and MERS as_v3.docx

I changed it quite a bit. I'm not sure I communicated effectively what some of the points were as they seemed to be located in the wrong places. (b)(5)

(b)(5)

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To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: RE: Lessons Learned SARS and MERS

Revised version is attached.
Reordered sequence and edited communication part.

Agnes

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Agnes

(b)(5)

(b)(5)

(b)(5)

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 22 Jan 2020 22:43:20 +0000
To: Berger, Sherri (CDC/OCOO/OD)
Subject: toss last version
Attachments: Lessons Learned SARS and MERS as_v3 clean.docx

I'm fixing it. also have asked steve r to take a look. You can ignore this one but it is more organized than the verson agnes sent me which was (b)(5)

Anne Schuchat, MD
Principal Deputy Director
Centers for Disease Control and Prevention
Rear Admiral (Ret.), US Public Health Service

Phone 404 639-7000
Fax 404 639-7111
Email Aschuchat@cdc.gov

(b)(5)

(b)(5)

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 22 Jan 2020 22:44:08 +0000
To: Warner, Agnes (CDC/OD/OCS)
Subject: RE: Lessons Learned SARS and MERS
Attachments: Lessons Learned SARS and MERS as_v3 clean.docx

Sorry for all the version controls. Here is better 'clean' version

---

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Agnes

(b)(5)

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From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 22 Jan 2020 22:45:43 +0000
To: Redd, Stephen (CDC/DDPHSIS/OD)
Subject: RE: hold - better version coming
Attachments: Lessons Learned SARS and MERS as_v3 clean.docx

(b)(5)

From: Redd, Stephen (CDC/DDPHSIS/OD) <scr1@cdc.gov>
Sent: Wednesday, January 22, 2020 5:14 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: RE: hold - better version coming

(b)(6)

From: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Sent: Wednesday, January 22, 2020 17:13
To: Redd, Stephen (CDC/DDPHSIS/OD) <scr1@cdc.gov>
Subject: hold - better version coming

I need to do some stuff before you waste your time onthat draft. Let me take a little more time to reorder and organize, its such a jumble now I'm getting a headache!! Probably tomorrow will send you something to look at.

Anne Schuchat, MD
Principal Deputy Director
Centers for Disease Control and Prevention
Rear Admiral (Ret.), US Public Health Service

Phone 404 639-7000
Fax 404 639-7111
Email Aschuchat@cdc.gov

(b)(5)

(b)(5)

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Thu, 23 Jan 2020 02:21:31 +0000
To: Patel, Anita (CDC/DDID/NCIRD/OD);Cohn, Amanda (CDC/DDID/NCIRD/OD);Nordlund, Kristen (CDC/DDID/NCIRD/OD)
Subject: Fwd: Follow-up from call
Attachments: nCoV Webinar Questions 01222020.docx

Fysa
From: Layden, Jennifer E. <Jennifer.Layden@illinois.gov>
Sent: Wednesday, January 22, 2020 8:58:27 PM
To: Oliver, Sara Elizabeth (CDC/DDID/NCIRD/DBD) <yxo4@cdc.gov>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>
Cc: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Subject: Follow-up from call

Nancy, Dan, Sarah-
Thanks for talking this afternoon to walk through the logistics. Below is a follow-up of items from that discussion.
1.) PUI (b)(6) will remain hospitalized in airborne isolation pending results. Currently clinically stable and improved.
2.) We are working with the appropriate LHD to have a call with hospital leadership tomorrow morning to walk through various items pending lab results.
3.) GO team: Dan-I will send you an email with an invitation / request in the event of a positive lab result.
4.) Pending PUIs for IL: We have 2 PUIs with specimens pending testing tomorrow at the CDC.
1.) Case discussed today: Clinical presentation and exposures more compatible. Fortunately, very limited close contacts.
2.) 2nd PUI: Clinically less concerning. However, is a (b)(6) and more concerned about the potential contacts.
5.) Communications teams between IDPH, CDC, CDPH are connected and coordinating.
6.) Reporting of PUIs: We are going to hold on posting such information on our website for now. If we have any changes of plans, we will be sure to alert you all.
6.) Questions from our clinical webinar: As part of our preparedness efforts, we held calls with the LHDS and clinicians, hospitals, EMS today, and we will do so weekly here in IL. Attached is the running list of questions from the clinical call, in case this is of help in planning for a CDC COCA call. Most questions were specific to IC practices, PPE, pre-cautions, cleaning.
Your thoughts and input today have been much appreciated!
Please do not hesitate to reach out with any questions / concerns.
best-
jen
312-835-0249

Jennifer E Layden, MD, PhD
State Epidemiologist and Chief Medical Officer
IDPH

312-835-0249

(b)(6) 11:01
should bleach recommended as disinfectant-of-choice? or will quat suffice?
(b)(6) 11:05
If someone presented to the ED with suspected Corona virus, what sort of transmission based precautions should be put in place?
Erica 11:06
how are you defining fever? e.g. 100.2 F?
(b)(6) 11:07
For the referred to local hospitals-will a list of hospitals be established the QMO may reach out to potentially send/transport patients to?
(b)(6) 11:07
Can we get this flyer to put up around the hospital?
(b)(6) 11:08
Will these slides be shared with attendees?
You 11:09
Yes, the slides will be shared and the webinar is being recorded.
(b)(6) 11:10
Are the recommended precautions Airborne or Droplet?
(b)(6) 11:10
will travel from S. Korea, Thailand, Taiwan, and Japan be included within the airport screenings?
(b)(6) 11:13
What type of BSI should be used for ambulance transportation?
(b)(6) 11:14
most outpatient clinics don't have airborne isolation rooms; if a patient walks in to clinic, should testing be done in a private room and the room closed off or transport to hospital? what sort of environmental cleaning/disinfection should be used?
(b)(6) 11:15
To add to Sana's question, how long do you recommend the room is shut down in an outpatient clinic without negative pressure capability?
(b)(6) 11:15
In the above situation, should the room remain empty for a period of time? While disinfecting the room I assume that full
(b)(6) 11:16
PPE should be worn although the patient is not present?
(b)(6) 11:16
Will IDPH send specific guidance about "respiratory isolation" in non-hospital settings? Assume that guidance will be provided re mask and eye PPE, gloves, gowns, droplet in settings that do not have negative airflow rooms and N95 masks, rapid placement in room with door close (doctor's offices, immediate care centers)?
Doug 11:17
is there an opportunity for prior coronavirus specimens over the past 30 days from hospitals to be tested for this strain, several very symptomatic patients have been hospitalized with coronavirus lately, but it was not reportable, therefore is it possible that we have already seen this strain but not recognized it?
(b)(6) 11:19
What is the turnaround time on testing once recieved by CDC?
(b)(6) 11:19
Will IDPH labs be accepting specimens after hours?
(b)(6) 11:22

How long is the virus contagious on surfaces ?
(b)(6) 11:23
Have you evaluated and will be recommending care and precautions to take if suspect or confirmed sympotomatic case at home per CDC 2019 novel nCoV document?
(b)(6) 11:24
cleaning and disinfection questions.
(b)(6) 11:24
Will we get copies of the slides
(b)(6) 11:24
any special cleaning required?
(b)(6) 11:24
Does biofire RBVP detect this coronavirus?
(b)(6) 11:25
Wiill the slide presentation be shared??
(b)(6) 11:25
what is the turn around time for testing
(b)(6) 11:25
Can you share info on the curren Washington case? What were the symptoms? What was CXR finding? Did he test Positive on NP swab alone? What other testing was done? Thanks
(b)(6) 11:25
Should triage place patients who come from other countries that have known cases be isolated in the same manner?
(b)(6) 11:25
Can this presentation , with slides, be sent to attendees ?
(b)(6) 11:25
AII + COntact?
(b)(6) 11:26
That was conveyed earlier
(b)(6) 11:26
For EMS, do you recommend EMS agencies ask screening questions about travel? The ASPR-TRACIE EMS Infectious Disease Playbook has recommendations, under Special Respiratory Precautions, for SARS and MERS. Is it the IDPH and CDC position that this section applies with 2019-nCoV?
(b)(6) 11:26
You said airborne precautions - should there not also be full contact precautions with the airborne?
(b)(6) 11:26
clarifying quesiton - is it airborne and contact isolation precuations recommeded
(b)(6) 11:26
Are the recommended precautions Airborne or Droplet?
(b)(6) 11:27
Airborne
(b)(6) 11:27
Clarification requested- the presentation and the SIREN spoke to airborne isolation plus contact with eye protection? However, just spoke to airborne earlier, please clarify
Chris 11:27
What is the requirement for decontamination of the patient room?
(b)(6) 11:27
Can a viral tranport swab with a flocked swab be used for respiratory collection.
(b)(6) 11:28

Will IDPH provide signage for ED triage dept to post, asking about any travel outside the US and China specifically or contact with patents with Coronavirus
(b)(6) 11:28
Clarification - Airborne and CONTACT, or just Airborne?
Erica 11:28
Since symptoms mimic influenza, patients are likely to present to outpatient provider offices. What about offices that do not have capability for airborne isolation? e.g., no N95 masks or gowns. what should the transportation of the patient be to the next site of care? e.g., hospital or ED? and what would happen with exposed clinic staff in terms of follow-up?
(b)(6) 1:28
The first resource you have listed is not available
(b)(6) 11:28
Does CDC or IDPH have a notice re: Travel to China that can be used to post at front desk in doctor's Clinics or Emergency Rooms?
(b)(6) 11:29
Any screening done in the Wuhan airport prior to travel?
(b)(6) 11:29
St. Louis International Airport to be included in screening ?
(b)(6) 11:29
Interestingly, my daughter just returned from Japan this AM through ORD and WHO was there and interviewed them on exit
(b)(6) 11:29
Any screening done in the Wuhan airport prior to travel?
(b)(6) 11:29
I thought the precautions were contact, airborne, and face mask/goggles.
(b)(6) 11:29
http://www.dph.illinois.gov/topics-services/diseases-and-conditions/diseases-a-z-list
(b)(6) 11:29
unavailable
(b)(6) 11:31
During disinfection of the room - shouldnt PPE be worn even thought the patient isnt present?
(b)(6) 11:32
Have any HCW become ill with the virus?
VIOLET 11:33
Asymptomatic close contacts arriving from China are NOT being quarantined at this time?
(b)(6) 11:34
Will the SIREN be updated to remove the requirement for contact isolation in the infection control section?
(b)(6) 11:34
As far as past corona virus specimens - you only want them if they have ben in Wuhan Province - not people who have not traveled, right?
Nicole 11:35
For patients who tested positive and already discharged, who should we contact at IDPH to discuss?
(b)(6) 11:35
If there is a confirmed case, how long must they remain on the isolation precautions? Would it be based on the specific case?
(b)(6) 11:35
Guidance on team member exposure? Remain at home for how long?
(b)(6) 1:36

In addition to supportive treatments, are antivirals indicated ?
(b)(6) 11:36
In addition to supportive treatments, are antivirals indicated ?
(b)(6) 11:37
do we know what airport the Wash State person traveled thru
(b)(6) 11:39
yes, please give guidance for staff exposure and furlough from work
(b)(6) 1:40
how long should the patient stay on airborne precaution? since we dont know the duration of illness
(b)(6) 1:44
Would regular contact gowns for contact isolation suffice or do we need level 4 gowns?
(b)(6) 11:48
Great job to all for providing this important information, Freeburg Emergency Services & Disaster Agency , Coordinator (b)(6)
(b)(6) 11:45
Will powerpoint slides be emailed to each of participants?
You 11:47
Slides along with the link to the recording will be sent out via SIREN same as the notification sent yesterday.
(b)(6) 11:48
Great job to all for providing this important information, Freeburg Emergency Services & Disaster Agency , Coordinator (b)(6)
(b)(6) 11:48
Thanks for the info. Appreciate the quick response
(b)(6) 11:50
Thank you All!
(b)(6) 11:51
Thank you. I look forward to hearing about the updates.

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Thu, 23 Jan 2020 07:30:32 +0000
To: Nordlund, Kristen (CDC/DDID/NCIRD/OD);Patel, Anita (CDC/DDID/NCIRD/OD);Cohn, Amanda (CDC/DDID/NCIRD/OD)
Subject: Re: Follow-up from call

+dan
Thanks. Will be important to debrief in AM. When would this start - (b)(5)
(b)(5)

From: Nordlund, Kristen (CDC/DDID/NCIRD/OD) <hok4@cdc.gov>
Sent: Wednesday, January 22, 2020 10:40:39 PM
To: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Subject: RE: Follow-up from call

We talked with OADC earlier today and sketch out a plan (b)(5)

(b)(5)

Also – we talked about a way forward with the JIC lead position. Happy to go through it with you guys tomorrow.

From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Wednesday, January 22, 2020 9:33 PM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Nordlund, Kristen (CDC/DDID/NCIRD/OD) <hok4@cdc.gov>
Subject: Re: Follow-up from call

Thanks for the summary - lots of questions. We need to get a Q and A up ... some of these keep getting raised.

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Sent: Wednesday, January 22, 2020 9:21 PM
To: Patel, Anita (CDC/DDID/NCIRD/OD); Cohn, Amanda (CDC/DDID/NCIRD/OD); Nordlund, Kristen (CDC/DDID/NCIRD/OD)
Subject: Fwd: Follow-up from call

Fysa

From: Layden, Jennifer E. <Jennifer.Layden@illinois.gov>
Sent: Wednesday, January 22, 2020 8:58:27 PM
To: Oliver, Sara Elizabeth (CDC/DDID/NCIRD/DBD) <yxo4@cdc.gov>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>

Cc: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Subject: Follow-up from call

Nancy, Dan, Sarah-
Thanks for talking this afternoon to walk through the logistics. Below is a follow-up of items from that discussion.

1.) PUI (b)(6) will remain hospitalized in airborne isolation pending results. Currently clinically stable and improved.

2.) We are working with the appropriate LHD to have a call with hospital leadership tomorrow morning to walk through various items pending lab results.

3.) GO team: Dan-I will send you an email with an invitation / request in the event of a positive lab result.

4.) Pending PUIs for IL: We have 2 PUIs with specimens pending testing tomorrow at the CDC.
1.) Case discussed today: Clinical presentation and exposures more compatible. Fortunately, very limited close contacts.
2.) 2nd PUI: Clinically less concerning. However, is a (b)(6) and more concerned about the potential contacts.

5.) Communications teams between IDPH, CDC, CDPH are connected and coordinating.

6.) Reporting of PUIs: We are going to hold on posting such information on our website for now. If we have any changes of plans, we will be sure to alert you all.

6.) Questions from our clinical webinar: As part of our preparedness efforts, we held calls with the LHDS and clinicians, hospitals, EMS today, and we will do so weekly here in IL. Attached is the running list of questions from the clinical call, in case this is of help in planning for a CDC COCA call. Most questions were specific to IC practices, PPE, pre-cautions, cleaning.

Your thoughts and input today have been much appreciated!

Please do not hesitate to reach out with any questions / concerns.

best-
jen
312-835-0249

Jennifer E Layden, MD, PhD
State Epidemiologist and Chief Medical Officer
IDPH
312-835-0249

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Thu, 23 Jan 2020 11:13:51 +0000
To: Cohn, Amanda (CDC/DDID/NCIRD/OD);Jernigan, Daniel B. (CDC/DDID/NCIRD/ID);Patel, Anita (CDC/DDID/NCIRD/OD)
Subject: Fwd: Updates on Travel Notices and alerts for China
Attachments: LEVEL 3 Wuhan Travel Notice_CLEARED_1.22.20wlinks.docx, Alert - Rest of China_CLEARED_1.22.20wlinks (003).docx

Did IM clear this? I do not think we told OD.
From: Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>
Sent: Thursday, January 23, 2020 6:06:16 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Subject: Fwd: Updates on Travel Notices and alerts for China

Do you want to send this to key OD staff such as Kyle and Sherri? I can send to IMAC as well. Let me know what you think. Policy has not been looped in before on the travel notices and alerting HHS through OD channels.
Thanks,
Brooke
Get Outlook for iOS
From: Stolp, Amber (CDC/DDID/NCEZID/DGMQ) <wmg9@cdc.gov>
Sent: Wednesday, January 22, 2020 10:15:14 PM
To: Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>
Cc: Buigut, Jennifer E. (CDC/DDID/NCEZID/DGMQ) <cko1@cdc.gov>; Richmond-Crum, Malia (CDC/DDID/NCEZID/OD) <jrv8@cdc.gov>; Miller, Rebecca (CDC/DDID/NCEZID/OD) <ckq0@cdc.gov>
Subject: Updates on Travel Notices and alerts for China

Hi Brooke -
I wanted to make sure you were aware of the plan to post the attached travel notice and alert tomorrow morning. Our Travelers' Health branch worked with CGH' China Country office and connected with Department of State's American Citizen Services office in the development of them.
Can you also help us notify HHS through CDC OD channels?
Thanks,
Amber
DGMQ Policy
From: Stolp, Amber (CDC/DDID/NCEZID/DGMQ)
Sent: Wednesday, January 22, 2020 6:20:36 PM
To: Brush, Charles (Adam) (CDC/DDPHSIS/CGH/OD) <bio2@cdc.gov>; Richmond-Crum, Malia (CDC/DDID/NCEZID/OD) <jrv8@cdc.gov>; Stanojevich, Joel G. (CDC/DDPHSIS/CGH/OD) <vhi9@cdc.gov>
Cc: Rosenfeld, Emily (CDC/DDPHSIS/CGH/OD) <yhc5@cdc.gov>; McClure, Susan (CDC/DDPHSIS/CGH/OD) <zur1@cdc.gov>; Buigut, Jennifer E. (CDC/DDID/NCEZID/DGMQ) <cko1@cdc.gov>; Miller, Rebecca (CDC/DDID/NCEZID/OD) <ckq0@cdc.gov>; Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>
Subject: RE: FYI - Updates on Travel Notices for China

Hi all –

We just heard we will be posting the attached travel notices, Level 3: Avoid Nonessential Travel for Wuhan, and an alert on the China destination page for the rest of China tomorrow morning. Please feel free to share with HHS OGA and other channels.

Thanks,
Amber

(b)(5)

(b)(5)

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(b)(5)

(b)(5)

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Thu, 23 Jan 2020 11:50:57 +0000
To: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD)
Subject: Fwd: CLEARED-- LEVEL 3 Travel Notices for Wuhan
Attachments: LEVEL 3 Wuhan Travel Notice_CLEARED_1.22.20wlinks.docx, Alert - Rest of China_CLEARED_1.22.20wlinks (003).docx

Can you pls make sure this end up on the morning update to R3.
From: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>
Sent: Thursday, January 23, 2020 6:49:53 AM
To: Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>
Cc: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>; Angelo, Kristina (CDC/DDID/NCEZID/DGMQ) <ydg2@cdc.gov>
Subject: CLEARED-- LEVEL 3 Travel Notices for Wuhan

Hi all –
We have prepared and cleared the attached travel notices, Level 3: Avoid Nonessential Travel for Wuhan, and an alert on the China destination page for the rest of China to post this morning.

Please let me know when we have the green light to post.

Thanks,
Rachel

Rachel Barwick Eidex, MS, PhD
Chief, Travelers' Health Branch (Acting)
Division of Global Migration and Quarantine
Centers for Disease Control and Prevention
Mobile (b)(6)
Email: reidex@cdc.gov

(b)(5)

(b)(5)

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(b)(5)

(b)(5)

From: Strength-McGaughey, Tracie (CDC/OD/OCS) on behalf of Redfield, Robert R. (CDC/OD)
Sent: Thu, 23 Jan 2020 12:55:05 +0000
To: (b)(6)
Subject: FW: 1-23 OD Daily AM Update nCoV Response

From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Thursday, January 23, 2020 7:54 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Subject: 1-23 OD Daily AM Update nCoV Response

Dear All,

Please see the daily AM OD Update for the nCoV Response. Let us know if there are questions.

Thanks,

LeAnne

Domestic Updates

Patients Being Medically Evaluated in US:

46 patients are/have been medically evaluated for possible nCoV infection.
40 patients are currently being tested for nCoV
5 patients have tested negative for nCoV
1 confirmed nCoV patient

Over 100 calls received and triaged to discuss medical evaluation of patients

Confirmed nCoV Patient in US remains stable in the hospital in isolation and under airborne precautions. CDC team has arrived in Washington State and is working with state and local health authorities and hospital staff on patient assessment and follow-up and contact tracing. **16 people identified in contact tracing.**

Travel

CDC Increased Travel Health Alert to Level 3: Recommends that travelers avoid all nonessential travel to Wuhan, China. In response to an outbreak of respiratory illness, Chinese officials have closed transport within and out of Wuhan, including buses, subways, trains, and the international airport.

CDC has also issued an alert for travel to the rest of China due to nCoV infection

In addition, CDC is in the process of instituting airport screening at Atlanta and Chicago, O'Hare airports and funneling flights (reticketing) from Wuhan to the 5 US airports with screening.

Unconfirmed: 3 more cities in China to be closed.

Airport Screening:

Screening continues at 3 airports (JFK, SFO and LAX)**, 3 passengers referred for medical evaluation**.

1/22 Three outbound travelers (in one family) connecting through LAX referred for medical evaluation; family has had potential exposure to patient with nCoV in Wuhan within 14 days. Patients have been transported to hospital in LA.

Situation Details:

A family of three from Wuhan who traveled to US via LAX were all three cleared to continue their journey to Mexico on 1/19/2020. On 1/22/2020, they returned to LAX enroute back to Wuhan due to death of the wife's mother, who had cancer and had recently had fever, shortness of breath, and cough prior to her death. The cause of her acute respiratory illness is unknown (possible nCoV). The family are all afebrile at screening. Father age 38 is feeling unwell and has a cough. Mother age 40 is having body aches, no cough, no shortness of breath. Child age 3 had one episode of vomiting, no cough, no shortness of breath.

General Comment on International Numbers
These numbers are rapidly changing and as presented are acknowledged to already be out of date. Due to the speed of change and the difficulties staying current, WHO is shifting away from precise number counting and focusing more on interpretation of available data.

International Updates

10 Countries/territories with confirmed cases: Japan (1), Republic of Korea (1), Thailand (4), Taiwan (1), United States (1), Hong Kong (1) and Macau (1)

Jan 21, **Taiwan confirmed its first case of nCoV** – Female who worked in Wuhan. Upon returning to Taiwan on 1/20, the patient was quarantined at the airport with fever, cough, and shortness of breath. **Confirmation of nCoV 1/21**. Contact tracing of airline crew and passengers has been initiated. In addition to quarantine and screening at points of entry, the government of Taiwan has increased surveillance, health system awareness, and public health risk awareness.

Wuhan Travel Ban

The Wuhan Municipal Government Coronavirus Infection Pneumonia Command Center has issued a travel suspension from 10 AM Jan 23rd onward where urban bus, subway, ferry and long-distance passenger transportation has been stopped and it is recommended that citizens should not leave Wuhan. The Wuhan airport and train station are temporarily closed. Active case finding is being conducted in all parts of China using thermal scanners at airports, railway stations and bus terminals. There is no indication when the travel restrictions may end. US Consulate Wuhan closed today as staff cannot get to work.

1/23 US Embassy in Beijing meeting of the Emergency Action Committee (EAC) decided on an **Ordered Departure of US Embassy staff in Wuhan**. Of note, if there is a need for TDY'ers to travel to Wuhan during the ordered departure (e.g., if CDC gets invited to join investigation), a waiver can be requested and must be granted from Undersecretary of State for eCC approval. Per CDC China, an important issue is around messaging of this event. It should be made clear that the precipitating event was the lack of adequate medical services and threats to essential infrastructure due to restriction of travel rather than primarily concern over the risk of infection with 2019-nCoV. Otherwise the question of what the threshold is for infection in other parts of the country or world will be raised and this is currently undetermined.

China – 571 confirmed cases in 25 provinces, 17 deaths

On Jan 22, China **571 confirmed** (131 new), **1236 suspect cases** and **17 deaths** (8 new) in **25 provinces** in China. Currently, 5,897 close contacts have been followed-up; 969 have been released from medical observation, and 4,928 are still under medical observation. Of the cases, there are **16% (68) which are severe**, **5% (23) are critical, and 4% (17) who have died**. 12 out of 17 deaths had underlying diseases such as: hypertension, diabetes, COPD, cardiovascular and cerebrovascular disease. Median age is 75 (range 48-89), 13 (76%) male and there was an average of 14 days (range 4-41) from onset to death.

General observations include data that describe **clusters of infection** in families (for example 6 family clusters involving 17 cases in Guangdong) and cases associated with health care transmission in two clusters in Wuhan.

Thailand – 4 cases

The Thai Prime Minister held a press conference officially confirming the 3 and 4th case in Thailand. In addition, there is a **possible 5th case** (spouse of case #4 who also visited Wuhan)

CDC Thailand Office has heard from WHO that Thai Minister agreed to share viral specimens with 5 labs worldwide including CDC. **WHO DG has advocated for sample sharing as well.**

Other:

WHO Emergency Committee meeting on Jan 22nd indicated that the 16 expert panel was split on whether or not to declare and PHEIC and will reconvene 1/23 to discuss the situation further.

WHO teams have approached China for more data, including updated line lists.

Recent publication in the Journal of Medical Virology linking the nCoV virus to bats and snakes (Chinese krait and cobra). Data being evaluated by CDC staff.

Neil Ferguson at Imperial College has re-run their model now estimating a total of 4,000 cases of 2019-nCoV in Wuhan City (uncertainty range: 1,000 – 9,700) had onset of symptoms by 18th January 2020 (the last reported onset date of any case) and suggests that currently self-sustaining human-to-human transmission should not be ruled out.

LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

Chief, Meningitis and Vaccine Preventable Diseases
Division of Bacterial Diseases
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Butler, Jay C. (CDC/DDID/OD)
Sent: Thu, 23 Jan 2020 13:13:05 +0000
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD);Redfield, Robert R. (CDC/OD)
Subject: Fwd: CLEARED-- LEVEL 3 Travel Notices for Wuhan
Attachments: LEVEL 3 Wuhan Travel Notice_CLEARED_1.22.20wlinks.docx, Alert - Rest of China_CLEARED_1.22.20wlinks (003).docx

The Wuhan Level 3 is ready to post.
Get Outlook for iOS
From: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>
Sent: Thursday, January 23, 2020 6:49:53 AM
To: Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>
Cc: Eidex, Rachel Barwick (CDC/DDID/NCEZID/DGMQ) <zvd3@cdc.gov>; Angelo, Kristina (CDC/DDID/NCEZID/DGMQ) <ydg2@cdc.gov>
Subject: CLEARED-- LEVEL 3 Travel Notices for Wuhan

Hi all –
We have prepared and cleared the attached travel notices, Level 3: Avoid Nonessential Travel for Wuhan, and an alert on the China destination page for the rest of China to post this morning.

Please let me know when we have the green light to post.

Thanks,
Rachel

Rachel Barwick Eidex, MS, PhD
Chief, Travelers' Health Branch (Acting)
Division of Global Migration and Quarantine
Centers for Disease Control and Prevention
Mobile: 413-854-4409
Email: reidex@cdc.gov

Novel Coronavirus in Wuhan, China

(b)(5)

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Novel Coronavirus in China

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From: Butler, Jay C. (CDC/DDID/OD)
Sent: Thu, 23 Jan 2020 14:14:02 +0000
To: Butler, Jay C. (CDC/DDID/OD)
Attachments: 20200123-IM Update 2019 nCoV FINAL.pptx

Get Outlook for iOS

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From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Fri, 24 Jan 2020 11:42:20 +0000
To: Patel, Anita (CDC/DDID/NCIRD/OD);Jernigan, Daniel B. (CDC/DDID/NCIRD/ID)
Cc: Cohn, Amanda (CDC/DDID/NCIRD/OD);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD)
Subject: Re: NYC peds case

(b)(6)
From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Friday, January 24, 2020 6:40:12 AM
To: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Cc: Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Subject: NYC peds case

See details below
From: Miller, Maureen J. (CDC/DDNID/NCCDPHP/DCPC) <yax6@cdc.gov>
Sent: Friday, January 24, 2020 2:02 AM
To: Schneider, Eileen (CDC/DDID/NCIRD/DVD); nCoVPUI (CDC); Oliver, Sara Elizabeth (CDC/DDID/NCIRD/DBD); Kirking, Hannah L. (CDC/DDPHSIS/CGH/DGHT); Lindstrom, Stephen (CDC/DDID/NCIRD/DVD); Patel, Anita (CDC/DDID/NCIRD/OD)
Cc: Gold, Jeremy (CDC/DDID/NCEZID/DFWED); Dooling, Kathleen L. (CDC/DDID/NCIRD/DVD)
Subject: Re: nCoV PUI

Dear Marci and Julie,

Thank you for getting in touch about the patient under investigation for novel coronavirus. Below is some information to help assist in the PUI evaluation and also a summary of our discussion.

Summary: (b)(6) was in Wuhan in early January 2020 with no known exposures or sick contacts. Avoided markets while there. Left Wuhan on (b)(6) for JFK airport in NYC, then traveled to (b)(6) for several days to visit (b)(6) Back in NYC, (b)(6) presented to ED complaining of cough x 4 days (not observed in ED) and fever (Tmax 100.9F). Lungs clear to auscultation bilaterally; CXR, RVP, influenza swab results pending. Given clinical symptoms, time in Wuhan, and age, this patient is a nCoV PUI. Per protocol, deputy IM Anita Patel was notified of this new PUI by text message at 1:36 AM on 1/24 (also cc'ed on this E-mail).

CDC PUI ID: (b)(6)

POC Details:
Name: Marci Layton, Julie Schillinger
Location: NYC DOHMH

Phone: 917-578-6206
Email: mlayton@health.nyc.gov; julie.schilli@health.nyc.gov

Additional information:

1. Clinical: Here is the link to the Patient Under Investigation form: https://www.cdc.gov/coronavirus/2019-ncov/downloads/pui-form.pdf. Please fill this out and send back to the EOC per the instructions at the top of the form, and share a copy with your state health department as well.

2. Laboratory testing (see attached): we recommend collection of NP swab (VTM), OP swab (VTM), sputum (sterile container), serum at this time. If possible, we would like urine and stool, but this should not hold up shipment of respiratory specimens and serum. The NP and OP swabs should be placed in separate VTM vials.

3. General shipping info (see attached): Store specimens at 2-8°C and ship overnight to CDC on ice pack. Label each specimen container with the patient's CDC PUI ID number with specimen type (ie (b)(6)) and the date and the sample was collected. Complete a CDC Form 50.34 for each specimen submitted (see attached spec submission guidelines for link to 50.34 – In the upper left box of the form, 1) for *test requested* select "Respiratory virus molecular detection (non-influenza) (b)(6) " and 2) for *At CDC, bring to the attention of* enter "Stephen Lindstrom: nCoV 2019 PUI". **Send us the tracking number when available.**

4. **For each specimen, please label with the CDC PUI ID number and the specimen type.**

5. Precautions: As discussed, we recommend standard, contact and airborne precautions as well as eye protection (e.g., googles, etc). If patient to seek healthcare, she should alert providers in advance so that they may be prepared. Please see this link for further information about infection control: https://www.cdc.gov/coronavirus/2019-nCoV/infection-control.html

6. Patient should remain under home isolation under this guidance: https://www.cdc.gov/coronavirus/2019-ncov/guidance-home-care.html

Please let us know if you have any additional questions or concerns. For urgent inquiries, please contact the CDC Emergency Operations Center at 770-448-7100.

Thank you,

Maureen Miller

(on behalf of the 2019-nCoV response)

Maureen J. Miller, MD MPH
Epidemic Intelligence Service Officer
Epidemiology and Applied Research Branch
Division of Cancer Prevention and Control/NCCDPHP/CDC
4770 Buford Highway, Mail Stop S107-4, Atlanta, GA 30341
Phone: (404) 498-2863 | Email: yax6@cdc.gov

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Fri, 24 Jan 2020 11:52:37 +0000
To: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);Cetron, Marty (CDC/DDID/NCEZID/DGMQ);Schuchat, Anne MD (CDC/OD);Redfield, Robert R. (CDC/OD);Berger, Sherri (CDC/OCOO/OD);McGowan, Robert (Kyle) (CDC/OD/OCS);Butler, Jay C. (CDC/DDID/OD)
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID);Patel, Anita (CDC/DDID/NCIRD/OD)
Subject: Re: Daily OD Update nCoV Jan 24th

You're the best! Thanks for doing it early.
From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Friday, January 24, 2020 6:49:21 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Subject: Daily OD Update nCoV Jan 24th

Dear All,

Please see the daily nCoV update. Let us know if there are any questions.

Thanks,

LeAnne

Domestic Updates

Patients Being Medically Evaluated in US (as of 1/23 7 PM):

63 patients are/have been medically evaluated for possible nCoV infection.
53 patients are currently being tested for nCoV
8 patients have tested negative for nCoV
2 confirmed nCoV patients

Over 200 calls received and triaged to discuss medical evaluation of patients

1st Confirmed nCoV Patient in Washington State: remains stable, but intermittently febrile in the hospital in isolation and under airborne precautions. CDC team has arrived in Washington State and is working with state and local health authorities and hospital staff on patient assessment and follow-up and contact tracing. **43 people identified in contact tracing in 3 counties, 2nd team deploying to Washington to assist with investigation**

2nd Confirmed nCoV Patient in Chicago: (b)(6) with co-morbidities and travel to Wuhan from end Dec to 1/13. While in Wuhan, patient spent time in the hospital with her ill (b)(6) from "viral pneumonia" as well as 2 other family members hospitalized with "viral pneumonia". Patient's symptoms began 1/14 with fever, myalgias and cough. Patient hospitalized requiring oxygen in isolation. **1/23: Positive nCoV, CDC deploying team to Chicago for investigation.**

CA deployment for collection of autopsy specimens: CDC is assisting with collection of autopsy tissue specimens from a previously healthy adult who died in CA on 1/22 after returning to the US on 1/18 from 8-day trip to Shanghai (no travel to Wuhan). Had onset of cough and myalgia on 1/19 and was found down at home on 1/22 and was pronounced dead on arrival to the ED. Upper respiratory specimens and a blood specimen are being shipped overnight to CDC for nCoV testing on 1/24. Two CDC pathologists and one NIOSH expert are deployed to help with autopsy tissue specimen collection on 1/24. **State and local public health and CDC agree that this information should not be released to the public, if possible.**

Travel

CDC in discussions with NSC and DHS regarding elevating travel screening posture in US.

1/23 **Increased Travel Health Alert to Level 3: Recommends that travelers avoid all nonessential travel to Wuhan, China. In response to an outbreak of respiratory illness, Chinese officials have closed transport within and out of Wuhan, including buses, subways, trains, and the international airport.**

1/23 **CDC has also issued an alert for travel to the rest of China due to nCoV infection**

In addition, CDC is in the process of instituting airport screening at Atlanta and Chicago, O'Hare airports and funneling flights (reticketing) from Wuhan to the 5 US airports with screening.

Airport Screening:

Screening continues at 3 airports (JFK, SFO and LAX)**, 1 passenger referred for medical evaluation on 1/23, following up**.

1/22 Three outbound travelers (in one family) connecting through LAX referred for medical evaluation; family has had potential exposure to patient with nCoV in Wuhan within 14 days. Patients have been transported to hospital in LA.

Situation Details:

(b)(6) from Wuhan who traveled to US via LAX were all three cleared to continue their journey to (b)(6) on 1/19/2020. On 1/22/2020, they returned to LAX enroute back to Wuhan due to death of the (b)(6) and had recently had fever, shortness of breath, and cough prior to her death. The cause of her acute respiratory illness is unknown (possible nCoV). The family are all afebrile at screening (b)(6) is feeling unwell and has a cough. (b)(6) is having body aches, no cough, no shortness of breath. (b)(6) had one episode of vomiting, no cough, no shortness of breath.

General Comment on International Numbers

These numbers are rapidly changing and as presented are acknowledged to already be out of date. Due to the speed of change and the difficulties staying current, WHO is shifting away from precise number counting and focusing more on interpretation of available data.

International Updates

10 Countries/territories with confirmed cases: Japan (2), Republic of Korea (2), Thailand (5), Taiwan (1), United States (2), Hong Kong (2) and Macau (2), Singapore (4), Vietnam (2), Nepal (1)* Nepal case reported to WHO, but not confirmed by other sources to date.

Jan 22, **Hong Kong 2 cases reported** - (b)(6) Wuhan resident, onset 1/21, traveled to HK and was detected at entry on 1/21, confirmed 1/22 and 56 yo male from HK, traveled to Wuhan 1/10, onset 1/18, flew to HK 1/19 and visited healthcare that day; not detected until 2nd healthcare visit on 1/21, was isolated and confirmed.

Jan 22, **Macau 2 cases reported** - Unknown age (b)(6) Wuhan resident, arrived Macau by train and bus 1/19. Onset unknown. In casino 1/19, Contacts being followed and 66 yo male tourist from Wuhan, arrived 1/22, detected at port of entry.

Jan 23, **Singapore confirmed its first case of nCoV –** (b)(6) who lived in Wuhan. Arrived at airport in Singapore 1/20 with sore throat and developed fever and cough 1/21. **Confirmation of nCoV 1/22**. Contract tracing initiated. **Per WHO, Singapore has 4 confirmed cases**; including 66 yo female, Chinese national from Wuhan, traveled to Singapore 1/20, fever onset 1/21, confirmed 1/23; 37 yo male son also confirmed 1/24. Contacts being followed and 53 yo female Chinese national from Wuhan, entered Singapore 1/21, visited ER 1/22, confirmed 1/23. Contacts being followed. **None of these were detected through airport screening.**

Jan 23, **Vietnam confirmed its first two cases of nCoV –** (b)(6) arrived from Wuhan to visit (b)(6) and then developed fever. (b)(6) hospitalized 1/17, son developed fever a few days later, **1st potential human-to-human transmission outside China.**

Jan 23, **Nepal confirmed nCoV case** - (b)(6) onset 1/5 in Wuhan, returned to Kathmandu date unknown, confirmed by HKU 1/23. Exposures in Wuhan unknown, SEARO following up. (Information from WHO, not independently confirmed to date.)

Jan 24, **Republic of Korea confirmed a 2nd case of nCoV** - (b)(6) working in Wuhan. Onset 1/10 in Wuhan, traveled to Korea 1/19, confirmed 1/23. Detected at airport screening.

Jan 24, **Japan confirmed a 2nd nCoV case** is in a (b)(6) from Wuhan. Onset of fever was on 1/14 in Wuhan and he sought outpatient medical care in Wuhan for fever on 1/15 and 1/17. Did not visit animal markets in Wuhan. He traveled to Japan on 1/19 (was not captured by airport screening) with a Chinese tour group. He sought outpatient medical care on 1/20 with fever and sore throat in Japan. On 1/22 he sought medical care again and was admitted (9th day with fever, 4th visit to a healthcare facility) with possible pneumonia and confirmed with 2019-nCoV. Remains stable and was transferred to hospital in Tokyo.

Travel Bans in China

At least 13 cities in Hubei Province, including Wuhan are subject to travel bans or restrictions. The bans affect approximately 35 million people. Also, at least three provinces besides Hubei have declared public health emergencies as of late January 23, including Guangdong, Hunan, and Zhejiang. There is no indication when the travel restrictions may end.

USG Personnel in Wuhan - Wuhan consulate was approved for Ordered Departure; staff are expected to go by land to Shanghai or Beijing and fly to US. CDC China has asked for flight and entry port information to give heads up to US screeners to facilitate screening.

China – 830 confirmed cases in 29 provinces, 25 deaths

On Jan 23, China reported **830 confirmed** (259 new) cases, including **177 severe cases** and **25 deaths** (8 new) (24 in Hubei Province and 1 in Hebei Province), including an additional total of **1,072 suspected cases** in **29 provinces** in China, over 9507 contacts being followed.

China nCoV cases require confirmation at national lab to be considered a case; there is a backlog of hundreds of cases awaiting confirmation. Expect officially confirmed numbers to increase in the coming days.

Thailand – 5 cases

5th case in Thailand was confirmed, patient is the wife of patient #4 with a risk factor of travel from Wuhan

Investigating a contact of patient #3 who has developed fever and respiratory symptoms, but no travel to Wuhan.

CDC Thailand Office has heard from WHO that Thai Minister agreed to share viral specimens with 5 labs worldwide including CDC. WHO DG has advocated for sample sharing as well.

Other:

WHO Emergency Committee meeting on Jan 23rd indicated that the 16 expert panel remained split on whether or not to declare and PHEIC and will reconvene after several days to re-evaluate.

WHO Planning Press Conference later today

Possible WHO GOARN team to deploy to China for investigation.

LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

Chief, Meningitis and Vaccine Preventable Diseases
Division of Bacterial Diseases
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739

FAX: 404-471-2511
Email: lfox@cdc.gov

From: Schuchat, Anne MD (CDC/OD)
Sent: Fri, 24 Jan 2020 12:44:10 +0000
To: Berger, Sherri (CDC/OCOO/OD)
Cc: McGowan, Robert (Kyle) (CDC/OD/OCS);Warner, Agnes (CDC/OD/OCS);Schuchat, Anne MD (CDC/OD)
Subject: 'lessons learned' mainly from SARS
Attachments: Lessons Learned SARS and MERS_v5.docx

In many ways this is 'overtaken by events' but since Dr Redfield asked you about us giving him something like this, you might have a feel if it still makes any sense to share with him. This isn't forward looking and I don't want to distract him today, so your advice on timing or not bothering to share is welcome.

Anne Schuchat, MD
Principal Deputy Director
Centers for Disease Control and Prevention
Rear Admiral (Ret.), US Public Health Service

Phone 404 639-7000
Fax 404 639-7111
Email Aschuchat@cdc.gov

(b)(5)

(b)(5)

From: Schuchat, Anne MD (CDC/OD)
Sent: Fri, 24 Jan 2020 13:57:23 +0000
To: Berger, Sherri (CDC/OCOO/OD);Caudwell, Kerry M. (CDC/OD/OCS);McGowan, Robert (Kyle) (CDC/OD/OCS)
Cc: Clark, Cynthia K. (CDC/OD/OCS);EOC Report (CDC)
Subject: Re: HHS URGENT Request For Information: 2019-2020 Novel Coronavirus - (b)(6) - Chicago 1st case of Coronavirus (2019nCoV)

This re
Get Outlook for iOS
From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Friday, January 24, 2020 8:57:04 AM
To: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Cc: Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; EOC Report (CDC) <eocreport@cdc.gov>
Subject: RE: HHS URGENT Request For Information: 2019-2020 Novel Coronavirus - (b)(6) Chicago 1st case of Coronavirus (2019nCoV)

Reminder he is in the air, lands soon. Anne can weigh in if needed. Thanks

---

From: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Sent: Friday, January 24, 2020 8:55 AM
To: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Cc: Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; EOC Report (CDC) <eocreport@cdc.gov>
Subject: FW: HHS URGENT Request For Information: 2019-2020 Novel Coronavirus - (b)(6) Chicago 1st case of Coronavirus (2019nCoV)

Kyle

Heads up. We received an RFI from HSS regarding a possible case in Chicago. The response is working on the answer now and you will see it before it goes up.

Thanks

From: EOC Report (CDC) <eocreport@cdc.gov>
Sent: Friday, January 24, 2020 8:45 AM
To: Schnepf, Laurie (CDC/OD/OCS) <fzi6@cdc.gov>; Kennedy, Veronica (CDC/OD/OCS) <bvo3@cdc.gov>; Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Cc: Dreyzehner, John (CDC/DDPHSIS/CPR/OD) <PWN3@cdc.gov>; Romanoff, Lovisa C. (CDC/DDPHSIS/CPR/OD) <lrw8@cdc.gov>; Johnson, Rudolph (CDC/DDNID/NCEH/DLS) <rmj6@cdc.gov>; Frank, Mark (CDC/DDPHSIS/CPR/DEO) <mqf1@cdc.gov>; Poblano, Luis (CDC/DDPHSIS/CPR/DEO)

<lqp1@cdc.gov>; Howard, Harvey (CDC/DDPHSIS/CPR/DEO) <fpv7@cdc.gov>; EOC Report (CDC) <eocreport@cdc.gov>; CDC IMS Response Coordinator -2 <eocresp2@cdc.gov>
Subject: HHS URGENT Request For Information: 2019-2020 Novel Coronavirus - (b)(6) - Chicago 1st case of Coronavirus (2019nCoV)

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This message is from the CDC's Emergency Operations Center (EOC). You are receiving this message because you have been assigned to respond to an URGENT Request for Information. If you have any questions contact the Watch Team in the EOC at 770-488-7100 or eocreport@cdc.gov.

The CDC/OD Issues Management, Analysis, and Coordination (IMAC) representatives are receiving this email. Please ensure all SME, CIO and ADS clearance is complete prior to providing your response back to the EOC Watch Team. CDC/OD will review/approve final verbiage for release.

Please do not 'reply to all' with your response; reply only to eocreport@cdc.gov

Requestor: HHS SOC

POC: 2019 nCoV Chief of Staff

Due Date Time: 24 January, 9:00 AM

Description: HHS SOC requests confirmation from CDC that there is a confirmed case in Chicago.

Assigned To: CDC EOC
RFI ID: 2019-2020 Novel Coronavirus - (b)(6)
Subject: Chicago 1st case of Coronavirus (2019nCoV)
Due Date:

Secretary's Operations Center
U.S. Department of Health and Human Services (HHS)
Assistant Secretary for Preparedness and Response (ASPR)
200 Independence Ave., S.W.
Washington, D.C. 20201
Office: (202) 619 – 7800
Fax: (202) 619 – 8602
Email: hhs.soc@hhs.gov

Distributed by:
Russell Baker
CDC EOC Duty Officer
770-488-7100
eocreport@cdc.gov

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From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Fri, 24 Jan 2020 13:58:44 +0000
To: Schuchat, Anne MD (CDC/OD);Berger, Sherri (CDC/OCOO/OD);Caudwell, Kerry M. (CDC/OD/OCS)
Cc: Clark, Cynthia K. (CDC/OD/OCS);EOC Report (CDC)
Subject: Re: HHS URGENT Request For Information: 2019-2020 Novel Coronavirus - (b)(6) - Chicago 1st case of Coronavirus (2019nCoV)

Thanks. I'm back on the ground now
Get Outlook for iOS
From: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Sent: Friday, January 24, 2020 8:58:08 AM
To: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Cc: Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>; EOC Report (CDC) <eocreport@cdc.gov>
Subject: Re: HHS URGENT Request For Information: 2019-2020 Novel Coronavirus (b)(6) Chicago 1st case of Coronavirus (2019nCoV)

Secretary has been briefed. No rush on this responsebto soc.
Get Outlook for iOS
From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Friday, January 24, 2020 8:57:04 AM
To: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Cc: Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; EOC Report (CDC) <eocreport@cdc.gov>
Subject: RE: HHS URGENT Request For Information: 2019-2020 Novel Coronavirus - (b)(6) Chicago 1st case of Coronavirus (2019nCoV)

Reminder he is in the air, lands soon. Anne can weigh in if needed. Thanks

---

From: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Sent: Friday, January 24, 2020 8:55 AM
To: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Cc: Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; EOC Report (CDC) <eocreport@cdc.gov>
Subject: FW: HHS URGENT Request For Information: 2019-2020 Novel Coronavirus (b)(6) Chicago 1st case of Coronavirus (2019nCoV)

Kyle

Heads up. We received an RFI from HSS regarding a possible case in Chicago. The response is working on the answer now and you will see it before it goes up.

Thanks

From: EOC Report (CDC) <eocreport@cdc.gov>
Sent: Friday, January 24, 2020 8:45 AM
To: Schnepf, Laurie (CDC/OD/OCS) <fzi6@cdc.gov>; Kennedy, Veronica (CDC/OD/OCS) <bvo3@cdc.gov>; Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Cc: Dreyzehner, John (CDC/DDPHSIS/CPR/OD) <PWN3@cdc.gov>; Romanoff, Lovisa C. (CDC/DDPHSIS/CPR/OD) <lrw8@cdc.gov>; Johnson, Rudolph (CDC/DDNID/NCEH/DLS) <rmj6@cdc.gov>; Frank, Mark (CDC/DDPHSIS/CPR/DEO) <mqf1@cdc.gov>; Poblano, Luis (CDC/DDPHSIS/CPR/DEO) <lqp1@cdc.gov>; Howard, Harvey (CDC/DDPHSIS/CPR/DEO) <fpv7@cdc.gov>; EOC Report (CDC) <eocreport@cdc.gov>; CDC IMS Response Coordinator -2 <eocresp2@cdc.gov>
Subject: HHS URGENT Request For Information: 2019-2020 Novel Coronavirus - (b)(6) Chicago 1st case of Coronavirus (2019nCoV)

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The CDC/OD Issues Management, Analysis, and Coordination (IMAC) representatives are receiving this email. Please ensure all SME, CIO and ADS clearance is complete prior to providing your response back to the EOC Watch Team. CDC/OD will review/approve final verbiage for release.

Please do not 'reply to all' with your response; reply only to eocreport@cdc.gov

Requestor: HHS SOC

POC: 2019 nCoV Chief of Staff

Due Date Time: 24 January, 9:00 AM

Description: HHS SOC requests confirmation from CDC that there is a confirmed case in Chicago.

Assigned To: CDC EOC
RFI ID: 2019-2020 Novel Coronavirus (b)(6)
Subject: Chicago 1st case of Coronavirus (2019nCoV)
Due Date: 1/24/2020 9:00:00 AM
Description:
SOC would like confirmation from CDC that there is a confirmed case of nCoV in Chicago. Confirmation requested before Chicago's public announcement at 9:00-ish am.

If you would like to respond, click here.

Secretary's Operations Center
U.S. Department of Health and Human Services (HHS)
Assistant Secretary for Preparedness and Response (ASPR)
200 Independence Ave., S.W.
Washington, D.C. 20201
Office: (202) 619 – 7800
Fax: (202) 619 – 8602
Email: hhs.soc@hhs.gov

Distributed by:
Russell Baker
CDC EOC Duty Officer
770-488-7100
eocreport@cdc.gov

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From: Schuchat, Anne MD (CDC/OD)
Sent: Fri, 24 Jan 2020 14:29:26 +0000
To: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID);Messonnier, Nancy (CDC/DDID/NCIRD/OD);Cetron, Marty (CDC/DDID/NCEZID/DGMQ)
Cc: Berger, Sherri (CDC/OCOO/OD);McGowan, Robert (Kyle) (CDC/OD/OCS)
Subject: not urgent - FYI only FW: Draft: Lessons Learned SARS and MERS for the Secretary
Attachments: Lessons Learned SARS and MERS_v5 (002).docx

(b)(5)

From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Friday, January 24, 2020 8:36 AM
To: Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Warner, Agnes (CDC/OD/OCS) <bli8@cdc.gov>; Knotts, Ashley (CDC/OD/OCS) <vqf0@cdc.gov>
Cc: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Subject: Draft: Lessons Learned SARS and MERS for the Secretary

Dr. Redfield –

(b)(5)

Please let us know if you have any Qs or edits, or want the team to get it up to HHS today.

Thanks,
Sherri

(b)(5)

(b)(5)

From: Schuchat, Anne MD (CDC/OD)
Sent: Fri, 24 Jan 2020 14:37:09 +0000
To: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID);Messonnier, Nancy (CDC/DDID/NCIRD/OD);Cetron, Marty (CDC/DDID/NCEZID/DGMQ)
Cc: Berger, Sherri (CDC/OCOO/OD);McGowan, Robert (Kyle) (CDC/OD/OCS)
Subject: use this version RE: not urgent - FYI only FW: Draft: Lessons Learned SARS and MERS for the Secretary
Attachments: Lessons Learned SARS and MERS_v6.docx

Better version - sorry

From: Schuchat, Anne MD (CDC/OD)
Sent: Friday, January 24, 2020 9:29 AM
To: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>
Cc: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Subject: not urgent - FYI only FW: Draft: Lessons Learned SARS and MERS for the Secretary

(b)(5)

From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Friday, January 24, 2020 8:36 AM
To: Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Warner, Agnes (CDC/OD/OCS) <bli8@cdc.gov>; Knotts, Ashley (CDC/OD/OCS) <vqf0@cdc.gov>
Cc: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Subject: Draft: Lessons Learned SARS and MERS for the Secretary

Dr. Redfield –

(b)(5)

Please let us know if you have any Qs or edits, or want the team to get it up to HHS today.

Thanks,
Sherri

From: Schuchat, Anne MD (CDC/OD)
Sent: Fri, 24 Jan 2020 15:02:27 +0000
To: Berger, Sherri (CDC/OCOO/OD);Warner, Agnes (CDC/OD/OCS);Knotts, Ashley (CDC/OD/OCS)
Cc: McGowan, Robert (Kyle) (CDC/OD/OCS);Butler, Jay C. (CDC/DDID/OD)
Subject: please replace w this version RE: Draft: Lessons Learned SARS and MERS for the Secretary
Attachments: Lessons Learned SARS and MERS_v6.docx

(without Dr Redfield – note this is better version, minor clarification to the communication section).

From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Friday, January 24, 2020 8:36 AM
To: Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Warner, Agnes (CDC/OD/OCS) <bli8@cdc.gov>; Knotts, Ashley (CDC/OD/OCS) <vqf0@cdc.gov>
Cc: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Subject: Draft: Lessons Learned SARS and MERS for the Secretary

Dr. Redfield –

This is the "Selected Lessons Learned: 2003 SARS, 2012 MERS, and 2009 H1N1 Pandemic" document you requested for the Secretary. Some of these Qs came up again this morning.

Please let us know if you have any Qs or edits, or want the team to get it up to HHS today.

Thanks,
Sherri

From: Butler, Jay C. (CDC/DDID/OD)
Sent: Fri, 24 Jan 2020 15:22:56 +0000
To: (b)(6)
Subject: Lessons Learned
Attachments: Lessons Learned SARS and MERS_v6.pdf

Jay C. Butler, MD, FAAP, MACP, FIDSA
Deputy Director for Infectious Diseases
Centers for Disease Control and Prevention
1600 Clifton Rd., Mailstop H24-12
Atlanta, GA 30333
404-718-7841

(b)(5)

(b)(5)

From: Redfield, Robert R. (CDC/OD)
Sent: Sat, 25 Jan 2020 01:02:42 +0000
To: Warner, Agnes (CDC/OD/OCS)
Subject: Fwd: Selected Lessons Learned: 2003 SARS, 2012 MERS, and 2009 H1N1 Pandemic

Forward this to Secretary and Brian
Dr. Robert Redfield
From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Friday, January 24, 2020 4:04:41 PM
To: Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Warner, Agnes (CDC/OD/OCS) <bli8@cdc.gov>
Subject: (b)(5)

Mr. Secretary –

In follow up to our brief discussion, here are some lessons learned primarily from 2003 SARS, as well as 2012 MERS and 2009 H1N1 Pandemic. If we can provide additional information, please let me know.

Peace,
r3

(b)(5)

(b)(5)

(b)(5)

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Sat, 25 Jan 2020 13:18:55 +0000
To: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD)
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID);Patel, Anita (CDC/DDID/NCIRD/OD);Cohn, Amanda (CDC/DDID/NCIRD/OD)
Subject: Re: Daily OD nCoV Update Jan 25

(b)(5)

From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Saturday, January 25, 2020 8:15 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Subject: Daily OD nCoV Update Jan 25

Dear All,

Please see the Daily OD Updates for nCoV. Let us know if there are any questions.

Thanks,

LeAnne

Domestic Updates

Patients Being Medically Evaluated in US (as of 1/24 7 PM):

77 patients are/have been medically evaluated for possible nCoV infection.
61 patients are currently being tested for nCoV
14 patients have tested negative for nCoV
2 confirmed nCoV patients

Close to 300 calls received and triaged to discuss medical evaluation of patients

1st Confirmed nCoV Patient in Washington State: remains stable, but intermittently febrile in the hospital in isolation and under airborne precautions. CDC team has arrived in Washington State and is working with state and local health authorities and hospital staff on patient assessment and follow-up and contact tracing. **43 people identified in contact tracing in 3 counties, 2nd team has deployed to Washington to assist with investigation**

2nd Confirmed nCoV Patient in Chicago: (b)(6) with co-morbidities and travel to Wuhan from end Dec to 1/13. While in Wuhan, patient spent time in the hospital with her (b)(6) who died 12/31 from "viral pneumonia" as well as 2 other family members hospitalized with "viral pneumonia". Patient's symptoms began 1/14 with fever, myalgias and cough. Patient hospitalized requiring oxygen in isolation, but clinically improved. **1/23: Positive nCoV, CDC team has deployed to Chicago for investigation.**

CA deployment for collection of autopsy specimens: CDC is assisting with collection of autopsy tissue specimens from a previously healthy adult who died in CA on 1/22 after returning to the US on 1/18 from 8-day trip to Shanghai (no travel to Wuhan). Had onset of cough and myalgia on 1/19 and was found down at home on 1/22 and was pronounced dead on arrival to the ED. Upper respiratory specimens and a blood specimen are being shipped overnight to CDC for nCoV testing on 1/24. Two CDC pathologists and one NIOSH expert are deployed to help with autopsy tissue specimen collection on 1/24. **State and local public health and CDC agree that this information should not be released to the public, if possible.**

Travel

New recommendations for travel screening in process including:

1. Enhance staffing at **all** 18 Quarantine stations to increase capacity for responding to ill passengers

- Increasing staff at all the airports where CDC currently has staff
    - Adding staff to Boston and Dallas where we currently do not have a staffed Quarantine station, bringing total to **20** airports
    - This covers the top 12 US airports where passengers from China arrive
- As per existing communicable disease response protocols, CDC staff will also be able to evaluate any travelers from China who are identified as sick with febrile respiratory illness by CBP

2. All travelers from China when clearing customs at CBP will be given a CDC travelers' health alert notice to watch for symptoms and what to do if they develop illness

China Embassy/Consular/AmCit Updates

Wuhan US Mission personnel, including families, contractors, American citizens and some 3rd party nationals will be evacuated by aircraft over the weekend. Two medical personnel will be aboard to provide medical monitoring, if needed. The port of entry will be SFO and the currently anticipated flight arrival would be 6:30 PM Monday, Jan 1/27. Travelers will be screened prior to boarding and ill persons would not be able to board.

Airport Screening:

Jan 24 - Passenger arrived in Detroit from Shanghai (passenger not from Wuhan, but attended meetings with many people from Wuhan) with fever and cough and requested to be transported to hospital for evaluation of nCoV. Following up.

Jan 23 - One outbound passenger referred for medical evaluation. Following up.

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General Comment on International Numbers
There have been discussions among international partners that the possibility that reporting of confirmed cases from China will decrease as lab capacity for confirmation is saturated.

International Updates

13 Countries/territories with a total of 30 officially confirmed cases outside China: Japan (2), Republic of Korea (2), Thailand (5 official, 3 unofficial), Taiwan (1 official, 2 unofficial), United States (2), Hong Kong (2, 3 unofficial) and Macau (2), Singapore (1 official, 3 unofficial), Vietnam (2), Nepal (1), France (3), Australia (4), Malaysia (3); 4 WHO Regions affected (WPRO, SEARO, PAHO, EURO)

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Travel Bans in China

At least 13 cities in Hubei Province, including Wuhan are subject to travel bans or restrictions. The bans affect approximately 35 million people. Also, at least three provinces besides Hubei have declared public health emergencies as of late January 23, including Guangdong, Hunan, and Zhejiang. There is no indication when the travel restrictions may end.

Healthcare capacity: Per media reports, a 1,000-bed temporary hospital is being built outside Wuhan, to be completed early next week and six medical teams comprising 1,230 staff are being sent to Hubei.

China – 1287 confirmed cases in 30 provinces, 41 deaths

On Jan 24, China reported **1287 confirmed** (457 new) cases, including **237 severe cases** and **41 deaths** (16 new, including 1st 2 deaths outside of Wuhan), including an additional total of **1,965 suspected cases** in **30 provinces** in China, over **15,197 contacts** being followed.

Thailand – 5 cases officially reported, 3 more not yet officially reported

CDC Thailand Office has heard from WHO that Thai Minister agreed to share viral specimens with 5 labs worldwide including CDC. WHO DG has advocated for sample sharing as well.

Other:

Plan for Secretary Azar to Speak to Chinese Minister Ma on Monday, Jan 27th.

WHO Emergency Committee meeting on Jan 23rd indicated that the 16 expert panel remained split on whether or not to declare and PHEIC and will reconvene after several days to re-evaluate.

Possible WHO GOARN team to deploy to China for investigation.

LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

Chief, Meningitis and Vaccine Preventable Diseases
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National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Redfield, Robert R. (CDC/OD)
Sent: Sat, 25 Jan 2020 13:31:28 +0000
To: (b)(6)
Subject: Fwd: Daily OD nCoV Update Jan 25

Dr. Robert Redfield
From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Saturday, January 25, 2020 8:15:11 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Subject: Daily OD nCoV Update Jan 25

Dear All,

Please see the Daily OD Updates for nCoV. Let us know if there are any questions.

Thanks,

LeAnne

Domestic Updates

Patients Being Medically Evaluated in US (as of 1/24 7 PM):

77 patients are/have been medically evaluated for possible nCoV infection.
61 patients are currently being tested for nCoV
14 patients have tested negative for nCoV
2 confirmed nCoV patients

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1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Sun, 26 Jan 2020 00:22:50 +0000
To: Patel, Anita (CDC/DDID/NCIRD/OD);Jernigan, Daniel B. (CDC/DDID/NCIRD/ID)
Cc: Cohn, Amanda (CDC/DDID/NCIRD/OD);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD)
Subject: Re: Summary of moving parts - Case in CA (b)(5)

(b)(5)

Sorry but is this a typo
From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Saturday, January 25, 2020 7:15:40 PM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>
Cc: Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
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Nancy, Dan,
Although we are waiting on confirmation from the lab, here is a summary we have so far of all the moving pieces so everyone is tracking on the case DGMQ referred to in California (b)(5)

(b)(5)

Leanne, Nancy, Please chime in if I missed anything.
Thanks,
Anita

- Case summary: Case patient (b)(6) ill and in the hospital – **results likely positive (confirmation should be soon)**
  - **PUI Summary:** On 1/23 at 12:50 am received call about a cluster of potential PUIs currently at LAX. A family of 3 (b)(5) year old male, (b)(year old (b)(6) and (b)(6) year old (b)(6) had be staying in Wuhan with the (b)(6) who had cancer as well as fever and cough, until 1/19 when they left Wuhan and traveled to (b)(6) on vacation. On 1/22, they received news that the (b)(6) in Wuhan died, so the family left (b)(6) and was transiting through LAX on their way to (b)(6) They felt unwell, so they presented themselves to CBP where they were evaluated by quarantine medical officers. (b)(6) felt feverish and had cough, rhinorrhea, and body aches (b)(6) had body aches and felt unwell, and (b)(6) had vomited. None had fever objectively (father's temperature was 37.5). Quarantine made the determination that they could not travel onward to China without being screened. The (b)(6) was described as non-toxic and not in respiratory distress, but unwell appearing. When LA county communicated this to UCLA, there were questions because the family did not have fever and did not meet criteria, so the EOC was consulted. Discussions were had with LA county, CDC, quarantine medical officer, and medical officers at LAX and it was agreed that given the travel history, sick contact in Wuhan, and current symptoms that the (b)(6)

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screen them as well at this time. **THIS IS BEING UPDATED WITH CURRENT STATUS BY THE EPI TEAM. PATIENT IS IN AN AIRBORNE ISOLATION ROOM IN THE ICU. ADDITIONAL CLINICAL INFO PER TIM BELOW.**

- (b)(5) not ill – **results pending (confirmation should be soon) – EPI TEAM WILL CHECK WHERE THIS PERSON IS AND IF POSITIVE WHERE (b)(6) WILL GO**
- (b)(6) is ill and in the hospital – **results pending (confirmation should be soon) PATIENT IS IN AN AIRBORNE ISOLATION ROOM IN THE ICU**

- **If positive**, this would represent our first family cluster, first pediatric positive, first patient with clinically worsening disease, and issues with flights/quarantine stations.
- **Clinical team:** Tim spoke to the clinician; patient's cough has worsen but he was stable as of 1.5h ago. He will call him in the next hour. The father and the son are in ICU in airborne isolation rooms at (b)(6) **ANITA CHECKING WITH TIM ON IF INVESTIGATIONAL TREATMENTS NEED TO BE CONSIDERED AND ARE AN OPTION/ACCESSIBLE**
- **DGMQ:** Team has been notified. (b)(5) d (b)(5)
- **Deployment team:** (b)(5) (b)(5)
- (b)(5) **LEANNE WILL RUN POINT ON THIS**

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Sun, 26 Jan 2020 00:25:25 +0000
To: Patel, Anita (CDC/DDID/NCIRD/OD);Jernigan, Daniel B. (CDC/DDID/NCIRD/ID)
Cc: Cohn, Amanda (CDC/DDID/NCIRD/OD);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD)
Subject: Re: Summary of moving parts - Case in CA (b)(5) (b)(5)

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From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Saturday, January 25, 2020 7:15 PM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>
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- **Deployment team**: (b)(5) (b)(5)

- (b)(5) **LEANNE WILL RUN POINT ON THIS**

From: Schuchat, Anne MD (CDC/OD)
Sent: Sun, 26 Jan 2020 17:03:21 +0000
To: Redd, Stephen (CDC/DDPHSIS/OD)
Subject: Fwd: Daily OD nCoV Update Jan 26

Internal only data below from the morning. Thanks for your flexibility w dc. So glad you can do this

Get Outlook for iOS
From: Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Sent: Sunday, January 26, 2020 8:17 AM
To: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD); Messonnier, Nancy (CDC/DDID/NCIRD/OD); Cetron, Marty (CDC/DDID/NCEZID/DGMQ); Schuchat, Anne MD (CDC/OD); Redfield, Robert R. (CDC/OD); Berger, Sherri (CDC/OCOO/OD); McGowan, Robert (Kyle) (CDC/OD/OCS); Butler, Jay C. (CDC/DDID/OD)
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID); Patel, Anita (CDC/DDID/NCIRD/OD)
Subject: Daily OD nCoV Update Jan 26

Hello everyone,
Here are the updates for 1/26 AM:
Domestic Updates

Patients Being Medically Evaluated in US (as of 1/25 7 PM):

	Numbers
Total # Persons Evaluated/Under Evaluation	97
Total # Confirmed Cases	5
Total # persons with pending test results	70
Total # persons with negative test results	22* Able to be matched
Persons reported by HD/Clinician	92
Persons reported by Airport screening	5
Persons Newly Identified in the prior 24 hours	20
Persons being evaluated who had contact with confirmed case	7 (5 IL, 2 WA)

Around 85 calls in last 24 hours received and triaged to discuss medical evaluation of patients

Summary of cases confirmed on 1/25:

Case #5: Los Angeles, CA
(b)(yo male who had been staying with a (b)(6) in Wuhan, who had (b)(6) as well as fever and cough. On Jan 19, he left with (b)(6) and traveled to (b)(6) on vacation. On Jan 22, the family received the news that (b)(6) n Wuhan had died and the family left (b)(6) and was

transitioning through LAX on their way to China. They felt unwell, so they presented themselves to CBP where they were evaluated by quarantine medical officers. (b)(6) felt feverish and had cough, rhinorrhea, and body aches. Quarantine made the determination that they could not travel onward to China without being screened. Case-patient and child currently in respiratory isolation rooms in hospital, (b)(asymptomatic. **Positive on 1/25 for nCoV; First Case Detected at Airport.** (b)(6 **tested negative on 1/25, testing on** (b)(**pending results.**

- **DGMQ working on flight manifest and LAX airport**
- **International team working on** (b)(6)
- **Deployment team ready if requested**

Case #4: Orange County, CA

(b)(6 yo man from Wuhan who came to visit his (b)(in (b)(6) CA on Jan 21. While in Wuhan, he developed subjective fevers, cough and runny nose on Jan 14th. No market/animal exposure. Clinically improving with persistent dry cough. Patient was evaluated at hospital on Jan 22nd with no radiographic abnormalities on chest x-ray and was not admitted. He discharged to the apartment where he is staying, but remains with fever, so will be admitted. (b)(6) th him and is asymptomatic. **OP/NP swabs** collected on 1/22 returned **nCoV positive on 1/25.**

Case #3: Arizona

(b)(yo man with travel to China Jan 5-19 (Wuhan Jan 7, Hubei rest of time) with onset of productive cough and fever on Jan 21. Presented to (b)(6) niversity student clinic in Phoenix, rapid influenza negative, respiratory viral panel pending. No comorbidities or sick contacts. Currently isolated in single dorm. NP, OP, serum, and sputum specimens sent to state lab. Specimens obtained 1/22, **OP/Sputum nCoV positive on 1/25**

- **First University related case**

Summary of field investigations:

1st Confirmed nCoV Patient in Washington State: remains stable, but intermittently febrile in the hospital in isolation and under airborne precautions. CDC team has arrived in Washington State and is working with state and local health authorities and hospital staff on patient assessment and follow-up and contact tracing. **Around 50 people identified in contact tracing in 3 counties, 2nd team has deployed to Washington to assist with investigation. Two persons from contact investigation currently being tested for nCoV.**

2nd Confirmed nCoV Patient in Chicago: (b)(6) with co-morbidities and travel to Wuhan from end Dec to 1/13. While in Wuhan, patient spent time in the hospital with (b)(6) from "viral pneumonia" as well as 2 other family members hospitalized with "viral pneumonia". Patient's symptoms began 1/14 with fever, myalgias and cough. Patient hospitalized requiring oxygen in isolation, but clinically improved. **1/23: Positive nCoV, CDC team has deployed to Chicago for investigation. Five persons identified during contact investigation currently being tested for nCoV.**

CA deployment for collection of autopsy specimens: CDC assisted with collection of autopsy tissue specimens from a previously healthy adult who died in CA on 1/22 after returning to the US on 1/18 from 8-day trip to Shanghai (no travel to Wuhan). UDPATE: **Patient diagnosed with PE, NP swab tested negative for nCoV, additional tests pending but low suspicion for nCoV based on autopsy results.**

-

Travel and Airport Screening

China Embassy/Consular/AmCit Updates

Wuhan US Mission personnel, including families, contractors, American citizens and some 3rd party nationals will be evacuated by aircraft over the weekend. Two medical personnel will be aboard to provide medical monitoring, if needed. Based on the EAC call this morning, it sounds as if the plane will be departing Wuhan on Tuesday morning and will be arriving as planned in Anchorage. The exact passenger manifest remains to be determined as this flight will primarily take consulate staff and family members, non-official Americans, and third country nationals on a space available basis.

Airport Screening:

Jan 24 - Passenger arrived in Detroit from Shanghai (passenger not from Wuhan, but attended meetings with many people from Wuhan) with fever and cough and requested to be transported to hospital for evaluation of nCoV. Following up.

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International Updates

There have been discussions among international partners that the possibility that reporting of confirmed cases from China will decrease as lab capacity for confirmation is saturated.

nCov in mainland China

	Confirmed Cases	Severe Cases	Deaths	Affected Provinces	Suspected Cases	Total Contacts Traced	Contacts Under Observation
Total	**1,975**	**324**	**56**	**30**	**2,684**	**23,431**	**21,556**
New	**688**	**87**	**15**	**0**	**1,309**	**8,234**	**13,136**

Epidemiology – **(data as of 2400 25 Jan Beijing)**

- Total confirmed cases 1,975, including 324 severe cases, and 56 deaths
- 1 death in Shanghai, 1 in Henan Province, 1 in Hebei Province, 1 in Heilongjiang Province. Remaining deaths in Hubei Province.
- Total suspected cases: 2,684
  - 30% (590/1965) of previous days suspected cases were eliminated
- Close contacts: 23,431 traced and 21,556 under medical observation.
  - 4% (325/8,420) of yesterday's contacts under observation were released from observation

- Three Chinese doctors in Beijing are confirmed cases. Two had travel to Wuhan. All close contacts are in quarantine. (People's Daily China)
- Concern that reporting of confirmed cases from China may fall off as confirmatory lab capacity is reached

Restrictions in China and SARs

- China said on 25 January that it would suspend all tour groups and the sale of flight and hotel packages for its citizens headed overseas, starting on Monday. (People's Daily China)
- The Beijing city government also announced on 25 January that it would suspend all inter-province buses from Sunday, effectively limiting road travel into the capital. (People's Daily China)
- 450 military medical staff being sent to Wuhan. (People's Daily China)
- 26 of China's provincial-level jurisdictions, including Beijing, Shanghai, Guangdong, Zhejiang, Hubei, have enacted the country's highest level of public health emergency response, (People's Daily China)
- Hong Kong announced that its schools would be closed until Feb. 17 to try to limit the possibility of transmission(Washington Post).

Research

- Therapeutic trial using the MIRACLE protocol (opinavir/ritonavir and interferon-β1b) is ongoing in China with 140 enrolled cases
- Ongoing efforts to develop treatments and vaccine

Healthcare capacity

- Second temporary 1,300-bed hospital to be constructed with completion in half a month. (People's Daily China)
- Wuhan has planned to transform 24 general hospitals for temporary use to cope with outbreak. (People's Daily China)

CDC Collaboration

- Second informal request from China to collaborate with CDC: Director of both China CDC's Global Public Health Center and the China CDC EID office contacted US CDC Office in China to express interested in urgently exploring possibilities of a grant or project to help address the numerous questions about nCoV, using the US-China EID cooperation mechanism. The two cooperative agreements that are currently managed through the EID office include an influenza research and global health security non-research cooperative agreements.

nCov, excl. mainland China (46 total, including 9 new)

nCov, excl. mainland China (46 total, including 8 new)

Country	Confirmed Cases	New Exported Cases (24 hrs)	Deaths	First Case Reported	Last Date of Onset or Entry
Countries with continued cases					

Thailand	8	2	0	13-Jan	23-Jan
SAR Hong Kong	5		0	21-Jan	23-Jan
Australia	4		0	25-Jan	Unk
Malaysia	4	1	0	24-Jan	23-Jan
Singapore	4	1	0	23-Jan	22-Jan
U.S.	3	1	0	16-Jan	14-Jan
Taiwan	3		0	21-Jan	22-Jan
France	3		0	24-Jan	Unk
Japan	3	1	0	15-Jan	21-Jan
Republic of Korea	3	1	0	20-Jan	25-Jan
SAR Macao	2		0	22-Jan	22-Jan
Vietnam	2		0	23-Jan	Unk
Nepal	1		0	24-Jan	5-Jan
Countries with New cases					
Canada	1	1	0	25-Jan	Unk
Total	**46**		**0**		

Other:

Plan for Secretary Azar to Speak to Chinese Minister Ma on Monday, Jan 27th.

WHO Emergency Committee meeting on Jan 23rd indicated that the 16 expert panel remained split on whether or not to declare and PHEIC and will reconvene after several days to re-evaluate.

Possible WHO GOARN team to deploy to China for investigation.

From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Mon, 27 Jan 2020 12:56:36 +0000
To: Lepore, Loretta (CDC/OD/OCS);Brand, Anstice M. (CDC/OD/CDCWO);Campbell, Amanda (CDC/OD/OCS)
Subject: FW: Daily OD nCoV Updates 1-27

From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Monday, January 27, 2020 7:52 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Subject: Daily OD nCoV Updates 1-27

Dear All,

Please see below Daily OD Update on nCoV. Let us know if there are any questions.

Thanks,

LeAnne

NSC Request for Information

# of total confirmed cases in China – **2,744 as of 1/27 7 AM EST**
# of total confirmed deaths in China – **80 as of 1/27 7 AM EST**
# of total confirmed cases in the U.S. and locations
5 confirmed cases, locations include Washington State, California (3) and Chicago, IL
# of total cases in the U.S. undergoing screening at CDC
110 Persons Under Investigation
# of cases screened by CDC that were confirmed not to be coronavirus
32 Persons with negative test results
# of international cases and locations. – **see below**
# of total confirmed international (non-China) deaths – **not available to CDC**

Domestic Updates
Patients Being Medically Evaluated in US (as of 1/26 7 PM):

	Numbers
Total # PUIs identified	110
PUIs from the prior 24 hours	13
Total # confirmed cases	5
Total # PUIs with pending test results	73
Total # PUIs with negative test results	32* Able to be matched
PUI reported by HD/clinician	105
PUI reported by airport screening	5

High Priority PUIs:

1/27 AM: (b)(6) (b)(6) subsequently became a confirmed nCoV case. On 1/22 the (b)(6) who was now symptomatic, with PPE. Contact lasted a total of 4.5 hours. A medical officer was also involved in tertiary screening (b)(6) with gloves only. On 1/26, (b)(6) woke up with sinus infection symptoms, including congestion (b)(6) has history of sinus infections), T 98.6. On return to hotel 1/26 PM, Temp was 101.8. (b)(6) s being sent to ER for isolation and priority testing.

Confirmed Cases Field Investigations

1st Confirmed nCoV Patient in Washington State: remains stable, but intermittently febrile in the hospital in isolation and under airborne precautions. Patient is stable. CDC team is working with state and local health authorities and hospital staff on patient assessment and follow-up and contact tracing.

- **69 people identified in contact tracing in 3 counties**
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2nd Confirmed nCoV Patient in Chicago: (b)(6) with co-morbidities and travel to Wuhan from end Dec to 1/13. While in Wuhan, patient spent time in the hospital with her ill father who died 12/31 from "viral pneumonia" as well as 2 other family members hospitalized with "viral pneumonia". Patient's symptoms began 1/14 with fever, myalgias and cough. Patient hospitalized requiring oxygen in isolation, but clinically improved. **1/23: Positive nCoV,**

- **CDC team has deployed to Chicago for investigation**
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- **Greece IHR notified**
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3rd Confirmed nCoV Patient in Arizona: (b)(6) with travel to China Jan 5-19 (Wuhan Jan 7, Hubei rest of time) with onset of productive cough and fever on Jan 21. Presented to Arizona State University student clinic in Phoenix, rapid influenza negative, respiratory viral panel pending. No comorbidities or sick contacts. Currently isolated in single dorm. NP, OP, serum, and sputum specimens sent to state lab. Specimens obtained 1/22, **OP/Sputum nCoV positive on 1/25**

- **First University related case**
- **Deploying team to AZ for investigation 1/27**

4th Confirmed nCoV Patient in Orange County, CA (b)(6) from Wuhan who came to visit (b)(6) in Orange County, CA on Jan 21. While in Wuhan, he developed subjective fevers, cough and runny nose on Jan 14th. No market/animal exposure. Clinically improving with persistent dry cough. Patient was evaluated at hospital on Jan 22nd with no radiographic abnormalities on chest x-ray and was not admitted. He was discharged to the apartment where he is staying, but remains with fever, is admitted. Wife with him and is asymptomatic. **OP/NP swabs** collected on 1/22 returned **nCoV positive on 1/25.**

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- **DGMQ working on flight manifest and LAX airport**
- **International team working on notifying** (b)(6)
- **Deploying team to CA for investigation 1/27**

CA deployment for collection of autopsy specimens: CDC assisted with collection of autopsy tissue specimens from a previously healthy adult who died in CA on 1/22 after returning to the US on 1/18 from 8-day trip to Shanghai (no travel to Wuhan). UDPATE: **Patient diagnosed with PE, NP swab tested negative for nCoV, additional tests pending but low suspicion for nCoV based on autopsy results.**

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Expected today, CDC will issue a Level 3 Travel Alert (avoid all nonessential travel) for all of China

DOS in China announced that they are planning to issue a Level 3 travel advisory (reconsider travel) for the entire country of China. This notice is currently planned for issuance Jan 28th following departure of the repatriation flight from Wuhan. The reasons that will be cited include the novel coronavirus as well the implementation of travel restrictions by Chinese authorities. **The current Level 4 travel advisory (do not travel) for Hubei province will remain in place.**

(b)(6) has been diagnosed with pneumonia and is seeking treatment at one of the larger Chinese hospitals in WUHAN. Contact tracing being done.

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SFO (b)(6) who traveled to Shanghai for work from 1/13-1/24. Arrived at SFO on 1/25. On 1/21, in Shanghai, developed sore throat and body aches, and then cough the following day. She went to a local hospital on 1/22 where she had a swab, blood, and CXR taken, and was told she had a respiratory virus and discharged.

International Updates

nCov in mainland China

	Confirmed Cases	Severe Cases (%)	Deaths	Affected Provinces	Suspected Cases	Total Contacts Traced	Contacts Under Observation
Total	**2,744**	**461 (17%)**	**80**	**30**	**5,794**	**32,799**	**30,453**
New	**769**	**137 (18%)**	**24**	**0**	**3,806**	**9,368**	**9,480**

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- Hong Kong and Macao will ban residents of the Hubei province or those who have visited the province in the past 14 days from entering the city starting Monday.

- China has banned the wildlife trade nationwide
- Lunar New Year holiday extended from this Thursday to 1/30 to Sunday 2/2.

Healthcare capacity

- A total of 959 medical teams from 7 provinces went to Wuhan to support medical treatment and response.

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- Media reports of Mongolia and North Korea closing border with China.

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France	3	0	0	Unk	0	24-Jan
Japan	4	1	0	23-Jan	0	15-Jan
Republic of Korea	4	1	0	25-Jan	0	20-Jan
Macao	5	3	0	25-Jan	0	22-Jan
Vietnam	2	0	1	Unk	0	23-Jan
Nepal	1	0	0	5-Jan	0	24-Jan
New Countries with Cases		0				
Canada	1#	0	0	Unk	0	25-Jan
Total	**59**	**11**			**0**	

* No evidence of travel to China # Presumptive confirmed test

New Exported Cases, 24 hrs. (11)

- Japan, Aichi Prefecture: One new case

- Hong Kong, south Kwai Chung: Three new cases
- Australia, Sydney NSW: One new
- Macao, (b)(6) Three new cases
  - (b)(6), from Wuhan, who traveled by train to Hong Kong on 20 January and then to (b)(6) 22 January via ferry. Sought medical attention 23 January. **Currently no pneumonia, fever, or respiratory problems.**
  - (b)(6) from Wuhan arrived 22 January, onset approx. 25 January.
  - (b)(6) from Wuhan arriving 23 January, symptom onset 25 January. **Currently, no respiratory problems or signs of pneumonia.**

Taiwan: Two new cases

- (b)(6) worked in Wuhan since October 2019 and returned 20 January. Symptom onset and medical treatment 25 January.
- (b)(6) **traveled to Wuhan 13-15 January and then Europe 16-25 January.** Symptom onset 22 January with return to Taiwan 25 January. Reported herself to airport quarantine staff.

Republic of Korea, South, Sydney NSW: One new

- (b)(6), traveled to Wuhan returning 20 January. First healthcare visit 21 January, second visit 25 January. Isolated 26 January and confirmed 27 January.

Other:

Plan for Secretary Azar to Speak to Chinese Minister Ma on Monday, Jan 27th.

Second informal request from China to collaborate with CDC: Director of both China CDC's Global Public Health Center and the China CDC EID office contacted US CDC Office in China to express interest in urgently exploring possibilities of a grant or project to help address the numerous questions about nCoV, using the US-China EID cooperation mechanism. The two cooperative agreements that are currently managed through the EID office include an influenza research and global health security non-research cooperative agreements.

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WHO Mission arriving in China for investigation.

LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

Chief, Meningitis and Vaccine Preventable Diseases
Division of Bacterial Diseases
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Schuchat, Anne MD (CDC/OD)
Sent: Mon, 27 Jan 2020 13:53:53 +0000
To: Redd, Stephen (CDC/DDPHSIS/OD)
Subject: Re: Daily OD nCoV Updates 1-27

It's an in the room only conversation. I. Can tell you on person. Sorry I didn't know this was coming
Get Outlook for iOS
From: Redd, Stephen (CDC/DDPHSIS/OD) <scr1@cdc.gov>
Sent: Monday, January 27, 2020 8:47:49 AM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: Fwd: Daily OD nCoV Updates 1-27

(b)(5)
Stephen C. Redd, MD
RADM, USPHS
From: Redd, Stephen (CDC/DDPHSIS/OD) <scr1@cdc.gov>
Sent: Monday, January 27, 2020 8:28:43 AM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: Re: Daily OD nCoV Updates 1-27

Got it.
Stephen C. Redd, MD
RADM, USPHS
From: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Sent: Monday, January 27, 2020 8:13:56 AM
To: Redd, Stephen (CDC/DDPHSIS/OD) <scr1@cdc.gov>
Subject: FW: Daily OD nCoV Updates 1-27

There is a call at 8:30am you can listen in to (b)(5) (b)(5) will forward the invite. Later today we can connect re what we're expecting to need you to do tues-thur and next week. Thanks again for agreeing to go to DC!

From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Monday, January 27, 2020 7:52 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
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High Priority PUIs:
1/27 AM: (b)(6) of a family of 3 coming from Wuhan on 1/19. At that time all in the family were asymptomatic. (b)(6) subsequently became a confirmed nCoV case. On 1/22 the (b)(6) conducted secondary screening of the (b)(6) who was now symptomatic, with PPE. Contact lasted a total of 4.5 hours. A medical officer was also involved in tertiary screening. (b)(6) in question also cleaned the restroom used by the family, with gloves only. On 1/26, (b)(6) woke up with sinus infection symptoms, including congestion (b)(6) has history of sinus infections), T 98.6. On return to hotel 1/26 PM, Temp was 101.8 (b)(6) s being sent to ER for isolation and priority testing.

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- **69 people identified in contact tracing in 3 counties**
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- **First University related case**
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-

4th Confirmed nCoV Patient in Orange County, CA (b)(6) from Wuhan who came to visit (b)(6) in (b)(6) CA on Jan 21. While in Wuhan, he developed subjective fevers, cough and runny nose on Jan 14th. No market/animal exposure. Clinically improving with persistent dry cough. Patient was evaluated at hospital on Jan 22nd with no radiographic abnormalities on chest x-ray and was not admitted. He was discharged to the apartment where he is staying, but remains with fever, is admitted. Wife with him and is asymptomatic. **OP/NP swabs** collected on 1/22 returned **nCoV positive on 1/25.**

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-

5th Confirmed nCoV Patient in Los Angeles, CA: (b)(6) who had been staying with a sick (b)(6) in Wuhan, (b)(6) as well as fever and cough. On Jan 19, he left with (b)(6) (b)(6) and traveled to (b)(6) on vacation. On Jan 22, the family received the news that the (b)(6) in Wuhan had died and the family left (b)(6) and was transitioning through LAX on their way to China. They felt unwell, so they presented themselves to CBP where they were evaluated by quarantine medical officers. (b)(6) felt feverish and had cough, rhinorrhea, and body aches. Quarantine made the determination that they could not travel onward to China without being screened. Case-patient and (b)(6) currently in respiratory isolation rooms in hospital (b)(6) asymptomatic. **Positive on 1/25 for nCoV; First Case Detected at Airport** (b)(6) **tested negative on 1/25, testing on** (b)(6) **pending results.**

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Republic of Korea	4	1	0	25-Jan	0	20-Jan
Macao	5	3	0	25-Jan	0	22-Jan
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- Macao, (b)(6) Three new cases
  - (b)(6), from Wuhan, who traveled by train to Hong Kong on 20 January and then to Macao 22 January via ferry. Sought medical attention 23 January. **Currently no pneumonia, fever, or respiratory problems.**
  - (b)(6), from Wuhan arrived 22 January, onset approx. 25 January.
  - (b)(6) from Wuhan arriving 23 January, symptom onset 25 January. **Currently, no respiratory problems or signs of pneumonia.**

Taiwan: Two new cases

- (b)(6) worked in Wuhan since October 2019 and returned 20 January. Symptom onset and medical treatment 25 January.
- (b)(6), **traveled to Wuhan 13-15 January and then Europe 16-25 January.** Symptom onset 22 January with return to Taiwan 25 January. Reported herself to airport quarantine staff.

Republic of Korea, South, Sydney NSW: One new

- (b)(6), traveled to Wuhan returning 20 January. First healthcare visit 21 January, second visit 25 January. Isolated 26 January and confirmed 27 January.

Other:

Plan for Secretary Azar to Speak to Chinese Minister Ma on Monday, Jan 27th.

Second informal request from China to collaborate with CDC: Director of both China CDC's Global Public Health Center and the China CDC EID office contacted US CDC Office in China to express interest in urgently exploring possibilities of a grant or project to help address the numerous questions about nCoV, using the US-China EID cooperation mechanism. The two cooperative agreements that are

currently managed through the EID office include an influenza research and global health security non-research cooperative agreements.

WHO Emergency Committee meeting on Jan 23rd indicated that the 16 expert panel remained split on whether or not to declare and PHEIC and will reconvene after several days to re-evaluate.
WHO Mission arriving in China for investigation.

LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

Chief, Meningitis and Vaccine Preventable Diseases
Division of Bacterial Diseases
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Redfield, Robert R. (CDC/OD)
Sent: Mon, 27 Jan 2020 14:30:01 +0000
To: Thompson, Florence (CDC/OD/CDCWO)
Subject: Fwd: Daily OD nCoV Updates 1-27

Dr. Robert Redfield
From: Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>
Sent: Monday, January 27, 2020 8:48:29 AM
To: (b)(6) (b)(6)
Subject: Fwd: Daily OD nCoV Updates 1-27

To print
Dr. Robert Redfield
From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Monday, January 27, 2020 7:52:10 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Subject: Daily OD nCoV Updates 1-27

Dear All,

Please see below Daily OD Update on nCoV. Let us know if there are any questions.

Thanks,

LeAnne

NSC Request for Information

# of total confirmed cases in China – **2,744 as of 1/27 7 AM EST**
# of total confirmed deaths in China – **80 as of 1/27 7 AM EST**
# of total confirmed cases in the U.S. and locations
5 confirmed cases, locations include Washington State, California (3) and Chicago, IL
# of total cases in the U.S. undergoing screening at CDC
110 Persons Under Investigation
# of cases screened by CDC that were confirmed not to be coronavirus
32 Persons with negative test results
# of international cases and locations. – **see below**
# of total confirmed international (non-China) deaths – **not available to CDC**

Domestic Updates
Patients Being Medically Evaluated in US (as of 1/26 7 PM):

	Numbers
Total # PUIs identified	110
PUIs from the prior 24 hours	13
Total # confirmed cases	5
Total # PUIs with pending test results	73
Total # PUIs with negative test results	32* Able to be matched
PUI reported by HD/clinician	105
PUI reported by airport screening	5

High Priority PUIs:

1/27 AM: (b)(6) of a family of 3 coming from Wuhan on 1/19. At that time all in the family were asymptomatic. (b)(6) subsequently became a confirmed nCoV case. On 1/22 the (b)(6) of the family (b)(6) who was now symptomatic, with PPE. Contact lasted a total of 4.5 hours. A medical officer was also involved in tertiary screening. (b)(6) in question also cleaned the restroom used by the family, with gloves only. On 1/26, (b)(6) woke up with sinus infection symptoms, including congestion ((b)(6) has history of sinus infections), T 98.6. On return to hotel 1/26 PM, Temp was 101.8 (b)(6) is being sent to ER for isolation and priority testing.

Confirmed Cases Field Investigations

1st Confirmed nCoV Patient in Washington State: remains stable, but intermittently febrile in the hospital in isolation and under airborne precautions. Patient is stable. CDC team is working with state and local health authorities and hospital staff on patient assessment and follow-up and contact tracing.

- **69 people identified in contact tracing in 3 counties**
- **2nd team has deployed to Washington to assist with investigation**
- **5 persons from contact investigation currently being tested for nCoV.**

2nd Confirmed nCoV Patient in Chicago: (b)(6) with co-morbidities and travel to Wuhan from end Dec to 1/13. While in Wuhan, patient spent time in the hospital with her (b)(6) who died 12/31 from "viral pneumonia" as well as 2 other family members hospitalized with "viral pneumonia". Patient's symptoms began 1/14 with fever, myalgias and cough. Patient hospitalized requiring oxygen in isolation, but clinically improved. **1/23: Positive nCoV,**

- **CDC team has deployed to Chicago for investigation**
- **11 persons identified during contact investigation currently being tested for nCoV. Including one (b)(6) contact currently in Greece who is asymptomatic. Contact will remain in Greece until 2/4 (end of 14 day period)**
- **Greece IHR notified**
-

3rd Confirmed nCoV Patient in Arizona: (b)(6) with travel to China Jan 5-19 (Wuhan Jan 7, Hubei rest of time) with onset of productive cough and fever on Jan 21. Presented to Arizona State University student clinic in Phoenix, rapid influenza negative, respiratory viral panel pending. No comorbidities or

sick contacts. Currently isolated in single dorm. NP, OP, serum, and sputum specimens sent to state lab. Specimens obtained 1/22, **OP/Sputum nCoV positive on 1/25**

- **First University related case**
- **Deploying team to AZ for investigation 1/27**

-

4th Confirmed nCoV Patient in Orange County, CA (b)(6) from Wuhan who came to visit (b)(6) in (b)(6) CA on Jan 21. While in Wuhan, he developed subjective fevers, cough and runny nose on Jan 14th. No market/animal exposure. Clinically improving with persistent dry cough. Patient was evaluated at hospital on Jan 22nd with no radiographic abnormalities on chest x-ray and was not admitted. He was discharged to the apartment where he is staying, but remains with fever, is admitted. (b)(6) with him and is asymptomatic. **OP/NP swabs** collected on 1/22 returned **nCoV positive on 1/25.**

- **Deploying team to CA for investigation 1/27**

-

5th Confirmed nCoV Patient in Los Angeles, CA: (b)(6) who had been staying with a sick (b)(6) in Wuhan, who had (b)(6) as well as fever and cough. On Jan 19, he left with (b)(6) and (b)(6) and traveled to (b)(6) on vacation. On Jan 22, the family received the news that the (b)(6) in Wuhan had died and the family left (b)(6) and was transitioning through LAX on their way to China. They felt unwell, so they presented themselves to CBP where they were evaluated by quarantine medical officers. (b)(6) felt feverish and had cough, rhinorrhea, and body aches. Quarantine made the determination that they could not travel onward to China without being screened. Case-patient and (b)(6) currently in respiratory isolation rooms in hospital, (b)(asymptomatic. **Positive on 1/25 for nCoV; First Case Detected at Airport.** (b)(6) **tested negative on 1/25, testing on** (b)(6) **pending results.**

- **DGMQ working on flight manifest and LAX airport**
- **International team working on notifying** (b)(6)
- **Deploying team to CA for investigation 1/27**

CA deployment for collection of autopsy specimens: CDC assisted with collection of autopsy tissue specimens from a previously healthy adult who died in CA on 1/22 after returning to the US on 1/18 from 8-day trip to Shanghai (no travel to Wuhan). UDPATE: **Patient diagnosed with PE, NP swab tested negative for nCoV, additional tests pending but low suspicion for nCoV based on autopsy results.**

Travel and Airport Screening

-

Repatriation of USG and American Citizens from Wuhan

About 240-270 persons, including US consular staff and others, will be repatriated to the United States from Wuhan with a plan to arrive in Ontario, California around 7 PM on Jan 28th. The passengers will be screened for fever/symptoms before departing Wuhan, upon arrival in Anchorage, before departing Anchorage, and upon arrival in Ontario. They will complete an initial risk assessment en route from Anchorage and will receive a 14-day quarantine notice with potential 72-hour conditional release. Testing for nCoV PCR will be obtained as soon as feasible after the passengers arrive in Ontario. Plans for possible conditional release and subsequent monitoring will be made based on results of risk assessments and this initial testing.

- Deploying CDC staff to evaluate passengers upon arrival in California.

Travel Bans and Airport Screening:

-

Expected today, CDC will issue a Level 3 Travel Alert (avoid all nonessential travel) for all of China

DOS in China announced that they are planning to issue a Level 3 travel advisory (reconsider travel) for the entire country of China. This notice is currently planned for issuance Jan 28th following departure of the repatriation flight from Wuhan. The reasons that will be cited include the novel coronavirus as well the implementation of travel restrictions by Chinese authorities. **The current Level 4 travel advisory (do not travel) for Hubei province will remain in place.**

(b)(6) WUHAN has been diagnosed with pneumonia and is seeking treatment at one of the larger Chinese hospitals in WUHAN. Contact tracing being done.

Screening continues at Atlanta, Chicago, San Francisco, Los Angeles and New York (JFK). Direct flights from Wuhan have stopped, but indirect flights continue, including 28 indirect flights in the past 24 hours. To date, 4 referrals have been made – LAX (1) nCoV positive case, SFA (1) information below, 2 from non-screening airports SEA (1), DTW (1) – following up.

- Gathering flight manifest information for air contact investigations for the 2 US cases reported from CA who were symptomatic during travel

Follow up of Persons Medically Referred from Airport Screening:

SFO: (b)(6) who traveled to Shanghai for work from 1/13-1/24. Arrived at SFO on 1/25. On 1/21, in Shanghai, developed sore throat and body aches, and then cough the following day. She went to a local hospital on 1/22 where she had a swab, blood, and CXR taken, and was told she had a respiratory virus and discharged.

International Updates

nCov in mainland China

	Confirmed Cases	Severe Cases (%)	Deaths	Affected Provinces	Suspected Cases	Total Contacts Traced	Contacts Under Observation
Total	**2,744**	**461 (17%)**	**80**	**30**	**5,794**	**32,799**	**30,453**
New	**769**	**137 (18%)**	**24**	**0**	**3,806**	**9,368**	**9,480**

Epidemiology – **(data as of 2400 26 Jan Beijing)**

- Total confirmed cases 2,744, including 461 severe cases, and 80 deaths
- 1 death in Shanghai, 1 in Henan Province, 1 in Hebei Province, and 1 in Heilongjiang Province. Remaining deaths in Hubei Province.
- Total suspected cases 5,794
  - 26% (696/2,684) of previous days suspected cases were eliminated
- Close contacts: 32,799 traced and 30,453 under medical observation.
  - 3% (583/21,556) of yesterday's contacts under observation were released from observation
- **More than half the cases are now outside of Hubei Province (WHO)**

Restrictions in China and SARs

- Hong Kong and Macao will ban residents of the Hubei province or those who have visited the province in the past 14 days from entering the city starting Monday.

- China has banned the wildlife trade nationwide
- Lunar New Year holiday extended from this Thursday to 1/30 to Sunday 2/2.

Healthcare capacity

- A total of 959 medical teams from 7 provinces went to Wuhan to support medical treatment and response.

International Restrictions

- Media reports of Mongolia and North Korea closing border with China.

nCov, excl. mainland China (59 total, including 11 new)

Country	Confirmed Cases	New Cases (24 hrs)	Total Cases with Local Transmission*	Date of Most Recent Onset or Entry into Country	Deaths	Date First Case Reported
Countries Previously Reporting Cases						
Thailand	8	0	0	23-Jan	0	13-Jan
United States	5	0	0	14-Jan	0	16-Jan
Hong Kong	8	3	0	Unk	0	21-Jan
Australia	5	1	0	Unk	0	25-Jan
Malaysia	4	0	0	23-Jan	0	24-Jan
Singapore	4	0	0	22-Jan	0	23-Jan
Taiwan	5	2	0	25-Jan	0	21-Jan
France	3	0	0	Unk	0	24-Jan
Japan	4	1	0	23-Jan	0	15-Jan
Republic of Korea	4	1	0	25-Jan	0	20-Jan
Macao	5	3	0	25-Jan	0	22-Jan
Vietnam	2	0	1	Unk	0	23-Jan
Nepal	1	0	0	5-Jan	0	24-Jan
New Countries with Cases		0				
Canada	1#	0	0	Unk	0	25-Jan
Total	**59**	**11**			**0**	

* No evidence of travel to China # Presumptive confirmed test

New Exported Cases, 24 hrs. (11)

- Japan, Aichi Prefecture: One new case

- Hong Kong, south Kwai Chung: Three new cases
- Australia, Sydney NSW: One new
- Macao, (b)(6) Three new cases
  - (b)(6) from Wuhan, who traveled by train to Hong Kong on 20 January and then to Macao 22 January via ferry. Sought medical attention 23 January. **Currently no pneumonia, fever, or respiratory problems.**
  - (b)(6) from Wuhan arrived 22 January, onset approx. 25 January.
  - (b)(6) from Wuhan arriving 23 January, symptom onset 25 January. **Currently, no respiratory problems or signs of pneumonia.**

Taiwan: Two new cases

- (b)(6), worked in Wuhan since October 2019 and returned 20 January. Symptom onset and medical treatment 25 January.
- (b)(6), **traveled to Wuhan 13-15 January and then Europe 16-25 January.** Symptom onset 22 January with return to Taiwan 25 January. Reported herself to airport quarantine staff.

Republic of Korea, South, Sydney NSW: One new

- (b)(6), traveled to Wuhan returning 20 January. First healthcare visit 21 January, second visit 25 January. Isolated 26 January and confirmed 27 January.

Other:

Plan for Secretary Azar to Speak to Chinese Minister Ma on Monday, Jan 27th.

Second informal request from China to collaborate with CDC: Director of both China CDC's Global Public Health Center and the China CDC EID office contacted US CDC Office in China to express interest in urgently exploring possibilities of a grant or project to help address the numerous questions about nCoV, using the US-China EID cooperation mechanism. The two cooperative agreements that are currently managed through the EID office include an influenza research and global health security non-research cooperative agreements.

WHO Emergency Committee meeting on Jan 23rd indicated that the 16 expert panel remained split on whether or not to declare and PHEIC and will reconvene after several days to re-evaluate.
WHO Mission arriving in China for investigation.

LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

Chief, Meningitis and Vaccine Preventable Diseases
Division of Bacterial Diseases
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Redfield, Robert R. (CDC/OD)
Sent: Mon, 27 Jan 2020 14:40:18 +0000
To: Thompson, Florence (CDC/OD/CDCWO)
Subject: Fwd: Daily OD nCoV Update Jan 26

Dr. Robert Redfield
From: Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>
Sent: Sunday, January 26, 2020 9:25:42 AM
To: (b)(6) (b)(6)
Subject: Fwd: Daily OD nCoV Update Jan 26

Get Outlook for iOS
From: Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>
Sent: Sunday, January 26, 2020 9:11:16 AM
To: (b)(6) (b)(6)
Subject: Fwd: Daily OD nCoV Update Jan 26

To print
Dr. Robert Redfield
From: Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Sent: Sunday, January 26, 2020 8:17:53 AM
To: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Subject: Daily OD nCoV Update Jan 26

Hello everyone,
Here are the updates for 1/26 AM:
Domestic Updates

Patients Being Medically Evaluated in US (as of 1/25 7 PM):

	Numbers
Total # Persons Evaluated/Under Evaluation	97
Total # Confirmed Cases	5
Total # persons with pending test results	70
Total # persons with negative test results	22* Able to be matched
Persons reported by HD/Clinician	92
Persons reported by Airport screening	5
Persons Newly Identified in the prior 24 hours	20

Persons being evaluated who had contact with confirmed case	7 (5 IL, 2 WA)

Around 85 calls in last 24 hours received and triaged to discuss medical evaluation of patients

Summary of cases confirmed on 1/25:

Case #5: Los Angeles, CA

(b)(6) who had been staying with a s (b)(6) in Wuhan, who had (b)(6) as well as fever and cough. On Jan 19, he left with his (b)(6) and traveled to (b)(6) on vacation. On Jan 22, the family received the news that the (b)(6) in Wuhan had died and the family left (b)(6) and was transitioning through LAX on their way to China. They felt unwell, so they presented themselves to CBP where they were evaluated by quarantine medical officers. (b)(6) felt feverish and had cough, rhinorrhea, and body aches. Quarantine made the determination that they could not travel onward to China without being screened. Case-patient and (b)(6) currently in respiratory isolation rooms in hospital (b)(6) asymptomatic. **Positive on 1/25 for nCoV; First Case Detected at Airport.** (b)(6) **tested negative on 1/25, testing on child pending results.**

- **DGMQ working on flight manifest and LAX airport**
- **International team working on notifying** (b)(6)
- **Deployment team ready if requested**

Case #4: Orange County, CA

(b)(6) from Wuhan who came to visit (b)(6) in (b)(6) CA on Jan 21. While in Wuhan, he developed subjective fevers, cough and runny nose on Jan 14th. No market/animal exposure. Clinically improving with persistent dry cough. Patient was evaluated at hospital on Jan 22nd with no radiographic abnormalities on chest x-ray and was not admitted. He discharged to the apartment where he is staying, but remains with fever, so will be admitted. Wife with him and is asymptomatic. **OP/NP swabs** collected on 1/22 returned **nCoV positive on 1/25.**

Case #3: Arizona

(b)(6) with travel to China Jan 5-19 (Wuhan Jan 7, Hubei rest of time) with onset of productive cough and fever on Jan 21. Presented to (b)(6) rapid influenza negative, respiratory viral panel pending. No comorbidities or sick contacts. Currently isolated in single dorm. NP, OP, serum, and sputum specimens sent to state lab. Specimens obtained 1/22, **OP/Sputum nCoV positive on 1/25**

- **First University related case**

Summary of field investigations:

1st Confirmed nCoV Patient in Washington State: remains stable, but intermittently febrile in the hospital in isolation and under airborne precautions. CDC team has arrived in Washington State and is working with state and local health authorities and hospital staff on patient assessment and follow-up and contact tracing. **Around 50 people identified in contact tracing in 3 counties, 2nd team has deployed to Washington to assist with investigation. Two persons from contact investigation currently being tested for nCoV.**

2nd Confirmed nCoV Patient in Chicago: (b)(6) with co-morbidities and travel to Wuhan from end Dec to 1/13. While in Wuhan, patient spent time in the hospital with her ill father who died 12/31 from "viral pneumonia" as well as 2 other family members hospitalized with "viral pneumonia". Patient's symptoms began 1/14 with fever, myalgias and cough. Patient hospitalized requiring oxygen in isolation, but clinically improved. **1/23: Positive nCoV, CDC team has deployed to Chicago for investigation. Five persons identified during contact investigation currently being tested for nCoV.**

CA deployment for collection of autopsy specimens: CDC assisted with collection of autopsy tissue specimens from a previously healthy adult who died in CA on 1/22 after returning to the US on 1/18 from 8-day trip to Shanghai (no travel to Wuhan). UDPATE: **Patient diagnosed with PE, NP swab tested negative for nCoV, additional tests pending but low suspicion for nCoV based on autopsy results.**

Travel and Airport Screening

China Embassy/Consular/AmCit Updates

Wuhan US Mission personnel, including families, contractors, American citizens and some 3rd party nationals will be evacuated by aircraft over the weekend. Two medical personnel will be aboard to provide medical monitoring, if needed. Based on the EAC call this morning, it sounds as if the plane will be departing Wuhan on Tuesday morning and will be arriving as planned in Anchorage. The exact passenger manifest remains to be determined as this flight will primarily take consulate staff and family members, non-official Americans, and third country nationals on a space available basis.

Airport Screening:

Jan 24 - Passenger arrived in Detroit from Shanghai (passenger not from Wuhan, but attended meetings with many people from Wuhan) with fever and cough and requested to be transported to hospital for evaluation of nCoV. Following up.

Jan 23 - One outbound passenger referred for medical evaluation. Following up.

Screening continues at Atlanta, Chicago, San Francisco, Los Angeles and New York (JFK). Direct flights from Wuhan have stopped, but indirect flights continue, including 37 indirect flights in the past 24 hours.

International Updates

There have been discussions among international partners that the possibility that reporting of confirmed cases from China will decrease as lab capacity for confirmation is saturated.

nCov in mainland China

	Confirmed Cases	Severe Cases	Deaths	Affected Provinces	Suspected Cases	Total Contacts Traced	Contacts Under Observatio

							n
Total	**1,975**	**324**	**56**	**30**	**2,684**	**23,431**	**21,556**
New	**688**	**87**	**15**	**0**	**1,309**	**8,234**	**13,136**

Epidemiology – **(data as of 2400 25 Jan Beijing)**

- Total confirmed cases 1,975, including 324 severe cases, and 56 deaths
- 1 death in Shanghai, 1 in Henan Province, 1 in Hebei Province, 1 in Heilongjiang Province. Remaining deaths in Hubei Province.
- Total suspected cases: 2,684
  - 30% (590/1965) of previous days suspected cases were eliminated
- Close contacts: 23,431 traced and 21,556 under medical observation.
  - 4% (325/8,420) of yesterday's contacts under observation were released from observation
- Three Chinese doctors in Beijing are confirmed cases. Two had travel to Wuhan. All close contacts are in quarantine. (People's Daily China)
- Concern that reporting of confirmed cases from China may fall off as confirmatory lab capacity is reached

Restrictions in China and SARs

- China said on 25 January that it would suspend all tour groups and the sale of flight and hotel packages for its citizens headed overseas, starting on Monday. (People's Daily China)
- The Beijing city government also announced on 25 January that it would suspend all inter-province buses from Sunday, effectively limiting road travel into the capital. (People's Daily China)
- 450 military medical staff being sent to Wuhan. (People's Daily China)
- 26 of China's provincial-level jurisdictions, including Beijing, Shanghai, Guangdong, Zhejiang, Hubei, have enacted the country's highest level of public health emergency response, (People's Daily China)
- Hong Kong announced that its schools would be closed until Feb. 17 to try to limit the possibility of transmission(Washington Post).

Research

- Therapeutic trial using the MIRACLE protocol (opinavir/ritonavir and interferon-β1b) is ongoing in China with 140 enrolled cases
- Ongoing efforts to develop treatments and vaccine

Healthcare capacity

- Second temporary 1,300-bed hospital to be constructed with completion in half a month. (People's Daily China)
- Wuhan has planned to transform 24 general hospitals for temporary use to cope with outbreak. (People's Daily China)

CDC Collaboration

- Second informal request from China to collaborate with CDC: Director of both China CDC's Global Public Health Center and the China CDC EID office contacted US CDC Office in China to express interested in urgently exploring possibilities of a grant or project to help address the numerous questions about nCoV, using the US-China EID cooperation mechanism. The two cooperative agreements that are currently managed through the EID office include an influenza research and global health security non-research cooperative agreements.

nCov, excl. mainland China (46 total, including 9 new)

nCov, excl. mainland China (46 total, including 8 new)

Country	Confirmed Cases	New Exported Cases (24 hrs)	Deaths	First Case Reported	Last Date of Onset or Entry
Countries with continued cases					
Thailand	8	2	0	13-Jan	23-Jan
SAR Hong Kong	5		0	21-Jan	23-Jan
Australia	4		0	25-Jan	Unk
Malaysia	4	1	0	24-Jan	23-Jan
Singapore	4	1	0	23-Jan	22-Jan
U.S.	3	1	0	16-Jan	14-Jan
Taiwan	3		0	21-Jan	22-Jan
France	3		0	24-Jan	Unk
Japan	3	1	0	15-Jan	21-Jan
Republic of Korea	3	1	0	20-Jan	25-Jan
SAR Macao	2		0	22-Jan	22-Jan
Vietnam	2		0	23-Jan	Unk
Nepal	1		0	24-Jan	5-Jan
Countries with New cases					
Canada	1	1	0	25-Jan	Unk
Total	**46**		**0**		

Other:

Plan for Secretary Azar to Speak to Chinese Minister Ma on Monday, Jan 27th.

WHO Emergency Committee meeting on Jan 23rd indicated that the 16 expert panel remained split on whether or not to declare and PHEIC and will reconvene after several days to re-evaluate.

Possible WHO GOARN team to deploy to China for investigation.

From: Schuchat, Anne MD (CDC/OD)
Sent: Tue, 28 Jan 2020 12:02:20 +0000
To: Redd, Stephen (CDC/DDPHSIS/OD)
Subject: FW: TOMORROW: HHS to Host Press Conference on Coordinated Public Health Response to Novel Coronavirus

I don't know if you will have landed by 11:15 but if you went to Humphrey you might see this press event. I'll be connecting w Kyle and the response to figure out which things need to be covered today. I know Anstice and CDC-W are trying to assure much availability for staffers. There is a PCC this morning but I think its while you are in the air and being done by SVTC in advance of something this afternoon that Dr Redfield is probably doing. So stay tuned. I'm not sure this media event below is actually on or if Nancy is listed but would be on the phone…

From: Media@cdc.gov (CDC) <sohco@cdc.gov>
Sent: Monday, January 27, 2020 7:51 PM
Subject: TOMORROW: HHS to Host Press Conference on Coordinated Public Health Response to Novel Coronavirus

Media Advisory

U.S. Department of Health and Human Services

202-690-6343
media@hhs.gov
www.hhs.gov/news
Twitter @SpoxHHS

FOR PLANNING PURPOSES ONLY

*****FOR CREDENTIALED MEDIA ONLY*****

Monday, January 27, 2020

Tuesday, January 28, 2020, Secretary Alex Azar will hold a press conference alongside Centers for Disease Control and Prevention (CDC) Director Robert Redfield, National Center for Immunization and Respiratory Disease (NCIRD) Director Nancy Messonnier, and National Institute of Allergy and Infectious Diseases (NIAID) Director Anthony Fauci to provide further details on the Department's coordinated public health response to the 2019 Novel Coronavirus.

WHO: HHS Secretary Alex Azar
CDC Director Robert Redfield, M.D.
NCIRD Director Nancy Messonnier, M.D.
NIAID Director Anthony Fauci, M.D.

WHEN: Tuesday, January 28, 2020 at 11:15 AM EST

WHERE: Hubert H. Humphrey Building
200 Independence Ave, S.W.
Washington, D.C., 20201

MEDIA RSVP:

Media must RSVP to Katherine.McKeogh@hhs.gov by **10:00 PM on Monday, January 27, 2020,** with the below information. Media will not be admitted without RSVP and upon arrival, media will be required to present press credentials.

We will send a confirmation to reporters once they have been placed on our attendee list.

Full Name:
Media Outlet:
Position (Camera, still photographer, reporter):
Cell Phone Number:
Email:

Media Schedule:

10:00 AM EST: Media Check-in Begins.

10:05 AM – 10:45 AM EST: Media Pre-Set.

- Photo identification and network credentials are required for access.
- Media must pre-set all large cameras, large bags and cables by 10:45 AM EST. **No exceptions.**

11:15 AM EST Press Conference Begins.

12:00 PM EST: Press Conference Concludes.

Provided on Site:
Power strips, mult-box access, and wifi.

###

Follow @SecAzar on Twitter, like HHS on Facebook, and sign up for HHS Email Updates

From: Messonnier, Nancy (CDC/DDID/NCIRD/OD)
Sent: Tue, 28 Jan 2020 12:22:49 +0000
To: Patel, Anita (CDC/DDID/NCIRD/OD);Cohn, Amanda (CDC/DDID/NCIRD/OD)
Subject: Fwd: MMWR. Draft
Attachments: MMWR. Draft 01262020_LF_AC_CKK.docx

Hard to write this so good job. I like the approach and format. Few comments

(b)(5)

Thanks.
From: Kent, Charlotte (CDC/DDPHSS/CSELS/OD) <cgk3@cdc.gov>
Sent: Monday, January 27, 2020 11:19 PM
To: Patel, Anita (CDC/DDID/NCIRD/OD); Fox, LeAnne M. (CDC/DDID/NCIRD/DBD); Cohn, Amanda (CDC/DDID/NCIRD/OD); Pallansch, Mark A. (CDC/DDID/NCIRD/DVD); Gerber, Susan I. (CDC/DDID/NCIRD/DVD); Lindstrom, Stephen (CDC/DDID/NCIRD/DVD); Cetron, Marty (CDC/DDID/NCEZID/DGMQ); Messonnier, Nancy (CDC/DDID/NCIRD/OD); Jernigan, Daniel B. (CDC/DDID/NCIRD/ID)
Cc: Goldstein, Susan (CDC/DDID/NCIRD/OD)
Subject: RE: MMWR. Draft

It is thrilling to see a strong draft summarizing much that has been accomplished and presaging possible new directions. Please do not be dismayed by the number of my comments.

I recommend (b)(5)
(b)(5)
(b)(5) Because of the late hour, I have not been able to do detailed editing on all aspects of the report.

I suggest (b)(5) (b)(5) It is essentially a review of the literature, and should have copious references, and would likely benefit from peer review by academic and other experts.

I would be happy to assist with more detailed review of the next version. Please let me know if there are questions.

With deepest respect and appreciation,
Charlotte
(b)(6)

From: Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>
Sent: Monday, January 27, 2020 6:19 PM
To: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Pallansch, Mark A. (CDC/DDID/NCIRD/DVD) <map1@cdc.gov>; Gerber, Susan I. (CDC/DDID/NCIRD/DVD) <bhx1@cdc.gov>; Lindstrom, Stephen (CDC/DDID/NCIRD/DVD) <sql5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>
Cc: Goldstein, Susan (CDC/DDID/NCIRD/OD) <stg1@cdc.gov>; Kent, Charlotte (CDC/DDPHSS/CSELS/OD) <cgk3@cdc.gov>
Subject: MMWR. Draft
Importance: High

Hi all,
Please see attached MMWR for manuscript for this week. This piece is to capture the current situation of the outbreak, how this virus compares to other coronavirus, what we are doing in the response, and key messages we need to get out to readers. We have a short turnaround on this so if we can get comments by late tonight (or very early tomorrow) that would be great. We will send to others after this round of review.

Thanks,
Anita

(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

(b)(5)

From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Tue, 28 Jan 2020 13:06:17 +0000
To: Lepore, Loretta (CDC/OD/OCS);Brand, Anstice M. (CDC/OD/CDCWO);Campbell, Amanda (CDC/OD/OCS)
Subject: FW: Daily OD nCoV Updates 1-28 - INTERNAL - NOT FOR FURTHER DISTRIBUTION

From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Tuesday, January 28, 2020 7:50 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>
Subject: Daily OD nCoV Updates 1-28 - INTERNAL - NOT FOR FURTHER DISTRIBUTION

Dear All,

Please see below Daily OD Update on nCoV. Let us know if there are any questions.

Thanks,

LeAnne

INTERNAL - NOT FOR FURTHER DISTRIBUTION

NSC Request for Information

# of total confirmed cases in China – **4,515 as of 1/28 7 AM EST**
# of total confirmed deaths in China – **106 as of 1/28 7 AM EST**
# of total confirmed cases in the U.S. and locations
5 confirmed cases, locations include Washington State, California (3) and Chicago, IL
# of total cases in the U.S. undergoing screening at CDC
149 Persons Under Investigation
# of cases screened by CDC that were confirmed not to be coronavirus
73 Persons with negative test results
# of international cases and locations. – **see below**
# of total confirmed international (non-China) deaths – **not available to CDC**

Domestic Updates
Patients Being Medically Evaluated in US (as of 1/27 7 PM):

	Numbers

Total # PUIs identified	149
PUIs from the prior 24 hours	26
Total # confirmed cases	5
Total # PUIs with pending/unmatched test results	111
Total # PUIs with negative test results	33* Able to be matched
PUI reported by HD/clinician	145
PUI reported by airport screening	4

*40 additional people tested negative in the lab as of 1/26 that cannot yet be linked to PUI number

High Priority and Notable PUIs:

1/27 AM: (b)(6) (b)(6) **, awaiting nCoV testing.**

1/28 AM: PUI in NYC, identified because of alert from Korean authorities about having spent some time in the same hotel as a confirmed case. A man who'd travelled to Korea 1/7-1/24 presented to a community clinic in NYC today for eval of low grade fever/sore throat. He'd been contacted by Korean Health authorities with a request for info that would allow them to follow up. On follow up with Korean authorities, (b)(5) Being tested.

Confirmed Cases Field Investigations

1st Confirmed nCoV Patient in Washington State: (b)(6) remains stable, improving on Remdesivir, in the hospital in isolation and under airborne precautions. **1/20: Positive nCoV.**

- **70 people identified in contact tracing in 3 counties**
- **6 PUIs identified in contact investigation currently being tested for nCoV.**
- Field investigation underway; standardized interviews and collection of respiratory specimens from close contacts

2nd Confirmed nCoV Patient in Chicago: (b)(6) with co-morbidities and contact with family member in Wuhan who died of viral pneumonia. Currently stable and ready for discharge. **1/23: Positive nCoV,**

- **185 people identified in contact tracing**
- **18 PUIs currently identified in contact investigation being tested for nCoV. Including one health care worker contact currently in Greece who is asymptomatic. Contact will remain in Greece until 2/4 (end of 14 day period)**
- **Greece IHR notified**

3rd Confirmed nCoV Patient in Arizona: (b)(6) with travel to Wuhan with onset of productive cough and fever on Jan 21. **1/25: Positive nCoV.**

- **First University related case**
- Team arrived in AZ for investigation 1/27
- Case currently with mild symptoms; stable
- **At least 5 contacts identified and at least 3 PUIs**

4th Confirmed nCoV Patient in Orange County, CA (b)(6) from Wuhan who came to visit (b)(6) in Orange County, CA on Jan 21. Symptoms began Jan 14th in Wuhan. 1/25: Positive **nCoV**.

- Team arrived in CA for investigation 1/27
- No PUIs at this time
- Number of contacts being actively monitored: 7

5th Confirmed nCoV Patient in Los Angeles, CA: (b)(6) (b)(6) felt unwell with fever, cough and was referred from screening for evaluation. Still hospitalized, but stable. **1/25: Positive nCoV.**

- **First Case Detected at Airport** (b)(6) **tested negative on 1/25, testing on** (b)(6) **pending results.**
- Team arrived in CA for investigation 1/27
- **DGMQ working on flight manifest and LAX airport**
- **International team notifying** (b)(6) **for contact tracing**
- CDC domestic response team reached **18 Q-station contacts**

Travel and Airport Screening

Repatriation of USG and American Citizens from Wuhan

About 240-270 persons, including US consular staff and others, will be repatriated to the United States from Wuhan with a plan to arrive in Ontario, California. **Flight will leave Wuhan Jan 28th PM.** The passengers will be screened for fever/symptoms before departing Wuhan, upon arrival in Anchorage, before departing Anchorage, and upon arrival in Ontario. They will complete an initial risk assessment en route from Anchorage and will receive a 14-day quarantine notice with potential 72-hour conditional release. Testing for nCoV PCR will be obtained as soon as feasible after the passengers arrive in Ontario. Plans for possible conditional release and subsequent monitoring will be made based on results of risk assessments and this initial testing.

- Deploying CDC staff to evaluate passengers upon arrival in California.

Travel Bans and Airport Screening:

1/27 CDC issued a Level 3 Travel Alert (avoid all nonessential travel) for all of China
1/27 20 Q stations evaluating passengers from China

DOS in China announced that they are planning to issue a Level 3 travel advisory (reconsider travel) for the entire country of China. This notice is currently planned for issuance Jan 28th following departure of the repatriation flight from Wuhan. The reasons that will be cited include the novel coronavirus as well the implementation of travel restrictions by Chinese authorities. **The current Level 4 travel advisory (do not travel) for Hubei province will remain in place.**

Screening continues at Atlanta, Chicago, San Francisco, Los Angeles and New York (JFK). Direct flights from Wuhan have stopped, but indirect flights continue, including 28 indirect flights in the past 24 hours. To date, 4 referrals have been made – LAX (1) nCoV positive case, SFA (1) information below, 2 from non-screening airports SEA (1), DTW (1) – following up. **No medical referrals in past 24 hours.**

Follow up of Persons Medically Referred from Airport Screening:
SFO: (b)(6) who traveled to Shanghai for work from 1/13-1/24. Arrived at SFO on 1/25. On 1/21, in Shanghai, developed sore throat and body aches, and then cough the following day. (b)(went to a local hospital on 1/22 where (b)(had a swab, blood, and CXR taken, and was told (b) had a respiratory virus and discharged. Awaiting testing results.

International Updates

nCov in mainland China

	Confirmed Cases	Severe Cases (%)	Deaths	Affected Provinces	Suspected Cases	Total Contacts Traced	Contacts Under Observation
Total	**4,515**	**976 (22%)**	**106**	**30**	**6,973**	**47,833**	**44,132**
New	**1,771**	**515 (29%)**	**26**	**0**	**2,077**	**15,034**	**14,593**

Epidemiology – **(data as of 2400 27 Jan Beijing)**

- Total confirmed cases 4,515 **(65% increase)**, including 976 severe cases, and 106 deaths
- 1 death in each of the following locations, Shanghai, Henan Province, Hebei Province, Heilongjiang Province, and Beijing. Remaining deaths in Hubei Province.
- Total suspected cases 6,973
  - 15% (898/5,794) of previous days suspected cases were eliminated
- Close contacts: 47,833 traced and 44,132 under medical observation.
  - 3% (914/30,453) of yesterday's contacts under observation were released from observation
- **First death in Beijing**

Embassy/Consular/AmCit Updates (SENSITIVE)

(b)(6); (b)(5)

(b)(6); (b)(5)

nCov, excl. mainland China (76 total, including 16 new)

-

- **Two new cases (Japan, Germany) with evidence of local transmission**

Location	Confirmed Cases	New Cases (24 hrs)	Total Cases with Local Transmission*	Date of Most Recent Onset or Entry into Country	Deaths	Date First Case Reported
Locations Previously Reporting Cases						
Thailand	14	6	0	Unk	0	13-Jan
United States	5	0	0	14-Jan	0	16-Jan
Hong Kong	8	0	0	Unk	0	21-Jan
Australia	5	0	0	Unk	0	25-Jan
Malaysia	4	0	0	23-Jan	0	24-Jan
Singapore	7	3	0	25-Jan	0	23-Jan
Taiwan	7	2	0	25-Jan	0	21-Jan
France	3	0	0	Unk	0	24-Jan
Japan	6	2	1	23-Jan	0	15-Jan
Republic of Korea	4	0##	0	25-Jan	0	20-Jan
Macao	5	0###	0	25-Jan	0	22-Jan
Vietnam	2	0	1	Unk	0	23-Jan
Nepal	1	0	0	5-Jan	0	24-Jan
Canada	2	1#	0	Unk	0	25-Jan
Cambodia	1	0	0	25-Jan	0	27-Jan
New Locations with Cases						
Germany	1	1	1		0	
Sri Lanka	1	1	0	25-Jan	0	
Total	**76**	**16**	**3**		**0**	

* No evidence of travel to China # Presumptive confirmed positive

MoH report of seven quarantined people, awaiting additional information

Numerous reports of 2 additional cases but no official information

New Exported Cases, 24 hrs. (12)

Germany, Bavaria: 1 new case (Official)

- (b)(6) **contact with visiting asymptomatic Chinese co-worker** for about 1 hour. Chinese co-worker later became positive which occurred about 2 days before Chinese woman's fever onset. WHO EURO may investigate.

Sri Lanka, Colombo: 1 new case (awaiting translation of MoH announcement)

- (b)(6) from Hubei Province. Arrived 19 January, developed symptoms 25 January.

Canada, Toronto: 1 new case (awaiting final confirmation)

- (b)(6) f first case, travel to China.

Japan: Two new cases

- (b)(6) from Wuhan. Arrived 20 January, developed symptoms 22 January. Sought medical attention 24 January and 26 January. Not yet hospitalized at 2pm reporting, waiting at place he is staying.

- (b)(6) Nara Prefecture. **Exposure on bus with tourists from Wuhan**, 8-11 January and 12-16 January. Symptom onset 14 January. Sought medical care 17 and 22 January. Admitted 22 January.

Thailand: 6 new cases

- 6 new cases (2 female, 4 male) including children and adults. All are Chinese patients from Wuhan City, Hubei Province, of which 5 are the same family and the other 1 travels in the same group.

Singapore (Changi Hospital, National Centre Inf Dis.) : 3 new cases

- (b)(6) from Wuhan. Arrived 19 January, developed symptoms 25 January, and sought medical attention 26 January.

- (b)(6) from Wuhan. Arrived 23 January, developed symptoms, sought care, and admitted on 24 January.

- (b)(6) from Wuhan. Arrived 18 January, developed symptoms 24 January, ambulance to hospital 26 January.

Taiwan: 2 new cases

- (b)(6) from Wuhan. Arrived 22 January 22, developed symptoms 25 January. Isolated with no reported pneumonia.

Suspect case in Cote d'Ivoire: On January 25, (b)(6) displaying flu-like symptoms arrived on a Turkish Airlines flight from Beijing to Félix Houphouët Boigny Airport in Abidjan. Following a routine screening, airport health officials alerted the Ivoirian Ministry of Health and Public Hygiene of a possible case of a novel coronavirus, (2019-nCoV). (Post alerted AF/W and DOS Ops Center.) Health officials transported the student to a pandemic unit at the airport for monitoring, treatment, and tests. Sample sent to Institute Pasteur France. Authorities do not expect to receive conclusive test results until Wednesday, January 29 or later. CDC country team engaged.

Suspect case in Zambia: A recent returnee (8 days ago) from Wuhan and is now with URI symptoms. Samples were sent to NHLS in South Africa

Suspect case in Kenya: Airport screening in Nairobi today picked up a febrile traveler from China (initial reports indicate Wuhan) who is now in isolation at the designated national referral hospital. Samples have been collected and sent to national lab, but I assume will come to us shortly.

Other:

- 11/27 call Sec Azar and NHC Minister Ma. Azar's ask was for WHO to be allowed to deploy a team to China with HHS team members. He noted the CDC offer of assistance to the China CDC Director and said that a US CDC team is ready to deploy. NHC minister Ma said he would take this under advisement.
- (b)(5)
- (sensitive) Planning underway for PCVs to be evacuated from China to Thailand.
- **WHO Mission** arriving in China for investigation.
- MMWR and NEJM publications in process on 1st US case and CDC response, possible publication, Jan 31st.

LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

Chief, Meningitis and Vaccine Preventable Diseases
Division of Bacterial Diseases
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739

FAX: 404-471-2511
Email: lfox@cdc.gov

From: Redfield, Robert R. (CDC/OD)
Sent: Tue, 28 Jan 2020 13:15:05 +0000
To: Ferro, Phil J. EOP/NSC;Fabina, Lauren C. EOP/NSC
Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ);(b)(6) McGowan, Robert (Kyle) (CDC/OD/OCS)
Subject: Daily nCoV Update 1-28 - NOT FOR FURTHER DISTRIBUTION

Phil and Lauren – Please see updated information below and let us know if you have any questions.

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- **First University related case**
- Team arrived in AZ for investigation 1/27
- Case currently with mild symptoms; stable
- **At least 5 contacts identified and at least 3 PUIs**

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- Team arrived in CA for investigation 1/27
- No PUIs at this time
- Number of contacts being actively monitored: 7

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- **DGMQ working on flight manifest and LAX airport**
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(b)(6); (b)(5)

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-

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Taiwan	7	2	0	25-Jan	0	21-Jan
France	3	0	0	Unk	0	24-Jan
Japan	6	2	1	23-Jan	0	15-Jan
Republic of Korea	4	0##	0	25-Jan	0	20-Jan
Macao	5	0###	0	25-Jan	0	22-Jan
Vietnam	2	0	1	Unk	0	23-Jan
Nepal	1	0	0	5-Jan	0	24-Jan
Canada	2	1#	0	Unk	0	25-Jan
Cambodia	1	0	0	25-Jan	0	27-Jan
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Sri Lanka	1	1	0	25-Jan	0	
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Japan: Two new cases

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- (b)(6) from Wuhan. Arrived 22 January 22, developed symptoms 25 January. Isolated with no reported pneumonia.

Suspect case in Cote d'Ivoire: On January 25, (b)(6) displaying flu-like symptoms arrived on a Turkish Airlines flight from Beijing to Félix Houphouët Boigny Airport in Abidjan. Following a routine screening, airport health officials alerted the Ivoirian Ministry of Health and Public Hygiene of a possible case of a novel coronavirus, (2019-nCoV). (Post alerted AF/W and DOS Ops Center.) Health officials transported the student to a pandemic unit at the airport for monitoring, treatment, and tests. Sample sent to Institute Pasteur France. Authorities do not expect to receive conclusive test results until Wednesday, January 29 or later. CDC country team engaged.

Suspect case in Zambia: A recent returnee (8 days ago) from Wuhan and is now with URI symptoms. Samples were sent to NHLS in South Africa

Suspect case in Kenya: Airport screening in Nairobi today picked up a febrile traveler from China (initial reports indicate Wuhan) who is now in isolation at the designated national referral hospital. Samples have been collected and sent to national lab, but I assume will come to us shortly.

Other:

- 11/27 call Sec Azar and NHC Minister Ma. Azar's ask was for WHO to be allowed to deploy a team to China with HHS team members. He noted the CDC offer of assistance to the China CDC Director and said that a US CDC team is ready to deploy. NHC minister Ma said he would take this under advisement.

(b)(5)

- (sensitive) Planning underway for PCVs to be evacuated from China to Thailand.
- **WHO Mission** arriving in China for investigation.
- MMWR and NEJM publications in process on 1st US case and CDC response, possible publication, Jan 31st.

-

From: Redfield, Robert R. (CDC/OD)
Sent: Wed, 29 Jan 2020 12:52:34 +0000
To: Redfield, Robert R. (CDC/OD);Ferro, Phil J. EOP/NSC;Fabina, Lauren C. EOP/NSC
Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ[(b)(6)];McGowan, Robert (Kyle) (CDC/OD/OCS)
Subject: Daily nCoV Update 1-29 - NOT FOR FURTHER DISTRIBUTION

Phil and Lauren – Please see updated information below and let us know if you have any questions.

1. # of total confirmed cases in the U.S. and locations
   5 confirmed cases, locations include Washington State, California (3) and Chicago, IL
2. # of total cases in the U.S. undergoing screening at CDC
   165 Persons Under Investigation
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   5,974 as of 1/28 7 AM EST
5. # of total confirmed deaths in China
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6. # of international cases and locations – **see table below**
7. # of total confirmed international (non-China) deaths - not available to CDC

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Patients Being Medically Evaluated in US (as of 1/28 7 PM)*:

	Numbers
Total # PUIs identified*	165
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*Excludes those with contact to known case (25).

*We are continuing to revise the process and validate/de-duplicate the data. This means the numbers will be susceptible to change as we implement the systems needed to monitor the increasing number of requests and the variability of submission data from our public health partners who are working at break-neck speed.

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- First Case Detected at Airport. (b)(6) tested negative on 1/25, testing on (b)(6) pending results.
- DGMQ working on flight manifest and LAX airport
- (b)(6) IHR notified for contact tracing
- 40 people identified in contact tracing
- 2 PUIs undergoing nCoV testing

Travel and Airport Screening

Repatriation of USG and American Citizens from Wuhan

- Coordination planning with interagency partners for the repatriation flight arriving in the US from Wuhan, Flight departed Wuhan and arrived in Anchorage
  - In Anchorage, 197 persons screened in 1 hour and 14 min
  - 14 persons screened to tertiary screening; no hospital referrals
    - Most had a previous visit to healthcare facility; a couple had a cough, but were afebrile and had no other risk factors or symptoms
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  - Will be rescreened on arrival in March AFB
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1/29 20 Quarantine stations evaluating passengers from China

DOS in China announced that they are planning to issue a Level 3 travel advisory (reconsider travel) for the entire country of China. This notice is currently planned for issuance Jan 28th following departure of the repatriation flight from Wuhan. The reasons that will be cited include the novel coronavirus as well the implementation of travel restrictions by Chinese authorities. **The current Level 4 travel advisory (do not travel) for Hubei province will remain in place.**

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All Airports (JFK, LAX, SFO, ORD, ATL)	Total Cumulative
No. of flights screened	**370**
No. of secondary screenings	**2529**
No. of tertiary screenings	**34**
No. of medical evaluation referrals	**2**
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No. of isolation orders	**0**
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No. of flights screened	**30**
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International Updates

nCov in mainland China

	Confirmed Cases	Severe Cases (%)	Deaths	Affected Provinces	Suspected Cases	Total Contacts Traced	Contacts Under Observation
Total	**5,974**	**1,239 (21%)**	**132**	**31**	**9,239**	**65,537**	**59,990**
New	**1,459**	**263 (18%)**	**26**	**1**	**3,248**	**17,704**	**17,462**

Epidemiology – **(data as of 2400 28 Jan Beijing)**

- Total confirmed cases 5,974 **(32% increase)**, including 1,239 severe cases, and **132 deaths**
- Deaths have occurred in the following locations Shanghai (1), Henan Province (2), Hebei Province (1), Heilongjiang (1) and Beijing (1). Remaining deaths in Hubei Province.
- Total suspected cases 9,239
  - 14% (982/6,973) of previous days suspected cases were eliminated
- Close contacts: 65,537 traced and 59,990 under medical observation.
  - 4% (1,604/44,132) of yesterday's contacts under observation were released from observation
- Suspect case in The Tibet Autonomous Region (TAR), which has not previously reported cases

Restrictions

- At least 6 other countries repatriating citizens
- 30 countries conducting entry screening, targeting flights from Wuhan
- Travel restrictions in 9 countries (media signals)
- Several countries increased the level of their travel advisories, including UK and Canada

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- **One new country reporting cases, United Arab Emirates**
- **Four new cases (Taiwan 1, Germany 3) without evidence of travel to China**

Location	Confirmed Cases	New Cases (since last report)	Cases Without China Travel	Date Most Recent Case Reported	Deaths	Date First Case Reported
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United States	5		0	26-Jan	0	16-Jan
Hong Kong	8		0	26-Jan	0	21-Jan
Australia	5		0	27-Jan	0	25-Jan
Malaysia	7	3	0	28-Jan	0	24-Jan
Singapore	7		0	28-Jan	0	23-Jan
Taiwan	8	1	1	28-Jan	0	21-Jan
France	3		0	25-Jan	0	24-Jan
Japan	7	1	1	28-Jan	0	15-Jan
South Korea	4		0	27-Jan	0	20-Jan
Macau	7	2	0	27-Jan	0	22-Jan
Vietnam	2		1	23-Jan	0	23-Jan
Nepal	1		0	24-Jan	0	24-Jan
Canada	3	1	0	28-Jan	0	25-Jan
Cambodia	1		0	27-Jan	0	27-Jan
Germany	4	3	4	28-Jan	0	27-Jan
Sri Lanka	1		0	28-Jan	0	28-Jan
New Locations with Cases						
UAE	4	4	0	29-Jan		29-Jan
Total	**91**	**15**	**7**		**0**	

* No evidence of travel to China

New confirmed cases outside China, 24 hrs. (15)

- **United Arab Emirates, Abu Dhabi: First confirmed cases, 4**
    - Four family members who traveled from Wuhan.
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- CDC team has been invited to support response in China in collaboration with WHO and NHC contacted HHS to extend their welcome to US experts to join WHO in this expert group to work together with Chinese counterparts in the ongoing 2019-nCoV prevention and control effort.
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- WHO nCoV STAG (Strategic Technical Advisory Group) to meet Wednesday, Jan 29th.

- Thailand Ministry of Public Health has agreed to share specimens with CDC. Material transfer agreement in process.

- MMWR and NEJM publications in process on 1st US case and CDC response, possible publication, Jan 31st.

-

From: Redfield, Robert R. (CDC/OD)
Sent: Wed, 29 Jan 2020 12:58:12 +0000
To: Schuchat, Anne MD (CDC/OD);McGowan, Robert (Kyle) (CDC/OD/OCS);Fox, LeAnne M. (CDC/DDID/NCIRD/DBD);Messonnier, Nancy (CDC/DDID/NCIRD/OD);Cetron, Marty (CDC/DDID/NCEZID/DGMQ);Berger, Sherri (CDC/OCOO/OD);Butler, Jay C. (CDC/DDID/OD)
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID);Patel, Anita (CDC/DDID/NCIRD/OD);Cohn, Amanda (CDC/DDID/NCIRD/OD);Bresee, Joseph (CDC/DDID/NCIRD/ID);Williams, Ian (CDC/DDID/NCEZID/DFWED)
Subject: Re: Daily AM OD Updates nCoV - Jan 29th

Please send correction copy to nsc
Dr. Robert Redfield
From: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Sent: Wednesday, January 29, 2020 7:56:46 AM
To: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Bresee, Joseph (CDC/DDID/NCIRD/ID) <jsb6@cdc.gov>; Williams, Ian (CDC/DDID/NCEZID/DFWED) <iaw3@cdc.gov>
Subject: RE: Daily AM OD Updates nCoV - Jan 29th

New line should be:

(b)(5)

From: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Sent: Wednesday, January 29, 2020 7:52 AM
To: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
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Need to update the first bullet to include Arizona before it goes to NSC.

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From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Wednesday, January 29, 2020 7:44:19 AM

To: Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Bresee, Joseph (CDC/DDID/NCIRD/ID) <jsb6@cdc.gov>; Williams, Ian (CDC/DDID/NCEZID/DFWED) <iaw3@cdc.gov>
Subject: Daily AM OD Updates nCoV - Jan 29th

Dear All,

Please see the Daily AM OD Updates for nCoV. Let us know if there are any questions.

Thank you,

LeAnne

INTERNAL - NOT FOR FURTHER DISTRIBUTION

NSC Request for Information

1. # of total confirmed cases in the U.S. and locations
   5 confirmed cases, locations include Washington State, California (3) and Chicago, IL
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LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

Chief, Meningitis and Vaccine Preventable Diseases
Division of Bacterial Diseases
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, NE, MS H 24-6
Atlanta, GA 30329-4027
Tel: 404-718-4739
FAX: 404-471-2511
Email: lfox@cdc.gov

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 29 Jan 2020 13:18:32 +0000
To: Redd, Stephen (CDC/DDPHSIS/OD)
Subject: Fwd: Daily AM OD Updates nCoV - Jan 29th - CORRECTION

Get Outlook for iOS
From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Wednesday, January 29, 2020 8:07:08 AM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Bresee, Joseph (CDC/DDID/NCIRD/ID) <jsb6@cdc.gov>; Williams, Ian (CDC/DDID/NCEZID/DFWED) <iaw3@cdc.gov>
Subject: RE: Daily AM OD Updates nCoV - Jan 29th - CORRECTION

Apologies all -– correction below.

INTERNAL - NOT FOR FURTHER DISTRIBUTION

NSC Request for Information

1. # of total confirmed cases in the U.S. and locations
   5 confirmed cases, locations include Washington State, California (2), Chicago, IL and Arizona
2. # of total cases in the U.S. undergoing screening at CDC
   165 Persons Under Investigation
3. # of cases screened by CDC that were confirmed not to be coronavirus
   68 Persons with negative test results
4. # of total confirmed cases in China
   5,974 as of 1/28 7 AM EST
5. # of total confirmed deaths in China
   132 as of 1/28 7 AM EST
6. # of international cases and locations – **see below**
7. # of total confirmed international (non-China) deaths - not available to CDC

Domestic Updates

Patients Being Medically Evaluated in US (as of 1/28 7 PM)*:

	Numbers
Total # PUIs identified*	165

PUIs from the prior 24 hours	27
Total # confirmed cases	5
Total # PUIs with pending test results	92
Total # PUIs with negative test results	68
PUI reported by HD/clinician	161
PUI reported by airport screening	4

*Excludes those with contact to known case (25).

*We are continuing to revise the process and validate/de-duplicate the data. This means the numbers will be susceptible to change as we implement the systems needed to monitor the increasing number of requests and the variability of submission data from our public health partners who are working at break-neck speed.

Confirmed Cases Field Investigations

1st Confirmed nCoV Patient in Washington State: (b)(6) remains stable, improving on Remdesivir, in the hospital in isolation and under airborne precautions. **1/20: Positive nCoV.**

- 51 people identified in contact tracing in 3 counties
- 6 PUIs identified in contact investigation, 2 nCoV testing negative, 4 nCov testing pending
- Field investigation underway; standardized interviews and collection of respiratory specimens from close contacts

2nd Confirmed nCoV Patient in Chicago: (b)(6) with co-morbidities and contact with family member in Wuhan who died of viral pneumonia. Currently stable and ready for discharge. **1/23: Positive nCoV,**

- 210+ people identified in contact tracing
- 16 PUIs currently identified in contact investigation being tested for nCoV. Including one health care worker contact currently in Greece who is asymptomatic. Contact will remain in Greece until 2/4 (end of 14 day period)
- Greece IHR notified

3rd Confirmed nCoV Patient in Arizona: (b)(6) with travel to Wuhan with onset of productive cough and fever on Jan 21. **1/25: Positive nCoV.**

- First University related case
- Case currently with mild symptoms; stable on home isolation
- At least 7 contacts identified and at least 3 PUIs

4th Confirmed nCoV Patient in Orange County, CA: (b)(6) from Wuhan who came to visit (b)(6) in Orange County, CA on Jan 21. Symptoms began Jan 14th in Wuhan. **1/25: Positive nCoV**.

- 22 contact identified in contact tracing
- No PUIs at this time

5th Confirmed nCoV Patient in Los Angeles, CA: (b)(6) (b)(6) felt unwell with fever, cough and was referred from screening for evaluation. Still hospitalized, but stable. **1/25: Positive nCoV.**

- First Case Detected at Airport. (b)(6) tested negative on 1/25, testing on (b)(6) pending results.
- DGMQ working on flight manifest and LAX airport
- Mexico IHR notified for contact tracing
- 40 people identified in contact tracing
- 2 PUIs undergoing nCoV testing

Travel and Airport Screening

Repatriation of USG and American Citizens from Wuhan

- Coordination planning with interagency partners for the repatriation flight arriving in the US from Wuhan, Flight departed Wuhan and arrived in Anchorage
  - In Anchorage, 197 persons screened in 1 hour and 14 min
  - 14 persons screened to tertiary screening; no hospital referrals
    - Most had a previous visit to healthcare facility; a couple had a cough, but were afebrile and had no other risk factors or symptoms
  - Expected arrival in March Reserve AFB around 11am ET today
  - Will be rescreened on arrival in March AFB
    - Asked to remain on base till in-depth epi assessment is complete
    - Voluntary specimen collection
    - Health monitoring instructions will be provided prior to release

Travel Bans and Airport Screening:

1/27 CDC issued a Level 3 Travel Alert (avoid all nonessential travel) for all of China
1/29 20 Quarantine stations evaluating passengers from China

DOS in China announced that they are planning to issue a Level 3 travel advisory (reconsider travel) for the entire country of China. This notice is currently planned for issuance Jan 28th following departure of the repatriation flight from Wuhan. The reasons that will be cited include the novel coronavirus as well the implementation of travel restrictions by Chinese authorities. **The current Level 4 travel advisory (do not travel) for Hubei province will remain in place.**

Screening continues at Atlanta, Chicago, San Francisco, Los Angeles and New York (JFK). **Over 370 flights and over 2500 passengers have been screened to date.** Direct flights from Wuhan have stopped, but indirect flights continue, including 30 indirect flights in the past 24 hours. To date, 4 referrals have been made – 2 from screening LAX (1), SFO (1) and 2 from non-screening airports SEA (1), DTW (1). **No medical referrals in past 24 hours.**

All Airports (JFK, LAX, SFO, ORD, ATL)	Total Cumulative

No. of flights screened	**370**
No. of secondary screenings	**2529**
No. of tertiary screenings	**34**
No. of medical evaluation referrals	**2**
No. of positive lab tests	**1**
No. of isolation orders	**0**
All Airports (JFK, LAX, SFO, ORD, ATL)	**Daily Cumulative As of 8 AM 1/28/2020**
No. of flights screened	**30**
No. of secondary screenings	**63**
No. of tertiary screenings	**1**
No. of medical evaluation referrals	**0**
No. of positive lab tests	**0**
No. of isolation orders	**0**

International Updates

nCov in mainland China

	Confirmed Cases	Severe Cases (%)	Deaths	Affected Provinces	Suspected Cases	Total Contacts Traced	Contacts Under Observation
Total	**5,974**	**1,239 (21%)**	**132**	**31**	**9,239**	**65,537**	**59,990**
New	**1,459**	**263 (18%)**	**26**	**1**	**3,248**	**17,704**	**17,462**

Epidemiology – **(data as of 2400 28 Jan Beijing)**

- Total confirmed cases 5,974 **(32% increase)**, including 1,239 severe cases, and **132 deaths**
- Deaths have occurred in the following locations Shanghai (1), Henan Province (2), Hebei Province (1), Heilongjiang (1) and Beijing (1). Remaining deaths in Hubei Province.
- Total suspected cases 9,239
  - 14% (982/6,973) of previous days suspected cases were eliminated
- Close contacts: 65,537 traced and 59,990 under medical observation.
  - 4% (1,604/44,132) of yesterday's contacts under observation were released from observation
- Suspect case in The Tibet Autonomous Region (TAR), which has not previously reported cases

Restrictions

- At least 6 other countries repatriating citizens
- 30 countries conducting entry screening, targeting flights from Wuhan
- Travel restrictions in 9 countries (media signals)
- Several countries increased the level of their travel advisories, including UK and Canada

Cases outside of China (Total of 91 in 18 countries)

- **One new country reporting cases, United Arab Emirates**
- **Four new cases (Taiwan 1, Germany 3) without evidence of travel to China**

Location	Confirmed Cases	New Cases (since last report)	Cases Without China Travel	Date Most Recent Case Reported	Deaths	Date First Case Reported
Locations Previously Reporting Cases						
Thailand	14		0	28-Jan	0	13-Jan
United States	5		0	26-Jan	0	16-Jan
Hong Kong	8		0	26-Jan	0	21-Jan
Australia	5		0	27-Jan	0	25-Jan
Malaysia	7	3	0	28-Jan	0	24-Jan
Singapore	7		0	28-Jan	0	23-Jan
Taiwan	8	1	1	28-Jan	0	21-Jan
France	3		0	25-Jan	0	24-Jan
Japan	7	1	1	28-Jan	0	15-Jan
South Korea	4		0	27-Jan	0	20-Jan
Macau	7	2	0	27-Jan	0	22-Jan
Vietnam	2		1	23-Jan	0	23-Jan
Nepal	1		0	24-Jan	0	24-Jan
Canada	3	1	0	28-Jan	0	25-Jan
Cambodia	1		0	27-Jan	0	27-Jan
Germany	4	3	4	28-Jan	0	27-Jan
Sri Lanka	1		0	28-Jan	0	28-Jan
New Locations with Cases						

UAE	4	4	0	29-Jan		29-Jan
Total	**91**	**15**	**7**		**0**	

* No evidence of travel to China

New confirmed cases outside China, 24 hrs. (15)

- **United Arab Emirates, Abu Dhabi: First confirmed cases, 4**
  - Four family members who traveled from Wuhan.
- **Taiwan**: 1 new case
  - **1st case without travel to China mainland.** 8th confirmed case. (b)(6) who lives with confirmed case #5. Symptom onset 1/28, hospitalized same day. Currently stable.
- **Canada:** 1 new case
  - 3rd case: British Columbia. Traveler returned from China last week, linked to Wuhan. No symptoms on arrival. Developed symptoms and went to clinic 1/26. Mild illness, in home isolation
- **Germany:** 3 new cases
  - **3 more confirmed cases in employees at same company as first case.** All 3 cases are hospitalized and isolated at the Munich Clinic
- **Japan**: 1 new case, **Malaysia**: 3 new cases. **Macau**: 2 new cases.

Cases pending official announcement

- **France**: 1 additional case not officially confirmed and announced
- **Thailand**: 2 confirmed cases not yet reported by Ministry of Health

Noteworthy suspect cases:

- Awaiting test results for suspect cases in Cote d'Ivoire, Zambia, Kenya, Equatorial Guinea

Additional Updates:

- CDC team has been invited to support response in China in collaboration with WHO and NHC contacted HHS to extend their welcome to US experts to join WHO in this expert group to work together with Chinese counterparts in the ongoing 2019-nCoV prevention and control effort.
- China Embassy discussing whether to go on authorized departure. A decision will be finalized in next 24 hours.

- WHO Mission is returning from China. The WHO Emergency Committee will be called again, likely Thursday, Jan 30th.
- WHO nCoV STAG (Strategic Technical Advisory Group) to meet Wednesday, Jan 29th.
- Thailand Ministry of Public Health has agreed to share specimens with CDC. Material transfer agreement in process.
- MMWR and NEJM publications in process on 1st US case and CDC response, possible publication, Jan 31st.

LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

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From: Redfield, Robert R. (CDC/OD)
Sent: Wed, 29 Jan 2020 18:24:11 +0000
To: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD)
Subject: RE: Daily AM OD Updates nCoV - Jan 29th - CORRECTION

Hi, LeAnne,

Can you ensure Agnes and I are added to the list of recipients for the email below? One of us is going to be responsible for getting this information to the White House each morning, and it will make things much more efficient if we don't have to go into his email to find it.

Thanks!

Ashley

From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Wednesday, January 29, 2020 8:07 AM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Bresee, Joseph (CDC/DDID/NCIRD/ID) <jsb6@cdc.gov>; Williams, Ian (CDC/DDID/NCEZID/DFWED) <iaw3@cdc.gov>
Subject: RE: Daily AM OD Updates nCoV - Jan 29th - CORRECTION

Apologies all -– correction below.

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LeAnne M. Fox, MD, MPH, DTM&H
CDR US Public Health Service

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Email: lfox@cdc.gov

From: Schuchat, Anne MD (CDC/OD)
Sent: Thu, 30 Jan 2020 13:12:07 +0000
Subject: Fwd: 1-30 Daily AM nCoV Updates

Get Outlook for iOS
From: Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>
Sent: Thursday, January 30, 2020 8:10 AM
To: Messonnier, Nancy (CDC/DDID/NCIRD/OD); Cetron, Marty (CDC/DDID/NCEZID/DGMQ); Redfield, Robert R. (CDC/OD); Schuchat, Anne MD (CDC/OD); Berger, Sherri (CDC/OCOO/OD); Butler, Jay C. (CDC/DDID/OD); Redd, Stephen (CDC/DDPHSIS/OD)
Cc: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID); Patel, Anita (CDC/DDID/NCIRD/OD); Cohn, Amanda (CDC/DDID/NCIRD/OD); Bresee, Joseph (CDC/DDID/NCIRD/ID); Williams, Ian (CDC/DDID/NCEZID/DFWED); Knotts, Ashley (CDC/OD/OCS); Warner, Agnes (CDC/OD/OCS)
Subject: 1-30 Daily AM nCoV Updates

Dear All,

Please find the Daily OD nCoV Updates below. Let us know if there are any questions.

Thanks,

LeAnne

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LeAnne Fox, MD, MPH, DTM&H
CDR US Public Health Service
Currently Assigned as Deputy Incident Manager for
2020 Novel Coronavirus Response

From: Redfield, Robert R. (CDC/OD)
Sent: Thu, 30 Jan 2020 13:16:50 +0000
To: Ferro, Phil J. EOP/NSC;Fabina, Lauren C. EOP/NSC
Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ);anthony.j.ruggiero@nsc.eop.gov;McGowan, Robert (Kyle) (CDC/OD/OCS)
Subject: Daily nCoV Update 1-30 - NOT FOR FURTHER DISTRIBUTION

Phil and Lauren – Please see updated information below and let us know if you have any questions.

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From: Butler, Jay C. (CDC/DDID/OD)
Sent: Fri, 31 Jan 2020 02:39:13 +0000
To: Cetron, Marty (CDC/DDID/NCEZID/DGMQ)
Subject: Fwd: FYI Copy - HAN - 2019-NCoV
Attachments: HAN Update 2019-nCoV_no_figure (002)-Cleared.docx, 2019-nCoV-identify-assess-flowchart-2020-01-30-c.pdf

Get Outlook for iOS
From: CDC IMS JIC Emergency Clearance-2 <eocjicclear2@cdc.gov>
Sent: Thursday, January 30, 2020 8:40:53 PM
To: Jernigan, Daniel B. (CDC/DDID/NCIRD/ID) <dbj0@cdc.gov>; Cohn, Amanda (CDC/DDID/NCIRD/OD) <anc0@cdc.gov>; Patel, Anita (CDC/DDID/NCIRD/OD) <bop1@cdc.gov>; Fox, LeAnne M. (CDC/DDID/NCIRD/DBD) <lff4@cdc.gov>; Moulia, Danielle L. (CDC/DDID/NCIRD/OD) (CTR) <wwe8@cdc.gov>; Sorrells, Marjorie J. (CDC/DDID/NCIRD/ID) <isg8@cdc.gov>; Painter, Elizabeth (CDC/DDID/NCIRD/ID) <ocv3@cdc.gov>; Barry, Brooke (CDC/DDID/NCIRD/OD) <bmb8@cdc.gov>; CDC IMS 2019 NCOV Response Policy <eocevent209@cdc.gov>; Bresee, Joseph (CDC/DDID/NCIRD/ID) <jsb6@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; CDC IMS 2019 NCOV Response Deputy Incident Manager <eocevent259@cdc.gov>; CDC IMS 2019 NCOV Response Incident Manager <eocevent193@cdc.gov>; Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>; Kuhnert-Tallman, Wendi (CDC/DDID/OD) <wdk1@cdc.gov>; Williams, Ian (CDC/DDID/NCEZID/DFWED) <iaw3@cdc.gov>
Cc: CDC IMS JIC Emergency Clearance-2 <eocjicclear2@cdc.gov>
Subject: FYI Copy - HAN - 2019-NCoV

All,
Attached is an FYI copy of the HAN that was cleared by the response and submitted to the HAN Editor this evening.
Alex Landon
JIC Emergency Clearance
2019-nCoV Response
404-553-7770 or 404-553-7771
eocjicclear2@cdc.gov

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From: Redfield, Robert R. (CDC/OD)
Sent: Fri, 31 Jan 2020 19:44:39 +0000
Subject: Fwd: CONFIRMED: Deputies Call - DHS Coronavirus Funneling FRN
Attachments: draft FRN 1.30.2020 CBP+TSA.DOCX

From: Joyce, Shannon M. EOP/OMB <(b)(6)
Sent: Friday, January 31, 2020 2:35:23 PM
To: 'Mizelle, Chad' <chad.mizelle@hq.dhs.gov>; 'steven.bradbury@dot.gov' <steven.bradbury@dot.gov>; 'christina.aizcorbe@dot.gov' <christina.aizcorbe@dot.gov>; Maher, Joseph <Joseph.Maher@HQ.DHS.GOV>; 'McDonald, Christina' <christina.mcdonald@hq.dhs.gov>; Doug Domenech <douglas_domenech@ios.doi.gov>; Hoelscher, Douglas L. EOP/WHO <Douglas.L.Hoelscher@who.eop.gov>; Ray, Paul J. EOP/OMB <(b)(6)>; Thallam, Satya P. EOP/OMB <(b)(6)>; Ellis, Michael J. EOP/WHO <Michael.J.Ellis@who.eop.gov>; Theroux, Rich P. EOP/OMB <(b)(6)>; Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Davis, May M. EOP/WHO <May.Davis@who.eop.gov>; Ferro, Phil J. EOP/NSC <Philip.J.Ferro@nsc.eop.gov>; Stufft, Julie M. EOP/NSC <Julie.M.Stufft@nsc.eop.gov>; 'Jorgenson, Sarah' <sarah_jorgenson@ios.doi.gov>; Sinclair, Michael R. EOP/NSC <Michael.R.Sinclair@nsc.eop.gov>; Hamilton, Gene (OAG) <Gene.Hamilton@usdoj.gov>; Wetmore, David H. (ODAG) <David.H.Wetmore@usdoj.gov>; Risch, Carl C <RischCC@state.gov>; Stoddard, Kaitlin V <StoddardKV@state.gov>; Kan, Derek T. EOP/OMB <(b)(6)>; Hayes, Bradley F. EOP/OMB <(b)(6)>; Duffey, Michael P. EOP/OMB <(b)(6)>; Newman, Kim A. EOP/OMB <(b)(6)>; 'Katharine_macgregor@ios.doi.gov' <Katharine_macgregor@ios.doi.gov>; Ditto, Jessica E. EOP/WHO <Jessica.E.Ditto@who.eop.gov>; Agnew, Ann (HHS/IOS) <Ann.Agnew@hhs.gov>; Steele, Danielle (HHS/IOS) <Danielle.Steele@hhs.gov>; Stannard, Paula (HHS/IOS) <Paula.Stannard@hhs.gov>; Lichter, Jennie B. EOP/WHO <Jennifer.B.Lichter@who.eop.gov>; Bonner, Maria K. EOP/WHO <Maria.K.Bonner@who.eop.gov>; Watson, Ian D. EOP/OSTP <Ian.D.Watson@ostp.eop.gov>; Merkel, Theo W. EOP/WHO <Theodore.W.Merkel@who.eop.gov>; D'Angelo, Gregory B. EOP/OMB <(b)(6)>; Morgan, Hallee K. EOP/OMB <(b)(6)>; Paoletta, Mark R. EOP/OMB <(b)(6)>; Walsh, Heather V. EOP/OMB <(b)(6)>; Mancini, Dominic J. EOP/OMB <(b)(6)>; Ganahl, Joseph R. EOP/OMB <(b)(6)>; Olmem, Andrew J. EOP/WHO <Andrew.J.Olmem@who.eop.gov>; Pottinger, Matthew F. EOP/WHO <MPottinger@who.eop.gov>; Aguilar, Brenda L. EOP/OMB <(b)(6)>; Hirsch, Quinn N. EOP/OMB <(b)(6)>; Ruggiero, Anthony J. EOP/NSC <Anthony.J.Ruggiero@nsc.eop.gov>; DUBELIER, KRISTIN L (OCC) <KRISTIN.L.DUBELIER@CBP.DHS.GOV>; Stecker, Judy (OS/IOS) <Judy.Stecker@hhs.gov>; Stimson, Brian (HHS/OGC) <Brian.Stimson@hhs.gov>; COUREY, MARC BENNETT (OCC) <MARCBENNETT.COUREY@cbp.dhs.gov>; FORET, VERNON T <VERNON.T.FORET@CBP.DHS.GOV>; Grigsby, Garrett (HHS/OS/OGA) <Garrett.Grigsby@hhs.gov>; 'SEGUIN, DEBBIE W' <debbie.w.seguin@cbp.dhs.gov>; 'Lampel, Michael D' <LampelMD@state.gov>; 'AS2KTC' <as2ktc@hq.dhs.gov>
Cc: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Kalsbeek, Amie (OST) <amie.kalsbeek@dot.gov>; Fabina, Lauren C. EOP/NSC <Lauren_C._Fabina@nsc.eop.gov>
Subject: RE: CONFIRMED: Deputies Call - DHS Coronavirus Funneling FRN

Hi all,

For expediency, I am using the chain from this morning's meeting. Please see an updated draft of the FRN from DHS, attached. Please let me know by **2:50PM only showstoppers** that you are prepared to elevate to Principals.

We will set a Deps call at 3 ((b)(5) (b)(5) .

- Shannon

-----Original Appointment-----
From: Joyce, Shannon M. EOP/OMB
Sent: Thursday, January 30, 2020 9:23 PM
To: Joyce, Shannon M. EOP/OMB; 'Mizelle, Chad'; 'steven.bradbury@dot.gov'; 'christina.aizcorbe@dot.gov'; Maher, Joseph; 'McDonald, Christina'; Doug Domenech; Hoelscher, Douglas L. EOP/WHO; Ray, Paul J. EOP/OMB; Thallam, Satya P. EOP/OMB; Ellis, Michael J. EOP/WHO; Theroux, Rich P. EOP/OMB; olx1@cdc.gov; Davis, May M. EOP/WHO; Ferro, Phil J. EOP/NSC; Stufft, Julie M. EOP/NSC; 'Jorgenson, Sarah'; Sinclair, Michael R. EOP/NSC; Hamilton, Gene (OAG); Wetmore, David H. (ODAG); Risch, Carl C; Stoddard, Kaitlin V; Kan, Derek T. EOP/OMB; Hayes, Bradley F. EOP/OMB; Duffey, Michael P. EOP/OMB; Newman, Kim A. EOP/OMB; 'Katharine_macgregor@ios.doi.gov'; Ditto, Jessica E. EOP/WHO; Agnew, Ann (HHS/IOS); 'danielle.steele@hhs.gov'; 'Stannard, Paula (HHS/IOS)'; Lichter, Jennie B. EOP/WHO; Bonner, Maria K. EOP/WHO; Watson, Ian D. EOP/OSTP; Merkel, Theo W. EOP/WHO; D'Angelo, Gregory B. EOP/OMB; Morgan, Hallee K. EOP/OMB; Paoletta, Mark R. EOP/OMB; Walsh, Heather V. EOP/OMB; Mancini, Dominic J. EOP/OMB; Ganahl, Joseph R. EOP/OMB; Olmem, Andrew J. EOP/WHO; Pottinger, Matthew F. EOP/WHO; Aguilar, Brenda L. EOP/OMB; Hirsch, Quinn N. EOP/OMB; Ruggiero, Anthony J. EOP/NSC; DUBELIER, KRISTIN L (OCC); Stecker, Judy (OS/IOS); Stimson, Brian (HHS/OGC); COUREY, MARC BENNETT (OCC); FORET, VERNON T; Grigsby, Garrett (HHS/OS/OGA); 'SEGUIN, DEBBIE W'; 'Lampel, Michael D'; 'AS2KTC'
Cc: McGowan, Robert (Kyle) (CDC/OD/OCS); Kalsbeek, Amie (OST); Fabina, Lauren C. EOP/NSC
Subject: CONFIRMED: Deputies Call - DHS Coronavirus Funneling FRN
When: Friday, January 31, 2020 8:00 AM-8:30 AM (UTC-05:00) Eastern Time (US &Canada).
Where (b)(6)
Importance: High

Resending the attachment with DOT comments for those who did not receive it earlier.

___

Below and attached are the comments we received that will form the basis of this discussion.

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From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Fri, 31 Jan 2020 20:05:03 +0000
To: Williams, Teresa (CDC/OD/OCS);Scales, Scott L. (CDC/OD/OCS)
Cc: Lepore, Loretta (CDC/OD/OCS);Warner, Agnes (CDC/OD/OCS);Green, Hugh (CDC/OD/OCS);Knotts, Ashley (CDC/OD/OCS);Dennehy, Heather (CDC/OD/OCS);Bartee, Brad Allen (CDC/OD/OCS)
Subject: RE: CONFIRMED: Deputies Call - DHS Coronavirus Funneling FRN TODAY, Friday, Jan. 31st at 3-4 p.m.

We have folks from the response covering.

From: Williams, Teresa (CDC/OD/OCS) <coo4@cdc.gov>
Sent: Friday, January 31, 2020 2:59 PM
To: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Scales, Scott L. (CDC/OD/OCS) <ixj3@cdc.gov>
Cc: Lepore, Loretta (CDC/OD/OCS) <phf7@cdc.gov>; Warner, Agnes (CDC/OD/OCS) <bli8@cdc.gov>; Green, Hugh (CDC/OD/OCS) <yke8@cdc.gov>; Knotts, Ashley (CDC/OD/OCS) <vqf0@cdc.gov>; Dennehy, Heather (CDC/OD/OCS) <kvz6@cdc.gov>; Bartee, Brad Allen (CDC/OD/OCS) <yxa0@cdc.gov>
Subject: FW: CONFIRMED: Deputies Call - DHS Coronavirus Funneling FRN TODAY, Friday, Jan. 31st at 3-4 p.m.
Importance: High

Hi Kyle and Scott,

Heather just called and forwarded the email below for a Deputies call at 3-4 p.m.

I've placed it on R3's calendar and Heather is contact Dr. Redfield now.

We don't have the call-in information yet.

Thanks
Teresa

Teresa Williams

Scheduler for the CDC Director
Protocol Specialist
Office of the Director
Centers for Disease Control and Prevention
1600 Clifton Road, NE
Building 21, OD Suite, 12th Floor

Mail Stop H21-10
Atlanta, GA 30329
Direct: (b)(6)
Main: (404) 639-7000
Fax: (404) 639-7111

email: coo4@cdc.gov

From: Dennehy, Heather (CDC/OD/OCS) <kvz6@cdc.gov>
Sent: Friday, January 31, 2020 2:53 PM
To: Williams, Teresa (CDC/OD/OCS) <coo4@cdc.gov>
Subject: FW: CONFIRMED: Deputies Call - DHS Coronavirus Funneling FRN

From: Joyce, Shannon M. EOP/OMB <(b)(6)
Sent: Friday, January 31, 2020 2:35 PM
To: 'Mizelle, Chad' <chad.mizelle@hq.dhs.gov>; 'steven.bradbury@dot.gov' <steven.bradbury@dot.gov>; 'christina.aizcorbe@dot.gov' <christina.aizcorbe@dot.gov>; Maher, Joseph <Joseph.Maher@HQ.DHS.GOV>; 'McDonald, Christina' <christina.mcdonald@hq.dhs.gov>; Doug Domenech <douglas_domenech@ios.doi.gov>; Hoelscher, Douglas L. EOP/WHO <Douglas.L.Hoelscher@who.eop.gov>; Ray, Paul J. EOP/OMB (b)(6) Thallam, Satya P. EOP/OMB (b)(6) Ellis, Michael J. EOP/WHO <Michael.J.Ellis@who.eop.gov>; Theroux, Rich P. EOP/OMB <(b)(6) Redfield, Robert R. (CDC/OD) <olx1@cdc.gov>; Davis, May M. EOP/WHO <May.Davis@who.eop.gov>; Ferro, Phil J. EOP/NSC <Philip.J.Ferro@nsc.eop.gov>; Stufft, Julie M. EOP/NSC <Julie.M.Stufft@nsc.eop.gov>; 'Jorgenson, Sarah' <sarah_jorgenson@ios.doi.gov>; Sinclair, Michael R. EOP/NSC <Michael.R.Sinclair@nsc.eop.gov>; Hamilton, Gene (OAG) <Gene.Hamilton@usdoj.gov>; Wetmore, David H. (ODAG) <David.H.Wetmore@usdoj.gov>; Risch, Carl C <RischCC@state.gov>; Stoddard, Kaitlin V <StoddardKV@state.gov>; Kan, Derek T. EOP/OMB (b)(6) Hayes, Bradley F. EOP/OMB (b)(6) Duffey, Michael P. EOP/OMB (b)(6) Newman, Kim A. EOP/OMB (b)(6) 'Katharine_macgregor@ios.doi.gov' <Katharine_macgregor@ios.doi.gov>; Ditto, Jessica E. EOP/WHO <Jessica.E.Ditto@who.eop.gov>; Agnew, Ann (HHS/IOS) <Ann.Agnew@hhs.gov>; Steele, Danielle (HHS/IOS) <Danielle.Steele@hhs.gov>; Stannard, Paula (HHS/IOS) <Paula.Stannard@hhs.gov>; Lichter, Jennie B. EOP/WHO <Jennifer.B.Lichter@who.eop.gov>; Bonner, Maria K. EOP/WHO <Maria.K.Bonner@who.eop.gov>; Watson, Ian D. EOP/OSTP <Ian.D.Watson@ostp.eop.gov>; Merkel, Theo W. EOP/WHO <Theodore.W.Merkel@who.eop.gov>; D'Angelo, Gregory B. EOP/OMB (b)(6) Morgan, Hallee K. EOP/OMB (b)(6) Paoletta, Mark R. EOP/OMB (b)(6) Walsh, Heather V. EOP/OMB (b)(6) Mancini, Dominic J. EOP/OMB (b)(6) Ganahl, Joseph R. EOP/OMB (b)(6) Olmem, Andrew J. EOP/WHO <Andrew.J.Olmem@who.eop.gov>; Pottinger, Matthew F. EOP/WHO <MPottinger@who.eop.gov>; Aguilar, Brenda L. EOP/OMB <(b)(6) Hirsch, Quinn N. EOP/OMB (b)(6) Ruggiero, Anthony J. EOP/NSC <Anthony.J.Ruggiero@nsc.eop.gov>; DUBELIER, KRISTIN L (OCC) <KRISTIN.L.DUBELIER@CBP.DHS.GOV>; Stecker, Judy (OS/IOS) <Judy.Stecker@hhs.gov>; Stimson, Brian (HHS/OGC) <Brian.Stimson@hhs.gov>; COUREY, MARC BENNETT (OCC) <MARCBENNETT.COUREY@cbp.dhs.gov>; FORET, VERNON T <VERNON.T.FORET@CBP.DHS.GOV>; Grigsby, Garrett (HHS/OS/OGA) <Garrett.Grigsby@hhs.gov>; 'SEGUIN, DEBBIE W' <debbie.w.seguin@cbp.dhs.gov>; 'Lampel, Michael D' <LampelMD@state.gov>; 'AS2KTC' <as2ktc@hq.dhs.gov>

Cc: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Kalsbeek, Amie (OST) <amie.kalsbeek@dot.gov>; Fabina, Lauren C. EOP/NSC <Lauren_C._Fabina@nsc.eop.gov>
Subject: RE: CONFIRMED: Deputies Call - DHS Coronavirus Funneling FRN

Hi all,

For expediency, I am using the chain from this morning's meeting. Please see an updated draft of the FRN from DHS, attached. Please let me know by **2:50PM only showstoppers** that you are prepared to elevate to Principals.

We will set a Deps call at 3 (b)(5) (b)(5).

- Shannon

-----Original Appointment-----
From: Joyce, Shannon M. EOP/OMB
Sent: Thursday, January 30, 2020 9:23 PM
To: Joyce, Shannon M. EOP/OMB; 'Mizelle, Chad'; 'steven.bradbury@dot.gov'; 'christina.aizcorbe@dot.gov'; Maher, Joseph; 'McDonald, Christina'; Doug Domenech; Hoelscher, Douglas L. EOP/WHO; Ray, Paul J. EOP/OMB; Thallam, Satya P. EOP/OMB; Ellis, Michael J. EOP/WHO; Theroux, Rich P. EOP/OMB; olx1@cdc.gov; Davis, May M. EOP/WHO; Ferro, Phil J. EOP/NSC; Stufft, Julie M. EOP/NSC; 'Jorgenson, Sarah'; Sinclair, Michael R. EOP/NSC; Hamilton, Gene (OAG); Wetmore, David H. (ODAG); Risch, Carl C; Stoddard, Kaitlin V; Kan, Derek T. EOP/OMB; Hayes, Bradley F. EOP/OMB; Duffey, Michael P. EOP/OMB; Newman, Kim A. EOP/OMB; 'Katharine_macgregor@ios.doi.gov'; Ditto, Jessica E. EOP/WHO; Agnew, Ann (HHS/IOS); 'danielle.steele@hhs.gov'; 'Stannard, Paula (HHS/IOS)'; Lichter, Jennie B. EOP/WHO; Bonner, Maria K. EOP/WHO; Watson, Ian D. EOP/OSTP; Merkel, Theo W. EOP/WHO; D'Angelo, Gregory B. EOP/OMB; Morgan, Hallee K. EOP/OMB; Paoletta, Mark R. EOP/OMB; Walsh, Heather V. EOP/OMB; Mancini, Dominic J. EOP/OMB; Ganahl, Joseph R. EOP/OMB; Olmem, Andrew J. EOP/WHO; Pottinger, Matthew F. EOP/WHO; Aguilar, Brenda L. EOP/OMB; Hirsch, Quinn N. EOP/OMB; Ruggiero, Anthony J. EOP/NSC; DUBELIER, KRISTIN L (OCC); Stecker, Judy (OS/IOS); Stimson, Brian (HHS/OGC); COUREY, MARC BENNETT (OCC); FORET, VERNON T; Grigsby, Garrett (HHS/OS/OGA); 'SEGUIN, DEBBIE W'; 'Lampel, Michael D'; 'AS2KTC'
Cc: McGowan, Robert (Kyle) (CDC/OD/OCS); Kalsbeek, Amie (OST); Fabina, Lauren C. EOP/NSC
Subject: CONFIRMED: Deputies Call - DHS Coronavirus Funneling FRN
When: Friday, January 31, 2020 8:00 AM-8:30 AM (UTC-05:00) Eastern Time (US & Canada).
Where: (b)(6) #
Importance: High

Resending the attachment with DOT comments for those who did not receive it earlier.

___

Below and attached are the comments we received that will form the basis of this discussion.

(b)(5)

(b)(5)

From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Sat, 1 Feb 2020 02:35:45 +0000
To: Caudwell, Kerry M. (CDC/OD/OCS);Berger, Sherri (CDC/OCOO/OD);Schuchat, Anne MD (CDC/OD)
Cc: Clark, Cynthia K. (CDC/OD/OCS)
Subject: Re: Heads up for awareness, coming tomorrow Fwd: Repatriation housing guidance

Thanks Kerry. Let us know when you have the updated version.
Get Outlook for iOS
From: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Sent: Friday, January 31, 2020 9:32:28 PM
To: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Cc: Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>
Subject: Heads up for awareness, coming tomorrow Fwd: Repatriation housing guidance

Hi all
Wanted to make sure you had awareness of this request from Secretary Esper's office asking for CDC to send a signed memo for the record on signed CDC letterhead regarding repatriation housing guidance.
The guidance is coming from Eric Deussing and Mike Bell.
The GMTF will review in the morning and get this back to us via Michael Williams in the policy unit.
Policy asked us to help with OD awareness and review in the morning when a more up to date edited version will be provided.
Thanks
Kerry
Get Outlook for iOS

From: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Sent: Friday, January 31, 2020 6:28 PM
To: Kroop, Seth (CDC/DDID/NCEZID/DHQP) <wpw7@cdc.gov>; Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>; CDC IMS 2019 NCOV Response Policy <eocevent209@cdc.gov>
Subject: Re: Repatriation housing guidance

Thanks Mike and Seth,

Appreciate your help; obviously the sooner the better, but I realize you have a lot of spinning plates.

V/r,

Eric Deussing, MD, MPH, FACPM
Commander, Medical Corps, US Navy
Department of Defense Liaison to the CDC

Assistant Specialty Leader, Navy Preventive Medicine
(404) 639-0392 (office)
(b)(6) mobile)
ncu0@cdc.gov
1600 Clifton Road, NE, Mailstop D-44
Atlanta, GA 30333

From: Kroop, Seth (CDC/DDID/NCEZID/DHQP) <wpw7@cdc.gov>
Sent: Friday, January 31, 2020 6:10:57 PM
To: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>; Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>; CDC IMS 2019 NCOV Response Policy <eocevent209@cdc.gov>
Subject: Re: Repatriation housing guidance

It should go to policy unit (copied our box for our folks at their computers). They will review and have GMTF and CDC leadership look at it given high profile nature.

From: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>
Sent: Friday, January 31, 2020 5:57:42 PM
To: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Cc: Kroop, Seth (CDC/DDID/NCEZID/DHQP) <wpw7@cdc.gov>
Subject: RE: Repatriation housing guidance

Hi Eric;
And adding Seth from Policy. I'm attaching the email response I drafted on letterhead with a signature, but I realized I have no idea how this is expected to be formatted.
Can either of you help? Is there another Memo for the Record I can copy from? Sorry for the basic question!

Also, Seth – does this need to go through any additional channels given the "formal" framing?
I'll change to pdf once it's ready.
Thanks!
~Mike

From: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Sent: Friday, January 31, 2020 2:11 PM
To: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>
Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>
Subject: RE: Repatriation housing guidance

Hi Mike,

Thanks again for the quick turn and excellent detail below. The Secretary's office is asking if you, Marty, or someone else from CDC can sign and send this on official CDC letterhead?

They are going to brief Secretary Esper with this information now (without the official version). They said a signed Memorandum for the Record is sufficient to make official. Thanks again!

V/r,
Eric

Eric Deussing, MD, MPH, FACPM
Commander, Medical Corps, US Navy
Department of Defense Liaison to the CDC

Assistant Specialty Leader, Navy Preventive Medicine
(404) 639-0392 (office)
(b)(6) (mobile)
ncu0@cdc.gov

1600 Clifton Road, NE, Mailstop D-44
Atlanta, GA 30333

From: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>
Sent: Friday, January 31, 2020 1:28 PM
To: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>
Subject: Repatriation housing guidance

Hi Eric;
Per our conversation.

(b)(5)

~Mike

(b)(5)

(b)(5)

From: Butler, Jay C. (CDC/DDID/OD)
Sent: Sat, 1 Feb 2020 12:06:18 +0000
To: Berger, Sherri (CDC/OCOO/OD);McGowan, Robert (Kyle) (CDC/OD/OCS);Jernigan, Daniel B. (CDC/DDID/NCIRD/ID);Kosmos, Christine (CDC/DDPHSIS/CPR/DSLR)
Cc: Schuchat, Anne MD (CDC/OD);Messonnier, Nancy (CDC/DDID/NCIRD/OD);Cetron, Marty (CDC/DDID/NCEZID/DGMQ)
Subject: Summary of SHO calls and specific action items listed first
Attachments: SHO Calls jan 31 2020.docx

Top half of page 1 are the take-homes. Chris was on for most of them. Big thank you to Hilary for getting notes. Discuss shortly.

SHO Calls – 1/31/2020
Topline Message: This situation is evolving – will be in touch over the weekend

Critical questions:
Q: If they are familiar with their own quarantine regulations
Q: POC over the weekend

Tasks and Key Questions:

1. Estimate how many returning travelers?
    a. Total
    b. By jurisdiction
    NOTE: Hilary sent a request to Shah in DGMQ for this information
2. Talking points on financial obligations for quarantine
3. Guidance for monitoring self-quarantine (in general as well as with family/friends, especially with underlying health conditions), distinction between types of monitoring (e.g., active/direct)
4. Guidance and specificity for mandatory quarantine of family units
5. Guidance on surveillance of self-monitored quarantine data – how, where, when, etc…(specifically on DCIPHER)
6. Are monitoring kits being provided? If so, does it include thermometers? What else?
7. Talking points and brief legal summary of the Federal quarantine orders
8. AG is asking to receive a copy of the Q Order
9. Send guidance to locations where screening is not already taking place (e.g., Washington/Sea-Tac)
10. Can CDC provide a mechanism to pay for housing in advance? Was told that payment could only be made after service rendered/materials procured.
11. May be formal request from CDC for use of state assets to enforce Federal Q Order
12. CA specifically requested discussion with local health agencies at ports of entry at noon ET Saturday

Raw Notes

Howard Zucker – NY State Health Department
His Questions

- Better understand what quarantine means
    - At home or a place that they need to set up for 14 days

Jay
Q: If they are familiar with their own quarantine regulations
A:
Q: POC over the weekend
A: Brad (b)(6)
A: Harold (b)(6)
A: Howard (b)(6)
Q: Who has jurisdiction with JFK
A: Passengers would go to Jamaica Hospital which is NYC, but if they leave JFK then they go out to Westchester, then it is the State
They can issue different quarantine orders
Q: Is this implemented moving forward?

A: Going forward
Q: Why would we be less concerned about people entering on Friday vs. on Monday
A: We aren't but not full operational
Q: How many numbers?
A: 30 national for full quarantine, 1000s for self monitoring
Q: Is the expectation active monitoring, we need good contact information, concern is that they need to develop a fever? Plan? Are we sending them on their way with PPEs? Do we send samples to CDC? When we are collecting samples we need to done in an airborne isolation room (concern with guidance from CDC that came out Wed)?
A: That is why we are having the conversations?
Q: what happens to the people who don't want to comply?
A: --
Q: What are the most recent numbers of passengers by jurisdiction in NY
A: Think we can get that from DGMQ
Q: What are you thinking of for where these people would go
A: They need to reassess and look at what they did with Ebola, hotels, etc…Ellis Island. With Ebola they talked about people self-quarantining. Concerns about family transmission.
Q: Concerns about social emotional issues related to quarantine (e.g., they provided a treadmill previously)
A: We don't have all the answers, PH Emergency Declarations was helpful to shift around CDC resources
Q: Large Asian community, concerns about messaging
A: Yes, that messaging is critical, monitor health, good hand hygiene, if you are experiencing health issues contact a health care provider, especially if you traveled to Hubei province
Q (Chris): Quarantine requirements
A: Individual/family rooms, access to bathing, food, etc….
NY – County has specific quarantine plans, do not want the image of transporting people far from home, images of stigma, racism, other cultural concerns…referenced Japanese interment camps in WWII. Can work with university and corporate partners. Corning Glass Factory has a factory in Hubei

---

NYC – **Oxiris Barbot** - (b)(6)
Q: How was quarantine addressed in planning
A: Currently do not have any units set aside but are talking to Emergency Management Partners to adjust contracts to bring in more units
Q: They were under the impression that they would be quarantined in military like bases because it's happening at the federal level
A: That is true for the State Dept. repatriation but not commercial flights
Q: The 30 is national?
A: Yes.
Q: They need to know the volume that is being projected
A: We are working on it. The number is declining but don't know how much yet, but it may still be 1000s a day. We are getting updated numbers.
Q: Are flights being diverted?
A: The passengers are.
Q: What if I live in NJ and get redirected?
A: Opportunity for people to self-quarantined
Q: So we would need to coordinate with jurisdictions for a warm hand off?
A: Yes
Q: Putting pen paper

A: This goes into effect Sunday at 5
Q: Messaging on the pivot from Hubei to all of China
A: Focus on that the hot spot is Hubei province, however there is continuing transmission and we are learning more (e.g., transmission of person to person, and transmission before it's symptomatic
PH Emergency Declaration
Q – Chris: How do people get from one of these funneled airports to their home
A: Self quarantine, if not from Hubei
Q: from Jay: Familiarity with quarantine regulations?
A: Started talking about this, she would be able to issue a commissioners order but that is from the hospital perspective but need to think about what it means in the home. In Ebola they had to station police officers at the door. They used their own HD officers (unique).
Q: POC over the weekend
A: For now – continue to call her **Oxiris Barbot** - (b)(6) depending on issue, they may give other POCs.
Q from Chris: Capacity for quarantining, how we are going to put this puzzle together with you.

GA – Kathleen Toomey
Q: Has quarantine been incorporated in pan planning
A: Need to look – she thinks it was a hangar in the airport, during ebola it was Emory, etc..
- GA has the legal authority to enforce home quarantine

Q: What did you have in mind when this was developed? I.e. hangar
A: Hangar was just a one time risk, etc…
Q: Is it conceivable that we could get a airport hotel and take it over?
A: Yes. We anticipate a fairly small number of people
Q: WE have experience doing this. One hotel?
NOTE: Ended early because of the WH convened call

IL – Ngozi Ezike
Jay: Do pandemic plans include addressing where people would be housed in the even in the quarantine order
A: They don't but looking into options but haven't landed on anything yet.
Jay: Challenge with the self-quarantine may be a challenge, how do you think you might do it.
A: Working on it, think they can do it by Sunday at 5
Jay: Have you had a chance to review the regulations? Yours and potentially city of Chicago.
A: State can make the recommendations, but Locals institute the order
POC over the weekend: Jen Ladin –
Craig Conover
She will text Jay
Q: How do you monitor self-quarantine?
A: Depends on local capacity, in the process of providing more details. May come down to a phone call, but there needs to be flexibility.
Q: This (self-quarantine) only applies to a few people?
A: No, full quarantine is few, does not apply to repatriation flights. Self is the heavier lift. And they might not stay in IL/Coming from China period. Other than Hubei
- They had 4 from Wuhan today
- They have several Lab team members from Wuhan that are trying to get back

Jay: What is the shared responsibility of the City of Chicago

A: Suburbs touching Chicago, outside of city limits, but in Cook County HD. If Chicago, it is them.
Her questions:

- In terms of family units, can they be together?

A: If they traveled together, they can be cohorted, recommend if someone has traveled to do the self-quarantining as safely as possible (e.g., for those who have underlying health conditions).
She will reach back out to Jay directly.

John Wiesman – Washington State
Q: When you said 30 a day is that from Wuhan or from Hubei?
A: Probably from Wuhan
Q: The people that need to be quarantined who is paying, are you expecting states to do that?
A: Anticipate that it will end up being "us", it's important to look at the state and local authorities
Jay Q: Where would they be quarantined?
A:They stood up the EM Center, activated at the full level. They anticipate telling the EOC that they need housing, will send through them. EM would coordinate with Health. What are we looking at? How many, what do they need? Does anyone have a document?
Jay A: One of the documents we are working on. C: Looking at a airport hotel like GA suggested
Q: How many? Also security issues with a mandatory quarantine. Their EM will do a good job finding it.
Q: 10 beds a day?
A: Good line in the sand and a place to start until we have a better sense.
Q: Self-monitoring – is that something that the state would also handle?
A: Analogy is Ebola. But it is shared by agencies
Q: Mentioned a platform to monitor?
A: We are working on that (e.g., DCIPHER and TIMS)
Q: Is text monitoring or a phone all acceptable vs. having a visit.
A: Working on that guidance, may be based on risk (e.g., direct active monitoring). Somehow that data needs to get into DCIPHER. Reporting element.
Q: Will DGMQ be giving out kits?
A: We can check on that – does it include thermometers?
Q: Challenging, if people are going to go live with family
A: Think about this if people do not have a place to self isolate, may need to up the hotel room numbers.
COMMENT: From Governor – now that we are assuming this burden, we should not get a repatriation act.
Q: At the Q stations are they able to take samples?
A: Ideally in a healthcare settings
Quarantine Authorities: They have looked but need to examine further
Weekend POC: Him – back up is Incident Command (b)(6) / Nate Weed

Talking points and brief legal summary of what is the quarantine order?
Send guidance to the health dept that aren't already screening (ie WA
Scenario of quarantine tick tock

Allison Awady – Chicago Dept of Health (Jay talked to)
Q: options for housing during mandatory Q
A: has developed contract with emergency housing/rehousing organization, but would require advance payment. Told by CDC that Fed funds can only be used for things that the health department would be paying for after delivery of services

Q: How will self-monitoring be performed
A: Would use RedCap system that is already being used to monitor low-risk contacts of cases
POCs:
Alison, (b)(6)
Chris Shields, Assist Commissioner, (b)(6)
Bruce Anderson – HI
Comment: "completely blindsided" by selection of HNL as funneling airport; said the CDC Q-staff in HNL said they are "completely in the dark" on what is happening; stressed lack of infrastructure to process or to house
Q: How will self-Q be implemented:
A: Very concerned about broken itineraries; described travelers who arrive in HI from China and stay for "a few days" before continuing travel
Referred to Sarah Parks
Q: how will Q be enforced?
A: cannot provide enforcement with Federal request for state assets (e.g., state police)
POC: Bruce, (b)(6) (cell)
Sarah Park:

Sonia Angel – CA
Comment: local agencies "completely out of the loop"; wants call with local agencies, noon ET on Saturday; upset about lack of Fed support and differences in risk perception in management repatriated citizens at March AFB
Q: quarantine capacity:
A: Fed's problem; need to use bases; concerned about payment
Q: Self-Q
A: Concerned that pax will not have cell phones; wants to know mechanism to procure cell phones for monitoring
POC: Sonia (b)(6)

From: Schuchat, Anne MD (CDC/OD)
Sent: Sat, 1 Feb 2020 15:01:32 +0000
To: Giroir, Brett (HHS/OASH)
Subject: Fwd: CDC HAN 427: Update and Interim Guidance on Outbreak of 2019 Novel Coronavirus (2019-nCoV)
Attachments: CDC HAN 427 Update 2019-nCoV 02 01 2020.pdf, 2019-nCoV-identify-assess-flowchart-2020-02-01-508.pdf

Wasn't sure if you get these but FYI only.
Get Outlook for iOS
From: Health Alert Network Priority List <CDC-HAN-PRIORITY-LIST@LISTSERV.CDC.GOV> on behalf of Health Alert Network (CDC) <healthalert@cdc.gov>
Sent: Saturday, February 1, 2020 9:56:05 AM
To: CDC-HAN-PRIORITY-LIST@LISTSERV.CDC.GOV <CDC-HAN-PRIORITY-LIST@LISTSERV.CDC.GOV>
Subject: CDC HAN 427: Update and Interim Guidance on Outbreak of 2019 Novel Coronavirus (2019-nCoV)

This is an official

CDC HEALTH UPDATE

Distributed via the CDC Health Alert Network
February 1, 2020, 0900 ET (9:00 AM ET)
CDCHAN-00427

Update and Interim Guidance on Outbreak of 2019 Novel Coronavirus (2019-nCoV)

Summary
The Centers for Disease Control and Prevention (CDC) continues to closely monitor an outbreak of respiratory illness caused by a novel coronavirus (2019-nCoV) that was initially detected in Wuhan City, Hubei Province, China in December 2019.

This CDC Health Alert Network (HAN) Update provides a situational update and interim guidance to state and local health departments that supersedes guidance in CDC's HAN 426 distributed on January 17, 2020. It also adds

- guidance for clinicians caring for patients with 2019-nCoV (https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html),
- and for public health officials on the evaluation and testing of patients under investigation (PUIs) for 2019-nCoV (https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html), and
- updated infection prevention and control guidance specific to 2019-nCoV (https://www.cdc.gov/coronavirus/2019-nCoV/hcp/infection-control.html).

Early in the outbreak, many of the patients with respiratory illness caused by 2019-nCoV in China had exposure to a large seafood and live animal market, suggesting animal-to-human transmission. More recently, cases have been confirmed with no exposure to animal markets, indicating that person-to-person spread of the virus has occurred. Chinese officials report that sustained person-to-person spread in the community is occurring in China.

The first US case-patient was identified on January 21, 2020, and had recently traveled from Wuhan, China. Since that time, six additional cases have been confirmed in the United States, four among persons who traveled from Wuhan, and one a close contact of a confirmed case. Globally, reported illnesses in people with 2019-nCoV have ranged from mild (no or few signs and symptoms), to severe, including death. These findings are consistent with other coronaviruses, including Severe Acute Respiratory Syndrome (SARS) (https://www.cdc.gov/sars/) and Middle East Respiratory Syndrome (MERS) (https://www.cdc.gov/coronavirus/mers/index.html). Additional information about 2019-nCoV is needed to better understand transmission, disease severity, and risk to the general population. The goal of the ongoing US public health response is to identify and contain this outbreak and prevent sustained spread of 2019-nCoV in the United States.

Recommendations for Screening of Patients for 2019-nCoV in Healthcare Facilities
Recommendations for screening of patients for possible 2019-nCoV infection are based on (1) current knowledge of the characteristics of clinical illness observed in early cases, and (2) the geographic distribution of current cases. They reflect the current public health goal of rapidly containing and preventing transmission of 2019-nCoV illness.

Patients presenting to healthcare facilities should be assessed for exposures associated with risk of 2019-nCoV infections (e.g., travel to China or close contact with a confirmed case) and for symptoms consistent with 2019-nCoV infection (https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html). The assessment is intended to allow healthcare providers to make decisions about appropriate infection control and management of patients. Note that the signs and symptoms of 2019-nCoV overlap with those associated with other viral respiratory tract infections. Given the time of year, common respiratory illnesses, including influenza, should also be considered in patients who are screened. (Figure 1)

Clinicians should ask:

- Does the person have fever or symptoms of lower respiratory infection, such as cough or shortness of breath?

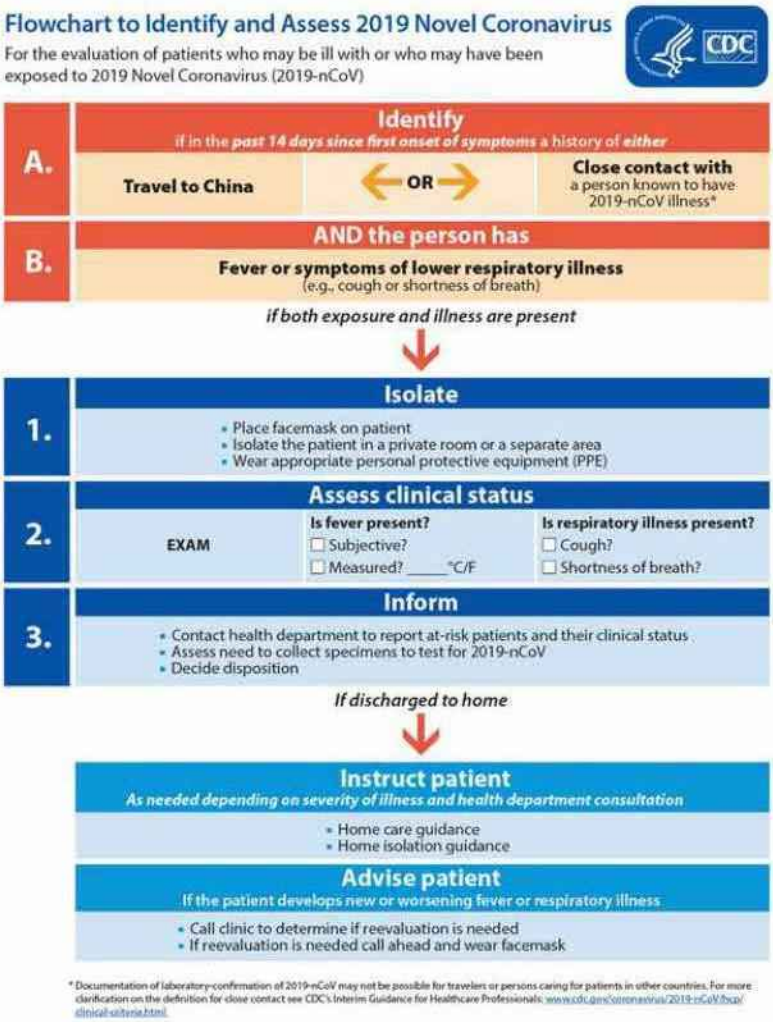
AND

- Has the patient travelled to mainland China within 14 days of symptom onset?

OR

- Has the patient had close contact[1] with a person confirmed with 2019-nCoV infection?

Figure 1.



If a patient meets these criteria:

- To minimize the risk that other people will be exposed to individuals who may have 2019-nCoV, patients who report having these symptoms should be asked to wear a surgical mask as soon as they are identified and directed to a separate area, if possible, with at least 6 feet (2 meters) separation from other persons. Patients should be evaluated in a private room with the door closed, ideally an airborne infection isolation room (AIIR), if available. Healthcare personnel entering the room should use standard precautions, contact precautions, airborne precautions, and use eye protection (e.g., goggles or a face shield). For more information about this, see CDC's *Interim Infection Prevention and Control Recommendations for Patients with Known or Patients Under Investigation for 2019 Novel Coronavirus (2019-nCoV) in a Healthcare Setting* (https://www.cdc.gov/coronavirus/2019-nCoV/hcp/infection-control.html).

Clinicians should immediately notify the healthcare facility's infection control personnel and local health department. The health department will determine if this patient needs to be considered a PUI for 2019-nCoV and be tested for infection.

Criteria to Guide Evaluation and Testing of Patients Under Investigation (PUI) for 2019-nCoV

Local health departments, in consultation with clinicians, should determine whether a patient is a PUI for 2019-nCoV. The CDC clinical criteria for 2019-nCoV PUIs have been developed based on available information about this novel virus, as well as what is known about SARS and MERS. These criteria are subject to change as additional information becomes available.

Clinical Features	AND	Epidemiologic Risk
Fever[2] **or** signs/symptoms of lower respiratory illness (e.g. cough or shortness of breath)	**AND**	Any person, including health care workers, who has had close contact[1] with a laboratory-confirmed[3] 2019-nCoV patient within 14 days of symptom onset
Fever[2] **and** signs/symptoms of a lower respiratory illness (e.g., cough or shortness of breath)	**AND**	A history of travel from **Hubei Province**, China within 14 days of symptom onset
Fever[2] **and** signs/symptoms of a lower respiratory illness (e.g., cough or shortness of breath) requiring hospitalization[4]	**AND**	A history of travel from mainland **China** within 14 days of symptom onset

These criteria are intended to serve as guidance for evaluation and testing. Patients should be evaluated and discussed with public health departments on a case-by-case basis for possible 2019-nCoV infection. Testing decisions might be further informed by the clinical presentation or exposure history (e.g., uncertain travel or exposure), and the presence of an alternative diagnosis that explains their clinical presentation .

Recommendations for Reporting, Testing, and Specimen Collection
Healthcare providers should **immediately** notify infection control personnel at their healthcare facility if a patient is classified a PUI for 2019-nCoV. State health departments that have identified a PUI should immediately contact CDC's Emergency Operations Center (EOC) at 770-488-7100 and complete a 2019-nCoV PUI case investigation form (https://www.cdc.gov/coronavirus/mers/interim-guidance.html#evaluation). CDC's EOC will assist local and state health departments with obtaining, storing, and shipping appropriate specimens to CDC, including afterhours or on weekends or holidays. Currently, diagnostic testing for 2019-nCoV can be done only at CDC. Testing for other respiratory pathogens should not delay specimen shipping to CDC.
For initial diagnostic testing for 2019-nCoV, CDC recommends collecting and testing upper respiratory (nasopharyngeal AND oropharyngeal swabs), and lower respiratory (sputum, if possible)) for those patients with productive coughs. Induction of sputum is not indicated. Specimens should be collected as soon as possible once a PUI is identified, regardless of the time of symptom onset. See *Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Patients Under Investigation*

(PUIs) for 2019 Novel Coronavirus (2019-nCoV) (https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html).

Recommendations for Healthcare Providers

No vaccine or specific treatment for 2019-nCoV infection is available. At present, medical care for patients with 2019-nCoV is supportive.

Persons with confirmed or suspected 2019-nCoV infection who are hospitalized should be evaluated and cared for in a private room with the door closed, ideally an airborne infection isolation room, if available. For more information, see *Interim Infection Prevention and Control Recommendations for Patients with Known or Patients Under Investigation for 2019 Novel Coronavirus (2019-nCoV) in a Healthcare Setting* (https://www.cdc.gov/coronavirus/2019-nCoV/hcp/infection-control.html).

Home care and isolation may be an option, based on clinical and public health assessment, for some persons. Please see *Interim Guidance for Preventing the Spread of 2019 Novel Coronavirus (2019-nCoV) in Homes and Communities* (https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-prevent-spread.html).

Those isolated at home should be monitored by public health officials to the extent possible. Refer to *Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for 2019 Novel Coronavirus (2019-nCoV)* (https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-home-care.html) for more information.

Notes

[1]Close contact is defined as:

a) being within approximately 6 feet (2 meters), or within the room or care area, of a 2019-nCoV case for a prolonged period of time while not wearing recommended personal protective equipment or PPE (e.g., gowns, gloves, NIOSH-certified disposable N95 respirator, eye protection); close contact can include caring for, living with, visiting, or sharing a health care waiting area or room with a 2019-nCoV case

- or -

b) having direct contact with infectious secretions of a 2019-nCoV case (e.g., being coughed on) while not wearing recommended personal protective equipment.

[2]Fever may be subjective or confirmed

See CDC's updated *Interim Infection Prevention and Control Recommendations for Patients with Known or Patients Under Investigation for 2019 Novel Coronavirus (2019-nCoV) in a Healthcare Setting* (https://www.cdc.gov/coronavirus/2019-ncov/infection-control.html).

Data to inform the definition of close contact are limited. Considerations when assessing close contact include the duration of exposure (e.g., longer exposure time likely increases exposure risk) and the clinical symptoms of the person with 2019-nCoV (e.g., coughing likely increases exposure risk as does exposure to a severely ill patient). Special consideration should be given to those exposed in health care settings.

[3] Documentation of laboratory-confirmation of 2019-nCoV may not be possible for travelers or persons caring for patients in other countries.

[4] Category also includes any member of a cluster of patients with severe acute lower respiratory illness (e.g., pneumonia, ARDS) of unknown etiology in which 2019-nCoV is being considered that requires hospitalization. Such persons should be evaluated in consultation with state and local health departments regardless of travel history.

For More Information

More information is available at the 2019 Novel Coronavirus website (https://www.cdc.gov/coronavirus/2019-ncov/index.html) or by calling 800-CDC-INFO | (800-232-4636) | TTY: (888) 232-6348

The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health

issues; and promotes healthy living through strong partnerships with local, national, and international organizations.

Categories of Health Alert Network messages:
Health Alert Requires immediate action or attention; highest level of importance
Health Advisory May not require immediate action; provides important information for a specific incident or situation
Health Update Unlikely to require immediate action; provides updated information regarding an incident or situation
HAN Info Service Does not require immediate action; provides general public health information

##This message was distributed to state and local health officers, state and local epidemiologists, state and local laboratory directors, public information officers, epidemiologists, HAN coordinators, and clinician organizations##

If you would like to unsubscribe from this ListServ LIST, please send an email to LIST@cdc.gov, enter CDC in the email Subject, and include the following "one" line in the Body of the email: signoff CDC-HAN-PRIORITY-LIST

From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Sat, 1 Feb 2020 19:40:31 +0000
To: Deussing, Eric (CDC/OD/OCS)
Cc: Caudwell, Kerry M. (CDC/OD/OCS)
Subject: RE: DoD Repatriation housing guidance
Attachments: Interim Recommendations regarding Shelter Characteristics for the 2019 Novel Coronavirus Outbreak United States Government Repatriation Operation v1.docx

There were a few tweaks made. The recommendations are attached.

From: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Sent: Saturday, February 1, 2020 2:33 PM
To: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Cc: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Subject: DoD Repatriation housing guidance

Hi Kyle,

I realize you have a lot going on; just checking on a process and timeline for the housing memo. Thanks!

V/r,
Eric

Eric Deussing, MD, MPH, FACPM
Commander, Medical Corps, US Navy
Department of Defense Liaison to the CDC
Assistant Specialty Leader, Navy Preventive Medicine
(404) 639-0392 (office)
(b)(6) (mobile)
ncu0@cdc.gov
1600 Clifton Road, NE, Mailstop D-44
Atlanta, GA 30333

From: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Sent: Saturday, February 1, 2020 9:33:04 AM
To: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Cc: Hoffmann, Lauren (CDC/OD/OCS) <cpf5@cdc.gov>
Subject: FW: START HERE -- DETAILS ON FORMAT-TRANSMISSION --RE: REVISED ---- USE THIS ONE --- RE: Heads up for awareness, coming tomorrow Fwd: Repatriation housing guidance

Eric

Lauren is going to check with our Exec Sec lead at HHS for an answer on our end – but here is one thought from Lauren (below in yellow).

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Lauren

Heads up for the morning. We may need help editing this and putting on CDC letterhead.

We are waiting to hear back from leadership on possible next steps

Thanks

Get Outlook for iOS

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Hi all

Wanted to make sure you had awareness of this request from Secretary Esper's office asking for CDC to send a signed memo for the record on signed CDC letterhead regarding repatriation housing guidance.

The guidance is coming from Eric Deussing and Mike Bell.

The GMTF will review in the morning and get this back to us via Michael Williams in the policy unit.

Policy asked us to help with OD awareness and review in the morning when a more up to date edited version will be provided.

Thanks

Kerry

Get Outlook for iOS

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To: Kroop, Seth (CDC/DDID/NCEZID/DHQP) <wpw7@cdc.gov>; Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>; CDC IMS 2019 NCOV Response Policy <eocevent209@cdc.gov>
Subject: Re: Repatriation housing guidance

Thanks Mike and Seth,

Appreciate your help; obviously the sooner the better, but I realize you have a lot of spinning plates.

V/r,

Eric Deussing, MD, MPH, FACPM
Commander, Medical Corps, US Navy
Department of Defense Liaison to the CDC

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From: Kroop, Seth (CDC/DDID/NCEZID/DHQP) <wpw7@cdc.gov>
Sent: Friday, January 31, 2020 6:10:57 PM
To: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>; Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>; CDC IMS 2019 NCOV Response Policy <eocevent209@cdc.gov>
Subject: Re: Repatriation housing guidance

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Cc: Kroop, Seth (CDC/DDID/NCEZID/DHQP) <wpw7@cdc.gov>
Subject: RE: Repatriation housing guidance

Hi Eric;
And adding Seth from Policy. I'm attaching the email response I drafted on letterhead with a signature, but I realized I have no idea how this is expected to be formatted.
Can either of you help? Is there another Memo for the Record I can copy from? Sorry for the basic question!

Also, Seth – does this need to go through any additional channels given the "formal" framing?
I'll change to pdf once it's ready.
Thanks!
~Mike

From: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Sent: Friday, January 31, 2020 2:11 PM
To: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>
Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>
Subject: RE: Repatriation housing guidance

Hi Mike,

Thanks again for the quick turn and excellent detail below. The Secretary's office is asking if you, Marty, or someone else from CDC can sign and send this on official CDC letterhead?

They are going to brief Secretary Esper with this information now (without the official version). They said a signed Memorandum for the Record is sufficient to make official. Thanks again!

V/r,
Eric

Eric Deussing, MD, MPH, FACPM
Commander, Medical Corps, US Navy
Department of Defense Liaison to the CDC

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From: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>
Sent: Friday, January 31, 2020 1:28 PM
To: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>
Subject: Repatriation housing guidance

Hi Eric;
Per our conversation.

(b)(5)

~Mike

(b)(5)

(b)(5)

(b)(5)

(b)(5)

From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Sat, 1 Feb 2020 20:10:06 +0000
To: Caudwell, Kerry M. (CDC/OD/OCS);Deussing, Eric (CDC/OD/OCS)
Subject: Re: DoD Repatriation housing guidance

(b)(5)

Get Outlook for iOS
From: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Sent: Saturday, February 1, 2020 3:05:19 PM
To: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Subject: Re: DoD Repatriation housing guidance

We were looking to you for the decision on the signatory line. This is why we asked Jamar for assistance.
I can autopen for you Sherri or Anne or (b)(5)

(b)(5)

Get Outlook for iOS
From: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Sent: Saturday, February 1, 2020 2:57:13 PM
To: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>; Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Subject: RE: DoD Repatriation housing guidance

I'm not sure who needs to sign. Is this a Redfield signature?

From: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Sent: Saturday, February 1, 2020 2:56 PM
To: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Subject: Re: DoD Repatriation housing guidance

Yes. Who do you want to sign it?

It's not opening up in my app on my phone

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From: McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>
Sent: Saturday, February 1, 2020 2:49:46 PM
To: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Cc: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Subject: RE: DoD Repatriation housing guidance

Kerry, can you have someone get this signed?

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Cc: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Subject: Re: DoD Repatriation housing guidance

Thanks Kyle- Can I get a signed copy on letterhead to send along?

V/r,

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I'll change to pdf once it's ready.
Thanks!
~Mike

From: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Sent: Friday, January 31, 2020 2:11 PM
To: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>

Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>
Subject: RE: Repatriation housing guidance

Hi Mike,

Thanks again for the quick turn and excellent detail below. The Secretary's office is asking if you, Marty, or someone else from CDC can sign and send this on official CDC letterhead?

They are going to brief Secretary Esper with this information now (without the official version). They said a signed Memorandum for the Record is sufficient to make official. Thanks again!

V/r,
Eric

Eric Deussing, MD, MPH, FACPM
Commander, Medical Corps, US Navy
Department of Defense Liaison to the CDC

Assistant Specialty Leader, Navy Preventive Medicine
(404) 639-0392 (office)
(b)(6) (mobile)
ncu0@cdc.gov

1600 Clifton Road, NE, Mailstop D-44
Atlanta, GA 30333

From: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>
Sent: Friday, January 31, 2020 1:28 PM
To: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>
Subject: Repatriation housing guidance

Hi Eric;
Per our conversation.

(b)(5)

~Mike

(b)(5)

(b)(5)

From: McGowan, Robert (Kyle) (CDC/OD/OCS)
Sent: Sat, 1 Feb 2020 21:05:18 +0000
To: Caudwell, Kerry M. (CDC/OD/OCS);Berger, Sherri (CDC/OCOO/OD);Schuchat, Anne MD (CDC/OD)
Cc: CDC IMS 2019 NCOV DGMQ Task Force Lead;CDC IMS 2019 NCOV Response Policy;Brown, Clive (CDC/DDID/NCEZID/DGMQ);Rotz, Lisa (CDC/DDID/NCEZID/DGMQ);Bell, Michael MD (CDC/DDID/NCEZID/DHQP);Deussing, Eric (CDC/OD/OCS);Clark, Cynthia K. (CDC/OD/OCS);Hoffmann, Lauren (CDC/OD/OCS);Kroop, Seth (CDC/DDID/NCEZID/DHQP);Eisenberg, Emily (CDC/DDID/NCIRD/ID)
Subject: Re: Final 2019 nCoV Interim Housing Guidelines

Thanks for getting this done Kerry.
Get Outlook for iOS
From: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Sent: Saturday, February 1, 2020 4:04:35 PM
To: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Cc: CDC IMS 2019 NCOV DGMQ Task Force Lead <eocgmtfplnchief@cdc.gov>; CDC IMS 2019 NCOV Response Policy <eocevent209@cdc.gov>; Brown, Clive (CDC/DDID/NCEZID/DGMQ) <cmb8@cdc.gov>; Rotz, Lisa (CDC/DDID/NCEZID/DGMQ) <ler8@cdc.gov>; Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>; Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>; Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>; Hoffmann, Lauren (CDC/OD/OCS) <cpf5@cdc.gov>; Kroop, Seth (CDC/DDID/NCEZID/DHQP) <wpw7@cdc.gov>; Eisenberg, Emily (CDC/DDID/NCIRD/ID) <idq5@cdc.gov>
Subject: Final 2019 nCoV Interim Housing Guidelines

Hello All

The final guidelines are attached.

Thanks

Kerry

From: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>
Sent: Friday, January 31, 2020 1:28 PM
To: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>
Subject: Repatriation housing guidance

Hi Eric;
Per our conversation.

(b)(5)

~Mike

(b)(5)

(b)(5)

From: Schuchat, Anne MD (CDC/OD)
Sent: Sun, 2 Feb 2020 13:36:02 +0000
To: Berger, Sherri (CDC/OCOO/OD)
Subject: RE: I could send this to Paul Mango for the WH?

Yes fine

From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Sunday, February 2, 2020 8:34 AM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: I could send this to Paul Mango for the WH?

From: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Sent: Saturday, February 1, 2020 4:05 PM
To: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Cc: CDC IMS 2019 NCOV DGMQ Task Force Lead <eocgmtfplnchief@cdc.gov>; CDC IMS 2019 NCOV Response Policy <eocevent209@cdc.gov>; Brown, Clive (CDC/DDID/NCEZID/DGMQ) <cmb8@cdc.gov>; Rotz, Lisa (CDC/DDID/NCEZID/DGMQ) <ler8@cdc.gov>; Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>; Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>; Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>; Hoffmann, Lauren (CDC/OD/OCS) <cpf5@cdc.gov>; Kroop, Seth (CDC/DDID/NCEZID/DHQP) <wpw7@cdc.gov>; Eisenberg, Emily (CDC/DDID/NCIRD/ID) <idq5@cdc.gov>
Subject: Final 2019 nCoV Interim Housing Guidelines

Hello All

The final guidelines are attached.

Thanks

Kerry

From: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>
Sent: Friday, January 31, 2020 1:28 PM
To: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>

(b)(5)

(b)(5)

From: Schuchat, Anne MD (CDC/OD)
Sent: Sun, 2 Feb 2020 13:48:39 +0000
To: Berger, Sherri (CDC/OCOO/OD);Butler, Jay C. (CDC/DDID/OD);Williams, Ian (CDC/DDID/NCEZID/DFWED)
Subject: RE: Final 2019 nCoV Interim Housing Guidelines

Right. (b)(5)

(b)(5)

From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Sunday, February 2, 2020 8:48 AM
To: Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; Williams, Ian (CDC/DDID/NCEZID/DFWED) <iaw3@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Subject: Re: Final 2019 nCoV Interim Housing Guidelines

I didn't send to HHS for clearance. I gave to them just to understand
I don't think they clear our SME materials like this.
Anne?

From: Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Sent: Sunday, February 2, 2020 8:46:33 AM
To: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; Williams, Ian (CDC/DDID/NCEZID/DFWED) <iaw3@cdc.gov>
Subject: RE: Final 2019 nCoV Interim Housing Guidelines

Cleared by us, but not HHS; therefore, not yet prime time. Correct?

From: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>
Sent: Sunday, February 2, 2020 8:45 AM
To: Williams, Ian (CDC/DDID/NCEZID/DFWED) <iaw3@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Subject: FW: Final 2019 nCoV Interim Housing Guidelines

Appears to be cleared, I sent to HHS

From: Caudwell, Kerry M. (CDC/OD/OCS) <cli9@cdc.gov>
Sent: Saturday, February 1, 2020 4:05 PM
To: Berger, Sherri (CDC/OCOO/OD) <sob8@cdc.gov>; McGowan, Robert (Kyle) (CDC/OD/OCS) <omc2@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>
Cc: CDC IMS 2019 NCOV DGMQ Task Force Lead <eocgmtfplnchief@cdc.gov>; CDC IMS 2019 NCOV Response Policy <eocevent209@cdc.gov>; Brown, Clive (CDC/DDID/NCEZID/DGMQ) <cmb8@cdc.gov>; Rotz, Lisa (CDC/DDID/NCEZID/DGMQ) <ler8@cdc.gov>; Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>; Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>; Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>; Hoffmann, Lauren (CDC/OD/OCS) <cpf5@cdc.gov>; Kroop, Seth

(CDC/DDID/NCEZID/DHQP) <wpw7@cdc.gov>; Eisenberg, Emily (CDC/DDID/NCIRD/ID) <idq5@cdc.gov>
Subject: Final 2019 nCoV Interim Housing Guidelines

Hello All

The final guidelines are attached.

Thanks

Kerry

From: Bell, Michael MD (CDC/DDID/NCEZID/DHQP) <zzb8@cdc.gov>
Sent: Friday, January 31, 2020 1:28 PM
To: Deussing, Eric (CDC/OD/OCS) <ncu0@cdc.gov>
Cc: Cetron, Marty (CDC/DDID/NCEZID/DGMQ) <mzc4@cdc.gov>
Subject: Repatriation housing guidance

Hi Eric;
Per our conversation.

(b)(5)

~Mike

(b)(5)

(b)(5)

From: Butler, Jay C. (CDC/DDID/OD)
Sent: Sun, 2 Feb 2020 16:50:43 +0000
To: Wiesman, John (CDC doh.wa.gov);sonia.angell@cdph.ca.gov;Zucker, Howard (CDC health.ny.gov);bruce.s.anderson@doh.hawaii.gov;kathleen.toomey@dph.ga.gov;Ngozi.Ezike@illinois.gov;Christopher.Shields@cityofchicago.org;sfogleman@ph.lacounty.gov;bmaldin@health.nyc.gov;Angell, Sonia Y@CDPH
Cc: Jonathan Mermin (CDC/DDID/NCHHSTP/OD) (jhm7@cdc.gov);Kosmos, Christine (CDC/DDPHSIS/CPR/DSLR);Eiring, Hilary (CDC/DDID/OD)
Subject: interim Guidance on Housing of Persons in Q
Attachments: 2019nCoV_InterimHousingGuidance_CDC_Feb12020.pdf

Jumping the system a bit to get these out to you ASAP, but this has completed CDC clearance.
Forthcoming:
1. Specific recommendations for home Q options (Hubei group)
2. Movement and monitoring guidance for travelers from rest of China

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30333

Interim Recommendations regarding Shelter Characteristics for the 2019 Novel Coronavirus Outbreak United States Government Repatriation Operation
1 February 2020

Background:

In the setting of the expanding outbreak associated with a novel coronavirus from Wuhan, the United States Government has arranged for evacuation of US personnel in affected areas. Because these individuals will be evacuating from an outbreak zone, health screening and exposure risk assessments will be required to determine presence of illness or history of high-risk exposures upon entry to the US. Upon entry into the United States, these individuals will be placed under a quarantine order for 14 days after their last potential exposure to allow for illness detection and health monitoring. Individuals within the group will have different antecedent exposure risks. They should not be housed together in congregate settings, where an individual who becomes symptomatic could expose the rest of the evacuees.

Shelter requirements:

1) Separate quarters with separate bathroom facilities for each individual or family group are preferred.
   a. Cleaning supplies, e.g. household cleaning wipes, must be provided in any shared bathroom.
   b. If an individual sharing a bathroom becomes symptomatic, all others sharing the bathroom should be considered PUI contacts until the symptomatic person is appropriately evaluated and cleared.
2) No close congregation for social or dining activities. Food should be delivered to the individual quarters.
3) Overhead announcements and group SMS should be used instead of physical gatherings to share information.
4) Quarters should have a supply of face masks for individuals to put on if they become symptomatic.
5) Other support services (e.g. laundry, prescription medication refills, telephone/wifi/communication capability) will need to be provided.
6) Garbage should be bagged and left outside by the door of each of the quarters for routine pick up. Special handling is not required.
7) Appropriate infection control capabilities to manage initial clinical assessment of individuals who become ill should include a designated room(s) with a door that can be closed. The room(s) should be separate from residential facilities. Symptomatic individuals should be promptly evaluated and, if appropriate, await transfer to a medical facility in the room keeping the door closed. The room should be supplied with disposable facemasks for the ill individual to wear throughout the evaluation and

transport process. Cleaning supplies e.g., hospital disinfectant spray or wipes, should be stocked in each evaluation room to clean and disinfect the room's surfaces after it's vacated by the ill individual. Current CDC healthcare guidance is here: https://www.cdc.gov/coronavirus/2019-nCoV/hcp/index.html

8) Each residential space, all common areas for staff members, and each clinical evaluation room must have supplies of alcohol-based hand rubs, as well as sinks with soap and water, and paper towels.
9) PPE supplies (disposable face shields, N95 disposable respirators, disposable gowns and gloves) should be maintained in each clinical assessment area to allow for response and assessment of individuals who become ill.
10) A system for temperature and symptom monitoring should provide assessment in-place for the individuals/family groups in their separate quarters.
11) Nearby medical facilities should have the capability to manage the assessment and treatment of ill persons (to include normal airborne infection isolation rooms)
12) The location should be secure against unauthorized access and be appropriate for enforcing quarantine, if enacted.

Michael Bell, MD
Deputy Director, Division of Healthcare Quality Promotion
Centers for Disease Control and Prevention

From: Butler, Jay C. (CDC/DDID/OD)
Sent: Mon, 3 Feb 2020 18:52:56 +0000
To: Anderson, Bruce S., PhD;Park, Sarah Y., MD
Cc: Kosmos, Christine (CDC/DDPHSIS/CPR/DSLR);Sherri Berger (CDC/OCOO/OD) (sob8@cdc.gov)
Subject: RE: Please send Dr. Jay Butler's contact info

Thank you, Bruce—really good news!

From: Anderson Bruce S., PhD <Bruce.S.Anderson@doh.hawaii.gov>
Sent: Monday, February 3, 2020 1:21 PM
To: Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; Park, Sarah Y., MD <sarah.park@doh.hawaii.gov>
Subject: RE: Please send Dr. Jay Butler's contact info

Hi Jay,

We have a tentative housing plan for US citizens coming to Hawaii who have been in Wuhan or Hubei Province on one of the military bases here, but it has not been approved, yet. We are expecting to hear, soon. I will let you know as soon as it has been confirmed.

Bruce

Bruce S. Anderson, Ph.D.
Director of Health
State of Hawaii Department of Health
1250 Punchbowl Street
Honolulu, Hawaii 96813
Phone: (808) 586-4410
Email: bruce.s.anderson@doh.hawaii.gov

From: Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Sent: Sunday, February 2, 2020 3:51 AM
To: Park, Sarah Y., MD <sarah.park@doh.hawaii.gov>; Anderson, Bruce S., PhD <Bruce.S.Anderson@doh.hawaii.gov>
Subject: [EXTERNAL] RE: Please send Dr. Jay Butler's contact info

That is correct, Sarah. Bob Kadlec tells me that there is a housing plan in HI—can you confirm?

From: Park, Sarah Y., MD <sarah.park@doh.hawaii.gov>
Sent: Sunday, February 2, 2020 3:39 AM
To: Anderson, Bruce S., PhD <Bruce.S.Anderson@doh.hawaii.gov>
Cc: Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>
Subject: RE: Please send Dr. Jay Butler's contact info

By the way, I should add, we're generally assuming passengers will be well (i.e., no symptoms), so the likelihood of transmitting disease via the airborne route is even much lower (not knowing currently the exact role of asymptomatic transmission) if not absent than if one were symptomatic. One would expect, though, even if one had asymptomatic infection, viral load would be much lower than if one had fever—documented in other diseases that viral/pathogen load often correlates with fever.

If a passenger is ill, that changes our management, and given the current situation, I'd imagine anyone found to fulfill case definition for a 2019-nCoV PUI will immediately impact our management of the persons who were seated around them (i.e., they would then be considered contacts of a PUI and likely require monitoring).

Sarah Y. Park, MD, FAAP
State Epidemiologist
Chief, Disease Outbreak Control Division
Hawaii Department of Health

An ounce of prevention is worth a pound of cure. - Benjamin Franklin

"Like" us on the Disease Outbreak Control Division's Facebook Page
http://health.hawaii.gov/docd/

Please consider the environment before printing this e-mail or attachments.

From: Park, Sarah Y., MD
Sent: Saturday, February 1, 2020 10:19 PM
To: Anderson, Bruce S., PhD <Bruce.S.Anderson@doh.hawaii.gov>
Cc: Jcb3@cdc.gov
Subject: RE: Please send Dr. Jay Butler's contact info

Hi Bruce,
To answer your question, I wanted to find some specific resources for you to help explain. You might want to refer to https://wwwnc.cdc.gov/travel/yellowbook/2020/travel-by-air-land-sea/air-travel, under the section "Ventilation and Air Quality." Another good reference is https://aerospace.pall.com/content/dam/pall/aerospace-defense/literature-library/non-gated/Transmission_of_infectious_diseases_during_commercial_air_travel.pdf.

In old planes, air wasn't as well filtered or circulated, so respiratory pathogens may have been more an issue back then. For example, protocols once were to follow up with the entire plane manifest if we identified a measles case. However, we haven't done that for some time, as planes modernized and their air handling systems improved. Air flow inside a plane is laminar rather than longitudinal, and air is exchanged quite frequently—a reason why one feels very dry after flying. This is why we only focus on the people sitting immediately around a person with a respiratory infection such as measles or TB (i.e., same row and one row in front and behind). Even then, that may be more than necessary. Yes, one can argue if someone is walking the aisles, there may be potential for exposing more than the immediate area of the person's assigned seat, but the "contact" is *short* and *not likely to be face-to-face*. These days, the risk is more from contamination on one's hands from touching surfaces and not washing one's hands (e.g., fecal-oral transmission). Of course, these assumptions are not absolutes, but we don't see respiratory disease outbreaks from air travel.

I hope this helps.
-Sarah

Sarah Y. Park, MD, FAAP
State Epidemiologist
Chief, Disease Outbreak Control Division
Hawaii Department of Health

An ounce of prevention is worth a pound of cure. - Benjamin Franklin

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http://health.hawaii.gov/docd/

Please consider the environment before printing this e-mail or attachments.

From: Anderson, Bruce S., PhD <Bruce.S.Anderson@doh.hawaii.gov>
Sent: Saturday, February 1, 2020 9:15 PM
To: Park, Sarah Y., MD <sarah.park@doh.hawaii.gov>
Cc: Jcb3@cdc.gov
Subject: RE: Please send Dr. Jay Butler's contact info

Hi Sarah,

As we talked about the situation with the Governor today, I was struck by how difficult it will be to justify treating US citizens from China who have traveled to Wuhan or elsewhere in Hubei Province from those from China who have not **after they have spent 10-12 hours or more together on the same flight**, particularly if they are mixed-in with each other throughout the aircraft. Even if they are segregated in different parts of the plane, it would be hard to justify treating them differently after being so long on a plane together.

Further, there is no telling how long they spent together on the ground before the got on the plane. Has the CDC or the State Department considered this in their planning for "funneling" these passengers? Wouldn't it be much better to send those who have travelled to Wuhan or elsewhere in the Hubei Province from those who have not?

If passengers from China are not segregated by exposure history (travel to Wuhan and those who haven't) and transported on different flights, it seems to me it would be prudent to consider everyone on the flight as being at the same level of risk and treat them accordingly; that is, we should quarantine everyone on the flight (200+ passengers and crew) for two weeks in Hawaii. Certainly, if anyone on the flight developed symptoms, we'd need to consider everyone on the flight as a close contact.... Am I missing something?

I would appreciate your thoughts on this matter.

Bruce

From: Park, Sarah Y., MD
Sent: Saturday, February 1, 2020 4:59 PM
To: McMillan, Cindy <Cindy.McMillan@hawaii.gov>
Cc: Anderson, Bruce S., PhD <Bruce.S.Anderson@doh.hawaii.gov>
Subject: RE: Please send Dr. Jay Butler's contact info

Jay Butler, MD (CAPT, USPHS, RET)
Jcb3@cdc.gov
(b)(6)

Sarah Y. Park, MD, FAAP
State Epidemiologist
Chief, Disease Outbreak Control Division
Hawaii Department of Health

An ounce of prevention is worth a pound of cure. - Benjamin Franklin

"Like" us on the Disease Outbreak Control Division's Facebook Page
http://health.hawaii.gov/docd/

Please consider the environment before printing this e-mail or attachments.

From: McMillan, Cindy <Cindy.McMillan@hawaii.gov>
Sent: Saturday, February 1, 2020 4:55 PM
To: Anderson, Bruce S., PhD <Bruce.S.Anderson@doh.hawaii.gov>; Park, Sarah Y., MD <sarah.park@doh.hawaii.gov>
Subject: Please send Dr. Jay Butler's contact info

Hi Dr. Anderson – I don't see Dr. Butler's contact info. Can you please send?

clm

Cindy McMillan
Communications Director
Office of the Governor, State of Hawai'i
Direct/Mobile: (b)(6)
Main Office: (808) 586-0034
Email: cindy.mcmillan@hawaii.gov
http://governor.hawaii.gov

From: Butler, Jay C. (CDC/DDID/OD)
Sent: Tue, 4 Feb 2020 00:26:57 +0000
To: (b)(6)
Subject: FW: EMBARGO: Ready or Not 2020
Attachments: 2020-ReadyOrNot-FINAL PDF emb.pdf, 2020-ReadyorNot-Press Release FINAL PDF emb.pdf, 2020-ReadyorNot-Sample Tweets.pdf

---

From: John Auerbach <jauerbach@tfah.org>
Sent: Monday, February 3, 2020 6:26 PM
To: Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Dreyzehner, John (CDC/DDPHSIS/CPR/OD) <PWN3@cdc.gov>; Redd, Stephen (CDC/DDPHSIS/OD) <scr1@cdc.gov>; Montero, Jose (CDC/DDPHSIS/CSTLTS/OD) <znn3@cdc.gov>; Ikeda, Robin (CDC/OD/OADPS) <rmi0@cdc.gov>; Butler, Jay C. (CDC/DDID/OD) <jcb3@cdc.gov>; Messonnier, Nancy (CDC/DDID/NCIRD/OD) <nar5@cdc.gov>
Subject: EMBARGO: Ready or Not 2020

Dear CDC friends and colleagues - On Wednesday, February 5, we will release *Ready or Not 2020: Protecting the Public's Health from Diseases, Disasters and Bioterrorism*. As you know, the report measures states' level of preparedness to protect the public's health during emergencies by reporting state performance on 10 key health security indicators and by tracking year-over-year budget trends. The report tracks progress by placing states in three performance categories - high, middle and low - and suggests actionable steps states can take to strengthen their emergency readiness.

An EMBARGOED copy of the report, its press release and some sample tweets are attached. We anticipate a good deal of media coverage of the report. Please do not share the report until the embargo lifts (**embargo lifts at 12:01 AM Wednesday, February 5).**

We recognize that we will be releasing the report as the coronavirus continues to be a developing public health emergency. We will be very sensitive that we do not imply that we are unprepared to meet this new public health challenge. We will call attention to the importance of the work in the public health sector, highlight the rich expertise that exists in public health departments and make the case for increased investment in public health programs. We will point out that most of the indicators are not within the control of the public health sector.

Please let me know if you have questions or if we can be of any assistance as you communicate about the report.

John

John Auerbach
President and CEO
Trust for America's Health

1730 M Street NW
Washington DC 20036
202-223-9870
jauerbach@tfah.org

EMBARGOED UNTIL 12:01 AM, WEDNESDAY, FEBRUARY 5, 2020

ISSUE REPORT

Ready or Not:

PROTECTING THE PUBLIC'S HEALTH FROM DISEASES, DISASTERS, AND BIOTERRORISM 2020

Inside

Trust for America's Health
TFAH.ORG

FEBRUARY 2020

Acknowledgements

Trust for America's Health (TFAH) is a nonprofit, nonpartisan public health policy, research, and advocacy organization that promotes optimal health for every person and community and makes the prevention of illness and injury a national priority.

The Ready or Not report series is supported by generous grants from the **Robert Wood Johnson Foundation**. Opinions in this report are TFAH's and do not necessarily reflect the views of the foundation.

REPORT AUTHORS

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Director of Government Relations

Matt McKillop, MPP
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CONTRIBUTORS

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TFAH Intern

Publisher's Note: TFAH publishes *Ready or Not* annually with a typical release date in early February. Each edition is based on the most recently available data, typically data available in the year before publication.

The National Health Security Preparedness Index (NHSPI) is a joint initiative of the Robert Wood Johnson Foundation, the University of Kentucky, and the University of Colorado. TFAH wishes to recognize and thank Glen Mays and Michael Childress of the NHSPI for their collaboration and expertise as well as the Robert Wood Johnson Foundation for its continued funding support.

Ready or Not and the NHSPI, are complementary projects that work together to measure and improve the country's health security and emergency preparedness. TFAH looks forward to a continued partnership.

PEER REVIEWERS

This report benefited from the insights and expertise of the following external reviewers. Although they have reviewed the report, neither they nor their organizations necessarily endorse its findings or conclusions. TFAH thanks these reviewers for their time and expertise:

Jeffrey Engel, M.D.
Executive Director
Council of State and Territorial Epidemiologists

Vincent Lafronza, EdD
President and CEO
National Network of Public Health Institutes

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Coalition for Epidemic Preparedness Innovations

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Senior Director, Preparedness, Recovery and Response
National Association of County and City Health Officials

Table of Contents

View this report online at www.tfah.org/report-details/readyornot2020.

Cover photos from left to right: sgtphoto; ~User7565abab_575; Kevin Lendio

Ready or Not 2020

Executive Summary

The public health emergencies of the past year—outbreaks of measles, hepatitis A, and other vaccine preventable diseases[1], record heat, foodborne illness, devastating hurricanes, a mysterious lung illness associated with vaping, wildfires, and months of cascading flooding[2] along the Missouri, Mississippi, and Arkansas Rivers affecting 16 states and nearly 14 million people—all reinforce the need for every jurisdiction to be vigilant about preparing for emergencies in order to safeguard the public's health.

From disease outbreaks to natural disasters, including those fueled by climate change, the stakes are high: Americans face serious health risks and even death with increasing regularity. Therefore, as a nation, it's critical to ask, "Are we prepared?"

The *Ready or Not: Protecting the Public's Health from Diseases, Disasters, and Bioterrorism* series from Trust for America's Health (TFAH) has tracked public health emergency preparedness in the United States since 2003. The series has documented significant progress in the nation's level of preparedness as well as areas still in need of improvement.

A fundamental role of the public health system is to protect communities from disasters and disease outbreaks. To this end, the nation's health security infrastructure has made tremendous strides since 2001 by building modern laboratories, maintaining a pipeline of and the ability to use medical countermeasures, and recruiting and retaining a workforce trained in emergency operations. Yet, unstable and insufficient funding puts this progress at risk, and a familiar pattern takes shape: underfunding, followed by a disaster or outbreak, then an infusion of onetime supplemental funds, and finally a retrenchment of money once the emergency wanes. What's more, states are uneven in their levels of preparedness. Some—often those that most frequently face emergencies—have the personnel, systems, and resources needed to protect the public. Others are less prepared, less experienced and have fewer resources, elevating the likelihood of preventable harms. Additionally, some states are prepared for certain types of emergencies but not others. This unstable funding and uneven preparation undermine America's health security. The thousands of Americans who lost their lives during Hurricanes Maria and Irma—particularly as a result of extended power outages[3]—are a grim warning of potential outcomes of increasingly severe weather. Yet, through strategic investments and proactive policies to promote resilience and response capabilities, the nation could mitigate or prevent some of these impacts.

The implications of failing to prepare could be devastating. The National Academies of Science, Engineering, and Medicine estimate pandemics could cost the global economy over $6 trillion in the 21st century.[4] The Centers for Disease Control and Prevention (CDC) also estimate that a global disease outbreak could cost the United States billions in lost trade revenue and tourism, costing hundreds of thousands—if not millions—of U.S. jobs.[5]

(b)(4)

Seasonal flu vaccination rates rose during the 2018 – 2019 flu season but were still below target.

TFAH's analysis found:

- **A majority of states have made preparations to expand capabilities in an emergency, often through collaboration.** Thirty-two states participated in the Nurse Licensure Compact, up from 26 in 2017 and 31 in 2018,[7] with Alabama as the most recent member, effective January 1, 2020.[8] The compact allows registered nurses and licensed practical or vocational nurses to practice in multiple jurisdictions with a single license. In an emergency, this enables health officials to quickly increase their staffing levels. For example, nurses may cross state lines to lend their support at evacuation sites or other healthcare facilities. In addition, **hospitals in most states have a high degree of participation in healthcare coalitions**. On average, 89 percent of hospitals were in a coalition and 17 states and the District of Columbia had universal participation, meaning every hospital in the jurisdiction was part of a coalition. Such coalitions bring hospitals and other healthcare facilities together with emergency management and public health officials to plan for, and respond to, incidents or events requiring extraordinary action. This increases the likelihood that providers serve patients in a coordinated and efficient manner during an emergency. What's more, most states had public health laboratories that had planned for a large influx of testing needs: 48 states and the District of Columbia had a plan to surge public health laboratory capacity for six to eight weeks as necessary during overlapping emergencies or large outbreaks, a net increase of four states since 2017.
- **Most residents who got their household water through a community water system had access to safe water.** On average, just 7 percent of state residents used a community water system in 2018 (latest available data) that did not meet all applicable health-based standards, up slightly from 6 percent in 2017. Water systems with such violations increase the chances of water-based emergencies in which contaminated water supplies place the public at risk.
- **Most states are accredited in the areas of public health, emergency management, or both.** As of November 2019, the Public Health Accreditation Board or the Emergency Management Accreditation Program accredited 41 states and the District of Columbia; 28 states and the District of Columbia were accredited by both groups, an increase of three (Iowa, Louisiana and Pennsylvania) since October 2018. Nine states (Alaska, Hawaii, Indiana, Nevada, New Hampshire, South Dakota, Texas, West Virginia, and Wyoming) were not accredited by either group. Both programs help ensure that necessary emergency prevention and response systems are in place and staffed by qualified personnel.
- **Seasonal flu vaccination rates, while still too low, rose.** The seasonal flu vaccination rate among Americans ages 6 months and older rose from 42 percent during the 2017–2018 season to 49 percent during the 2018–2019 season.[9] (See Section 2, page 45 for additional discussion of what may have helped generate the vaccine rate increase.) *Healthy People 2020*, a set of federal 10-year objectives and benchmarks for improving the health

of all Americans by 2020, set a seasonal influenza vaccination-rate target of 70 percent annually.[10]

- **In 2019, only 55 percent of employed state residents, on average, had access to paid time off, the same percentage as in 2018.** Those without such leave are more likely to work when they are sick and risk spreading infection. In the past, the absence of paid sick leave has been linked to or has exacerbated some infectious disease outbreaks.[11]
- **Only 30 percent of hospitals, on average, earned a top-quality patient safety grade, up slightly from 28 percent in 2018.** Hospital safety scores measure performance on such issues as healthcare-associated infection rates, intensive-care capacity, and an overall culture of error prevention. In the absence of diligent actions to protect patient safety, deadly infectious diseases can take hold or strengthen.

TABLE 2: State Public Health Emergency Preparedness
State performance, by scoring tier, 2019

Performance Tier	States	Number of States
High Tier	AL, CO, CT, DC, DE, IA, ID, IL, KS, MA, MD, ME, MO, MS, NC, NE, NJ, NM, OK, PA, TN, UT, VA, VT, WA, WI	25 states and DC
Middle Tier	AZ, CA, FL, GA, KY, LA, MI, MN, ND, OR, RI, TX	12 states
Low Tier	AK, AR, HI, IN, MT, NH, NV, NY, OH, SC, SD, WV, WY	13 states

Note: See "Appendix A: Methodology" for scoring details. Complete data were not available for U.S. territories.

Based on our policy research and analysis, consultation with experts, and review of progress and gaps in federal and state preparedness, TFAH is recommending policy action in seven priority areas – see report's recommendations section starting on page 48.

- **Provide stable, sufficient funding for domestic and global public health security.**
- **Prevent outbreaks and pandemics.**
- **Build resilient communities and promote health equity in preparedness.**
- **Ensure effective leadership, coordination, and workforce.**
- **Accelerate development and distribution, including last mile distribution, of medical countermeasures.**
- **Ready the healthcare system to respond and recover.**
- **Prepare for environmental threats and extreme weather.**

HOW DO INEQUITIES REDUCE HEALTH SECURITY?

Health inequities refer to the ways in which certain population groups are prevented from achieving optimal health due to where they live, the discrimination or racism they encounter, their social and/or economic situation, their age or health condition, where they work, or the language they speak.[12] In terms of emergency preparedness, health inequities put certain population groups at elevated risk of injury, illness, displacement, and death during an emergency.[13]

For example:

- Those who live in lower-income households are more likely to have housing that is sub-par and vulnerable during a natural disaster. They may also lack adequate heat or air conditioning. They may live in areas more prone to flooding[14] or in housing that is not earthquake resistant. And they may not have the resources needed to leave an area when evacuation is necessary.[15]
- Those who are older or have a disability, cognitive issue or a complex or chronic medical condition may have limited mobility and/or be dependent on medical equipment. They may find themselves in harm's way if they are not provided with the necessary assistance or notification.[16] For example, power outages can have a disproportionate impact on older adults or people with medical equipment dependent on electricity.[17]
- Those who are limited English proficient or are worried about immigration policies may not receive warnings and notifications and/or be reluctant to share information with or get assistance from government agencies.[18]
- Those who work for an employer that does not provide any paid leave or excused absences, may not be able to take the recommended precautions — such as staying out of work if they have an infectious disease — to safeguard their health and that of those around them.

Recognizing and eliminating these and other barriers to health equity is central to reducing the disproportionate impact of natural disasters and other health security threats on communities now at greatest risk, including communities of color and low-income households. Public health and disaster response entities need to work directly with communities, including by ensuring that community leaders have a seat at the planning table, in order to understand their specific needs and where resources will be most needed in the event of an emergency.[19]

Report Purpose and Methodology

TFAH's annual *Ready or Not* report series tracks states' readiness for public health emergencies based on 10 key indicators that collectively provide a checklist of top-priority issues and action items for states and localities to continuously address. By gathering together timely data on all 50 states and the District of Columbia, the report assists states in benchmarking their performance against comparable jurisdictions. TFAH completed this research after consultation with a diverse group of subject-matter experts and practitioners.

Ready or Not and the National Health Security Preparedness Index

The indicators included in this report were drawn from, and identified in partnership with, the National Health Security Preparedness Index (NHSPI), with one exception: a measure of state public health funding-level trends, which reflects how equipped key agencies are prepared for and respond to emergencies. The NHSPI is a joint initiative of the Robert Wood Johnson Foundation, the University of Kentucky, and the University of Colorado.

See "Appendix A: Methodology" for a detailed description of how TFAH selected and scored the indicators.

While state placements in *Ready or Not* and the NHSPI largely align, there are some important differences. The two projects have somewhat different purposes and are meant to be complementary, rather than duplicative. With more than 100 indicators, the index paints a broad picture of national health security, allowing users to zoom out and holistically understand the extent of both individual states' and the entire nation's preparedness for large-scale public health threats. In slight contrast, *Ready or Not*, with its focus on 10 select indicators, focuses attention on state performance on a subset of the index and spotlights important areas for stakeholders to prioritize. TFAH and the NHSPI work together to help federal, state, and local officials use data and findings from each project to make Americans safer and healthier.

STATE PUBLIC HEALTH FUNDING

TFAH collected data for fiscal year 2019 and for earlier years from states' publicly available funding documents. With assistance from the Association of State and Territorial Health Officials, TFAH provided data to states for review and verification. Informed by the Public Health Activities and Services Tracking project at the University of Washington, TFAH defines "public health programming and services" to include communicable disease control; chronic disease prevention; injury prevention; environmental public health; maternal, child, and family health; and access to and linkage with clinical care.

TFAH excludes from its definition of "public health programming and services" insurance coverage programs, such as Medicaid or the Children's Health Insurance Program, and inpatient clinical facilities.

TABLE 3: STATE INDICATORS AND SCORES

	Nurse Licensure Compact (NLC)	Hospital Preparedness Program	Public Health Accreditation Board (PHAB)	Emergency Management Accreditation Program (EMAP)	Public Health Funding	Water Security
	State participated in NLC, 2019	Percent of hospitals participating in health care coalitions, 2017	Accredited by PHAB, 2019	Accredited by EMAP, 2019	Percentage change, FY 2018-19	Percent of population who used a community water system in violation of health-based standards, 2018
Alabama	✓	95%	✓	✓	-5%	3%
Alaska		100%			1%	7%
Arizona	✓	72%	✓	✓	2%	1%
Arkansas	✓	81%	✓	✓	-3%	6%
California		70%	✓	✓	10%	12%
Colorado	✓	100%	✓	✓	3%	1%
Connecticut		100%	✓	✓	4%	3%
Delaware	✓	100%	✓		2%	1%
D.C.		100%	✓	✓	10%	5%
Florida	✓	73%	✓	✓	1%	1%
Georgia	✓	97%	✓		2%	8%
Hawaii		100%			6%	0%
Idaho	✓	98%	✓	✓	-3%	1%
Illinois		88%	✓	✓	16%	1%
Indiana		75%			5%	2%
Iowa	✓	80%	✓	✓	-1%	3%
Kansas	✓	96%	✓	✓	9%	8%
Kentucky	✓	93%		✓	4%	10%
Louisiana	✓	100%	✓	✓	3%	16%
Maine	✓	94%	✓		3%	1%
Maryland	✓	89%	✓	✓	2%	1%
Massachusetts		82%	✓	✓	10%	11%
Michigan		90%		✓	17%	3%
Minnesota		100%	✓		7%	1%
Mississippi	✓	100%	✓	✓	8%	7%
Missouri	✓	87%	✓	✓	1%	0%
Montana	✓	83%	✓		-3%	8%
Nebraska	✓	95%	✓	✓	-4%	3%
Nevada		100%			40%	0%
New Hampshire	✓	47%			-6%	3%
New Jersey		82%	✓	✓	3%	11%
New Mexico	✓	71%	✓	✓	3%	8%
New York		86%	✓	✓	-1%	45%
North Carolina	✓	95%		✓	-2%	2%
North Dakota	✓	100%	✓	✓	9%	16%
Ohio		25%	✓	✓	7%	2%
Oklahoma	✓	95%	✓	✓	12%	13%
Oregon		100%	✓		27%	16%
Pennsylvania		86%	✓	✓	2%	13%
Rhode Island		100%	✓	✓	9%	38%
South Carolina	✓	56%		✓	5%	2%
South Dakota	✓	100%			2%	1%
Tennessee	✓	91%		✓	4%	3%
Texas	✓	80%			8%	7%
Utah	✓	100%	✓	✓	0%	2%
Vermont		100%	✓	✓	4%	1%
Virginia	✓	100%		✓	4%	2%
Washington		100%	✓		1%	1%
West Virginia	✓	97%			-2%	16%
Wisconsin	✓	98%	✓	✓	0%	5%
Wyoming	✓	92%			-6%	1%
51-state average	**N/A**	**89%**	**N/A**	**N/A**	**5%**	**6.5%**

Note: See "Appendix A: Methodology" for a description of TFAH's data-collection process and scoring details. Indiana and New Jersey have joined the NLC, but had not yet set a date for implementation as of December 2019. States with conditional or pending accreditation at the time of data collection were classified as having no accreditation. Nebraska's year-over-year funding change incorporates a modification to its accounting methodology--some funds were previously double-counted--that the state was unable to apply retroactively to fiscal year 2018.

TABLE 3: STATE INDICATORS AND SCORES

	Paid Time Off	Seasonal Flu Vaccination	Patient Safety	Public Health Lab Capacity	State Performance
	Percent of employed population with paid time off, 2019	Seasonal flu vaccination rate for people ages 6 months and older, 2018–19	Percentage of hospitals with "A" grade, fall 2019	Public health laboratories had a plan for a six- to eight-week surge in testing capacity, 2019	Scoring tier, 2019
Alabama	55%	48.3%	23%	✓	High
Alaska	60%	44.1%	0%	✓	Low
Arizona	48%	45.6%	26%	✓	Middle
Arkansas	45%	48.8%	14%	✓	Low
California	56%	47.4%	35%	✓	Middle
Colorado	56%	51.6%	36%	✓	High
Connecticut	64%	56.8%	38%	✓	High
Delaware	48%	50.7%	33%	✓	High
D.C.	65%	Data incomplete	20%	✓	High
Florida	54%	40.9%	37%	✓	Middle
Georgia	59%	43.1%	26%	✓	Middle
Hawaii	59%	50.2%	25%	✓	Low
Idaho	51%	43.6%	45%	✓	High
Illinois	55%	45.4%	43%	✓	High
Indiana	50%	47.9%	17%	✓	Low
Iowa	60%	54.8%	9%	✓	High
Kansas	56%	50.7%	27%	✓	High
Kentucky	48%	49.6%	26%	✓	Middle
Louisiana	53%	41.6%	31%	✓	Middle
Maine	51%	48.8%	59%	✓	High
Maryland	61%	57.1%	23%	✓	High
Massachusetts	59%	58.9%	42%	✓	High
Michigan	49%	46.1%	41%	✓	Middle
Minnesota	52%	52.7%	23%	✓	Middle
Mississippi	63%	42.0%	31%	✓	High
Missouri	53%	50.0%	28%	✓	High
Montana	58%	48.7%	44%	✓	Low
Nebraska	57%	54.2%	13%	✓	High
Nevada	55%	37.8%	26%	✓	Low
New Hampshire	54%	52.0%	31%	✓	Low
New Jersey	52%	Data incomplete	45%	✓	High
New Mexico	61%	49.9%	12%	✓	High
New York	61%	51.9%	7%	✓	Low
North Carolina	51%	54.9%	47%	✓	High
North Dakota	51%	51.1%	0%	✓	Middle
Ohio	49%	50.4%	39%	✓	Low
Oklahoma	55%	51.3%	25%	✓	High
Oregon	63%	48.3%	48%	✓	Middle
Pennsylvania	51%	54.2%	46%	✓	High
Rhode Island	56%	60.4%	43%	✓	Middle
South Carolina	45%	46.8%	37%	✓	Low
South Dakota	44%	54.4%	10%	✓	Low
Tennessee	53%	48.2%	34%	✓	High
Texas	68%	47.9%	38%	✓	Middle
Utah	45%	45.9%	56%		High
Vermont	56%	51.9%	33%		High
Virginia	58%	54.7%	56%	✓	High
Washington	60%	53.8%	33%	✓	High
West Virginia	55%	48.2%	5%	✓	Low
Wisconsin	56%	50.9%	38%	✓	High
Wyoming	47%	40.7%	0%	✓	Low
51-state average	**55%**	**49.5%**	**30%**	**N/A**	**N/A**

North Dakota's fiscal 2019 funding combines funds for the Department of Health and the Department of Environmental Quality, which were separated, beginning in fiscal 2019. Some state residents use private drinking-water sources, rather than community water systems. Private sources are not captured by these data. Only regulated contaminants are measured. Paid time off includes sick leave, vacations, and holidays. The patient safety measure captures only general acute-care hospitals.

Year in Review: 2019

HEALTH THREATS—INCIDENTS AND ACTIONS

Disease Outbreaks

Notable Incidents:

- **Seasonal flu.** The 2018–2019 flu season was of "moderate severity" lasting 21 weeks, the longest season over the past decade.[20] Over the past five seasons, the flu season lasted between 11-21 weeks with an average of about 18 weeks.[21] The Centers for Disease Control and Prevention's (CDC) preliminary estimates found that the flu accounted for approximately 37.4 to 42.9 million illnesses and 36,400 to 61,200 deaths in the 2018–2019 season.[22] The CDC estimates that influenza has resulted in between 9 million and 45 million illnesses, between 140,000 and 810,000 hospitalizations, and between 12,000 and 61,000 deaths annually since 2010, the high end of that range occurred during the high severity 2017-2018 season. Vaccine coverage rates increased across all age groups in 2018–2019, possibly as a result of the prior season's severity, with vaccine rates among adults increasing by 8.2 percent over the previous season and up 4.7 percent among children.[23] At this report's press time in late December, the 2019 – 2020 flu season was having an impact nationwide as all regions of the country were experiencing evaluated levels of flu-like illness. According to the CDC, as of December 14, 2019 there had been 3.7 million reported flu cases leading to 32,000 hospitalizations and 1,800 deaths during the in-progress flu season.[24]

- **Hepatitis A.** In 2019, 29 states experienced outbreaks of the Hepatitis A virus, driven in part by increases among those who reported drug use and homelessness.[25] Hepatitis A is a highly transmissible infection.[26] The Hepatitis A vaccine is recommended for certain populations; in February, the Advisory Committee on Immunization Practice updated its recommendations for people experiencing homelessness to receive the vaccine.[27] Hepatis A infections had been going down between 2000 and 2012 but increased between 2012 and 2013 and again between 2015 and 2016 (2016 is the latest available data).[28] Since the on-going outbreak began in 2016, there have been 28,466 reported cases that lead to 17,217 hospitalizations and 288 deaths.[29]

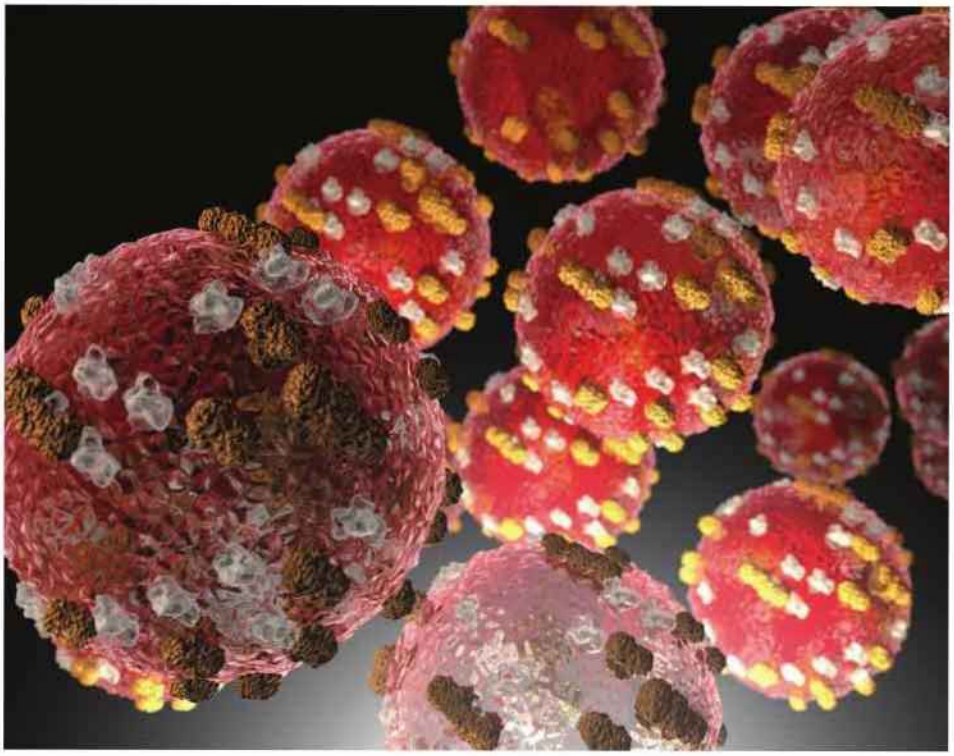
- **Measles outbreaks, United States.** As of December 31, 2019, for the year, there were 1,282 confirmed case of measles in 31 states, the highest number of cases since 1992.[30] Measles is a highly contagious disease predominantly affecting young children that can cause serious complications, such as pneumonia, encephalitis, hospitalization, and death.[31] It can cause up to a 90 percent chance of disease contraction in unimmunized individuals.[32] Outbreaks have been linked to the sustained spread of measles among unvaccinated communities: 88 percent of all cases occurred in close-knit, under-immunized communities.[33] In 2019, the United States narrowly maintained its measles elimination status, a status it has had for 20 years.[34]

- **Measles outbreaks, global.** The World Health Organization (WHO) reported that there were nearly three times as many measles cases from January 2019 to July 2019 as there were during the same period in 2018,[35] the highest number for any year since 2006.[36] The Democratic Republic of the Congo, Madagascar, and Ukraine reported the highest numbers of cases in 2019, with ongoing outbreaks in other nations.[37] In Samoa, an outbreak sickened more than 5,600 people and led to at least 81 deaths, most of the dead were children younger than five.[38] The reasons for under-vaccination varied by country, with lack of access, armed conflict and displacement, vaccine misinformation, or low awareness driving down immunization rates in some countries.

- **The Democratic Republic of Congo Ebola outbreak.** On July 17, 2019, the WHO declared the Ebola virus outbreak in the Democratic Republic of Congo (DRC) a Public Health Emergency of International Concern.[39] As of the end of December, there were 3,380 confirmed cases and 2,232 deaths.[40]

- **Candida auris.** C. auris is an emerging drug-resistant fungus that has led to severe illnesses in hospitalized patients; a majority of reported cases were in New Jersey, New York, and Illinois. This multi-drug-resistant fungus has a mortality rate close to 60 percent and presents a serious global health threat.[41] At year's end, there were 685 clinical cases of C. auris, and 1,341 patients infected with C. auris in the United States with transmission in multiple countries.[42]

- **Eastern equine encephalitis virus.** In 2019, the CDC confirmed 36 cases of Eastern equine encephalitis (EEEV) disease across eight states, including 14 deaths.[43] EEEV is a serious mosquito-borne disease in which 33 percent of those infected die and eight out of 10 survivors are severely brain damaged.[44] The previous 10 years, from 2009 to 2018, only saw 72 reported cases altogether.[45] The reasons for the atypical EEEV year are not entirely clear but may be the result of a milder winter extending mosquito activity.[46]



- **Cholera.** Cholera, an acute intestinal infection, is rare in the U.S. but globally cases have increased steadily since 2005[47] and is a major cause of epidemic diarrhea in the developing world. Regions with humanitarian crises, high rates of poverty and a lack of water and sanitation infrastructure are at higher risk. In 2019, Yemen, Somalia, and Sudan faced serious outbreaks.[48] In Yemen, over the past five years, there have been more than 2 million total cases of cholera and 3,716 deaths as a result of the disease.[49]

- **Polio.** The world is 99 percent of the way to eradicating polio globally,[50] with just two countries that have never stopped the transmission of polio: Afghanistan and Pakistan. The fight to eradicate polio in Pakistan faltered when the country experienced an uptick in the number of cases in 2019. According to public health officials on the ground, efforts to collect reliable data and increase vaccination rates are hindered by widespread resistance to required vaccination.[51]

- **Foodborne illnesses.** In 2019, multistate foodborne illness outbreaks included infections resulting from ground beef, ground turkey, romaine lettuce, frozen ground tuna, and flour.[52] Other outbreaks included Listeria monocytogenes in deli-sliced meats and cheeses, and salmonella in melon, tahini products, and papaya.[53] The CDC estimates that 48 million people get sick, 128,000 are hospitalized, and 3,000 die from foodborne illness each year in the United States.[54] Campylobacter and salmonella were the most commonly identified infections, with the incidence of Cyclospora increasing markedly in 2018.[55,56]

Notable Actions:

- **HIV strategy**. In his February 2019 State of the Union address, President Donald Trump announced a strategy to stop the spread of HIV by 2030 by concentrating prevention resources in nationwide hot spots where half of all new infections occur. The announcement did not specify a budget for the initiative.[57] The U.S. Department of Health and Human Services (HHS) has proposed the "Ending the HIV Epidemic: A Plan for America" initiative to end the HIV epidemic in the United States within 10 years. The goal is to reduce new HIV infections by 90% in the next 10 years. To achieve maximum impact, the first phase of the initiative will focus on geographic areas that are hardest hit by HIV.[58] In December, Congress approved the largest increase to domestic HIV-AIDS programs in decades.[59]

- **U.S. Role in Ebola and global health security.** On May 20, 2019, U.S. Secretary of Health and Human Services Alex Azar addressed the World Health Assembly in Geneva, Switzerland, calling attention to the Ebola outbreak in the DRC, vaccine purchasing, and the importance of vaccination. Azar declared America's full support for the implementation of the International Health Regulations and Global Health Security Agenda to better protect the public from health emergencies.[60]

- **Emergency diagnostics task force.** The U.S. Food and Drug Administration (FDA), CDC, and Centers for Medicare and Medicaid Services (CMS) launched a Tri-Agency Task Force for Emergency Diagnostics to "advance the rapid development and deployment of diagnostic tools for clinical and public health laboratories during public health emergencies." [61]

- **Changes in vaccine laws.** Measles outbreaks occurring across the nation led states—often those most afflicted with an outbreak—to enact laws or temporary policy changes to address vaccine hesitancy. States that make it easier to opt out of school entry vaccination requirements for nonmedical reasons – sometimes called personal belief or religious exemptions – are more likely to have lower overall vaccination rates.[62] Two states—Maine, and New York—removed personal- and/or religious-belief exemptions for at least some vaccines for public-school entry[63] during the year, bringing the number of states nationally that have eliminated such exemptions to five. *(See "Vaccine Hesitancy" side bar on page 15.)* A new law in California creates a review process that gives public health officials the final say on medical exemptions, with the authority to reject them.[64] With the goal of reducing nonmedical-based exemptions, California's government will review physicians who write five or more exemptions as well as academic institutions that have immunization rates below 95 percent beginning in 2020.

- In September, the President issued an **Executive Order on Modernizing Influenza Vaccines in the United States to Promote National Security and Public Health.** The executive order established a National Influenza Vaccine Task Force charged with creating a 5-year plan to promote the use of more agile and scalable vaccine manufacturing technologies and accelerate the development of influenza vaccines.[65]

- **New CDC Vaccine initiative.** In October, CDC launched a new "Vaccinate with Confidence" strategic framework to strengthen vaccine confidence by identifying pockets of under-vaccination and by expanding resources for health professionals to support effective vaccine conversations and stop misinformation.[66]

VACCINE HESITANCY: A GLOBAL HEALTH THREAT

According to the WHO, vaccine hesitancy was one of the top 10 global health threats in 2019. The WHO identifies complacency, inconvenience in accessing vaccines, and lack of confidence as three key factors that lead to the underutilization of vaccines, and, estimates that 1.5 million deaths worldwide could be avoided if vaccine rates improved.[67]

Vaccine hesitancy makes the U.S. more vulnerable to outbreaks of vaccine-preventable diseases and especially more vulnerable during a pandemic. During an influenza pandemic or an outbreak of an emerging infectious disease, wide swaths of the population may need to be vaccinated. Resistance to vaccines would put the entire population at risk during a severe outbreak.

Measles outbreaks during 2019 brought attention to the fact that, while generally childhood vaccination rates in the United States are, according to the CDC, "high and stable,"[68] there is reason to be concerned about certain trends, including lower vaccination rates for uninsured children, misinformation campaigns about vaccine safety, and the impact of vaccine exemption laws. Additionally, while state and national data showed relatively high overall vaccination rates, pockets of under vaccination place some communities at risk for measles and other vaccine-preventable diseases.

In the United States, between January 1 and December 31, 2019, 1,282 measles cases were confirmed in 31 states, the most reported cases in any year since 1992, and the United States narrowly missed losing its measles-elimination status.[69]

For the 2018–2019 school year, the measles, mumps, and rubella (MMR) vaccine rate (two doses) for kindergartners nationwide was 94.7 percent,[70] but nine states were below 92 percent: Alabama, Colorado, Hawaii, Idaho, Indiana, Kansas, New Hampshire, Ohio, and Washington.[71] According to infectious disease experts and the WHO, a vaccination rate of 95 percent is necessary to protect a population from the measles.[72]

Increases in reported cases of whooping cough and mumps were also up during the year, and some colleges reported outbreaks of meningococcal disease.[73]

As of November 2019, while all states required vaccinations for children to attend public school, all states also allowed medical exemptions, 45 states allowed religious exemptions, and 15 states allowed philosophical exemptions.[74]

According to the CDC, about 2.5 percent of kindergartners nationwide had an exemption to one or more vaccines for the 2018–2019 school year, up from 2.3 percent in 2017–2018 and 2.1 percent in 2016–2017.[75] Among young children, vaccination rates were lower for uninsured children and those insured by Medicaid as compared with children covered by private insurance. According to the CDC, an expansion of the "Vaccines for Children" program could help address these disparities.[76]

Despite decades of strong science that debunks them, myths and misinformation about the short-and-long term side effects of vaccines persist. In June 2019, *The Washington Post* reported on well-financed campaigns driven by online messaging, live events, and high-profile spokespersons that have stoked fears about vaccine safety.[77] Follow-up reporting in November found that two anti-vaccine groups funded over half of the ads on Facebook that contained misinformation about vaccines.[78] In March 2019, Facebook announced that it would no longer accept advertising that included misinformation about vaccines. Then, in fall 2019, Facebook, Instagram, and Pinterest announced changes in their search algorithms to ensure their sites return scientifically accurate information for searches related to vaccines. All three sites now render or will connect site users to the CDC and/or the WHO for content about vaccines and vaccine safety.[79]

Most U.S. parents are protecting their children from vaccine-preventable diseases by making sure they are vaccinated. However, in some communities, those that are distrustful of government, that claim a religious exemption, or that are in other ways insular, can be at higher risk for infectious diseases due to low immunization rates. A measles outbreak in an ultra-orthodox Jewish community in Brooklyn, New York, is an example. It accounted for 75 percent of all the measles cases nationwide, i.e. 934 cases in the New York City/New York state area.[80] Experts believe that measles cases were introduced into the under-immunized community by people who had traveled there from Europe and Israel. As a result, New York experienced its most severe measles outbreak in decades.[81] Somali-American communities in Minnesota, Amish in Ohio and Ukrainian-Americans in Washington State have also experienced measles outbreaks.

In June of 2019, in the wake of the outbreak in Brooklyn and surrounding areas, New York state ended its religious exemption for immunizations, joining four other states that have eliminated such exemptions: California, Maine, Mississippi, and West Virginia.[82] In 2019, Washington state also enacted a law removing philosophical exemptions following two measles outbreaks,[83] although Washington's policy only applies to MMR vaccine requirements.[84]

Measles is also on the rise globally. According to preliminary data reported by the WHO, measles cases rose by 300 percent worldwide during the first three months of 2019 as compared to the same time frame in 2018.[85]

In 2019, the United Kingdom lost its measles-free status. In England, where vaccinations are not mandatory for school attendance, vaccination rates for 13 childhood diseases—including measles, mumps, rubella, whopping cough, and meningitis—have fallen. Uptake of the MMR vaccine in England for 2-year-old children has gone down every year for the last five years, dropping to 90.3 percent in 2018–2019. Health experts throughout England are warning of the serious health risks for unprotected children.[86] There were 989 confirmed cases of measles in England and Wales during 2018.[87]

Vaccination rates in Germany are reportedly under 90 percent for 13 preventable illnesses, and one in five German 2-year-olds does not have a vaccination against the measles.[88]

Measles is also making a resurgence in Africa with 10 African nations experiencing outbreaks in 2019.[89]

- **Nationwide Antibiotic Stewardship Requirements.** Antimicrobial resistance, the rise of superbugs that are resistant to existing medicines, is a major threat to health. Antibiotic stewardship programs (ASPs) are a coordinated approach that promotes appropriate use of antibiotics in healthcare settings and reduce antimicrobial resistance.[90] CMS finalized new conditions of participation mandating that U.S. hospitals and critical access hospitals create and implement antibiotic stewardship programs as well as infection-prevention and -control mechanisms. CMS now requires all critical access hospitals to implement antibiotic stewardship programs by March 31, 2020. These programs will follow national guidelines for appropriate use of antibiotics, in order to prevent the transmission and development of antibiotic-resistant organisms.[91] In addition, HHS and the Office of the Assistant Secretary for Preparedness and Response (ASPR) are leading an effort to update the National Action Plan on Combating Antimicrobial Resistant Bacteria.[92]

- **Crimson Contagion functional exercise.** In August, HHS ad ASPR hosted a functional exercise, "Crimson Contagion." This exercise was a multistate, whole-government and -community effort focused on policy issues responses, information exchange, economic and social impact, and other topics based on a scenario featuring a novel influenza virus. The goal of Crimson Contagion exercise was to practice information exchange, coordinate resources, and compare policy decisions across various levels of public and private sector entities in a pandemic influenza scenario.[93]

- **Social media platforms and vaccine disinformation.** Some social media platforms pledged to promote evidence-based decisions about vaccines and to strive to offer links that will lead users to appropriate online sources.[94] In August, Pinterest announced that all searches for "measles" or "vaccine safety" or other related terms will return results from leading public health organizations, including the WHO, the CDC, and the American Academy of Pediatrics.[95] In addition, site users will not be able to add comments or recommendations to the vaccine-related content, and no advertising will publish with vaccine-related content.[96] In September, Facebook announced that all searches for vaccine-related content on the platform (and on Instagram—also owned by Facebook) will return a pop-up box directing the site user to vaccine information on the CDC website domestically and on the WHO website outside the United States.[97]

- **Food Safety and Modernization Act implementation.** In a September progress statement,[98] the FDA announced it would establish a dashboard to publish metrics relating to the implementation of the Food Safety Modernization Act, including food safety outcomes and associated measures. This act shifted the nation's food safety system from a response posture to one of global food safety and prevention.[99] The dashboard's initial data showed the majority of companies in compliance with the new requirements experienced an overall improvement in the time from identifying a recall event to initiating a voluntary recall.

- **The FDA's new imported food safety strategy.** The FDA also released a new imported food safety strategy guided by four goals: (1) food offered for import must meet U.S. food safety requirements; (2) the FDA's border surveillance must prevent the entry of unsafe foods; (3) there must be a rapid and effective response to unsafe imported food; and (4) there must be an effective and efficient food import program.[100] The United States imports about 15 percent of its food supply from other countries, including about 32 percent of its fresh vegetables, 55 percent of its fresh fruit, and 94 percent of its seafood consumed annually.

- **The Predict program ended.** In October, the U.S. Agency for International Development's (USAID) emerging pandemics program, Predict, ended. USAID designed Predict to track and research deadly zoonotic diseases globally.[101] Specifically, it worked with global researchers to collect blood samples from animals in order to track and understand pathogens. Over 10 years, the program collected 140,000 biological samples, found over 1,000 new viruses, trained approximately 5,000 individuals in African and Asian countries, and erected and bolstered 60 new medical research facilities.[102] USAID will transfer some aspects of the project to other government agencies. However, the United States could lose the international relationships, approaches, and training goals that USAID's Predict established.[103]

- **Global influenza strategy.** The WHO released a global influenza strategy for 2019–2030,[104] outlining strategic objectives and actions for stakeholders. The high-level goals for the strategy include "better global tools to prevent, detect, control, and treat influenza" and to focus on building stronger country capacities that are integrated within national health security planning and universal health coverage efforts.

- **Polio eradication.** On World Polio Day, October 24, a global commission declared polio type III eradicated. This is the second of three polio strains declared eradicated.[105]

Notable Research Findings, Meetings, and Federal Hearings:

- **Inaugural Global Health Security Index finds no country fully prepared for epidemic or pandemic.** A joint project by the Nuclear Threat Initiative and Johns Hopkins Center for Health Security, with research by the Economist Intelligence unit, the Global Health Security Index conducted a comprehensive assessment and benchmarking of health security and related capabilities across 195 countries.[106]

- **Universal flu vaccine study.** The National Institutes of Health (NIH) began conducting the first human trial of a universal influenza vaccine, which could confer long-lasting immunity from multiple influenza subtypes among all age groups. The NIH is currently in Phase 1 of the clinical trial.[107]

- **Advancements in Ebola medical countermeasures.** There were several breakthroughs in research and development of treatments, vaccines, and diagnostics to combat the Ebola virus. Researchers found two Ebola treatments utilized in the DRC showed promise against the current Ebola strain.[108] The European Medicines Agency also announced the world's first authorization for an Ebola vaccine, shown to be effective in protecting people from the virus.[109] Preliminary results showed 97.5 percent vaccine effectiveness.[110] A second Ebola vaccine, produced by Johnson & Johnson, began a clinical trial late in 2019 in the DRC.[111] In October, the FDA permitted a new Ebola rapid diagnostic test, OraQuick Ebola Rapid Antigen Test, to officially hit the market in the United States. This test will take protein samples from living and recently deceased individuals to try to obtain an initial diagnosis or to refute a suspected Ebola case diagnosis. This test will be used in cases where more sensitive molecular testing is not available to try to obtain an initial diagnosis or to refute suspected Ebola cases.[112] In December, the FDA announced approval of Ervebo, the first FDA-approved vaccine for the prevention of Ebola virus disease (EVD) in individuals 18 years of age and older. In addition, the NIH awarded funding to the University of Texas Medical Branch at Galveston, Profectus Biosciences, Vanderbilt University Medical Center, Mapp Biopharmaceutical, and Genevant Sciences Corp. to advance the development of vaccines and treatments to address Ebola and Marburg viruses. According to the HHS, these viruses contain the highest risk of weaponization by bioterrorists and will render the most catastrophic effects.[113]

- **EEEV vaccine.** The National Institute of Allergy and Infectious Diseases (NIAID) employed researchers to develop vaccines and treatments to fight EEEV. Specifically, NIAID's Vaccine Research Center has been developing an injection (WEVEE) that would protect individuals from equine encephalitis virus. WEVEE is currently undergoing a Phase 1 clinical trial to determine if the treatment is safe and successful in inducing a clinical response. So far, researchers report that the vaccine "appears to be safe and tolerable among 30 healthy volunteers."[114]

- **Vaccines and treatments to address smallpox, monkeypox, Marburg and Sudan viruses.** Also during the year, the FDA licensed a novel vaccine for the prevention of smallpox and monkeypox as well as a Phase 3 trial of a new anthrax vaccine, and the HHS invested in the first vaccine development against Marburg virus.[115,116,117] In addition, the Biomedical Advanced Research and Development Authority (BARDA) contracted Mapp Biopharmaceutical, to develop a Ab therapeutic for Marburg and contracted with Sabin and Public Health Vaccines for the development of vaccines for Marburg and Sudan viruses.

- **Detecting bacteria for bioterrorism-related threats.** In March, the FDA issued finalized requirements for the review process of device and diagnostic test development aimed at detecting bacteria that could cause bioterrorism-related threats. These rules will allow manufacturers to provide more appropriate performance evaluations and consistent data on testing criteria for these medical countermeasures.[118]

- **African Epidemic Preparedness Index.** On August 28, the African Risk Capacity and Africa Centres for Disease Control and Prevention agreed to a partnership to establish the African Epidemic Preparedness Index. This framework establishes an early warning and response platform for member states to address all emergencies in an effective time frame and to build the capacity to alleviate the burden of disease on the African continent. The framework uses a collaborative approach that allows member states to share knowledge and lessons learned, strengthen capacity, and provide technical support to one another.[119]

- **Global Fund Replenishment.** In October, the Global Fund held its Sixth Replenishment Conference, during which donor states pledged $14 billion in funding to continue efforts to eradicate AIDS, tuberculosis, and malaria.[120,121]

- **Antimicrobial Resistance (AMR) Threats Report.** In November, a new CDC report, *Antibiotic Resistance Threats in the United States, 2019*,[122] found that drug-resistant germs in the United States sicken about 2.8 million people annually and about 35,000 die as a result.[123] In addition, 223,900 cases of Clostridioides difficile occurred in 2017 and at least 12,800 people died. This new report found that earlier estimates of the incidence of drug-resistant infections underreported the number of such infections. Patients in hospitals and nursing homes with weak immune systems are at particular risk for drug-resistant infections, but these infections are also becoming more common among otherwise healthy patients having routine procedures.[124] However, the report also found that AMR-prevention activities are working: Prevention efforts have reduced deaths from antibiotic-resistant infections by 18 percent overall and by nearly 30 percent in hospitals since the 2013 report.[125] In Europe, the European Centre for Disease Prevention and Control recently reviewed and updated their response to AMR in order to encourage member states to aggressively address and control anti-microbial resistance.[126]

- **Congressional Flu Hearing.** In December, the U.S. House of Representatives Committee on Energy and Commerce, Sub-committee on Oversight and Investigations held a hearing on flu preparedness: *Flu Season: U.S. Public Health Preparedness and Response.*

Severe Weather and Natural Disasters

Notable Incidents:

- **Extreme heat.** July 2019 was the hottest month ever recorded on Earth, with a temperature nearly 1.2 degrees Celsius above preindustrial levels.[127] What's more, 2015 to 2019 has been the warmest five-year period since at least the 19th century.[128] A summer heat wave in Europe also resulted in the hottest June ever recorded on the continent, resulting in hundreds, if not thousands, of excess deaths.[129] According to European climate scientists, the heat wave in Europe pushed Arctic temperatures into the 80s (Fahrenheit), melting about 40 billion tons of Greenland's ice sheet.[130]

- **Hurricane Dorian.** In late August, Hurricane Dorian, which started as a tropical storm and quickly intensified to a category 5 hurricane, first made landfall in the U.S. Virgin Islands causing blackouts and power outages in St. Thomas, St. John, and St. Croix.[131] With winds up to 185 miles per hour, Dorian struck the Bahamas. The storm is believed to have killed approximately 65 people and caused catastrophic damage, destroying an estimated 45 percent of the homes on Abaco and Grand Bahama islands. The estimated cost of the damages caused by Dorian is over $7 billion.[132,133,134] When Dorian reached the U.S. East Coast, it had weakened to a tropical storm, but it still caused catastrophic flooding and widespread power outages in and around Cape Hatteras, North Carolina, and stranded 940 residents and possibly others.[135] Dorian hit Ocracoke, North Carolina, particularly hard, raising concerns about whether the island community would be able to rebuild. According to climate-change experts, Ocracoke's experience is a bellwether for what coastal communities up and down the eastern seaboard may experience in future storms.[136] HHS Secretary Azar declared public health emergencies in North Carolina, Georgia, South Carolina, Florida, and Puerto Rico as a result of Dorian.[137] Dorian matched or broke records for its intensity according to climate scientists and was another example of a pattern of the increased likelihood of storms, fueled by warmer water, that are more likely to stall over land, increasing the amount of wind and rain communities experience.[138] Meanwhile, 2019 was the fourth straight year that a category 5 hurricane formed in the Atlantic, the longest such streak on record.[139]

- **Wildfires in California and other states.** Several states experienced wildfires in 2019, including Nevada, Alaska, Texas, and California.[140] California's average temperature has increased by about 3 degrees Fahrenheit over the past century, which is three times the global temperature increase of 1-degree Fahrenheit.[141] The increase in temperature in many areas withered the state's vegetation, allowing wildfires to spread quickly through dry land. During 2019, there were approximately 6,190 fire incidences in California of varying size and intensity, with three fatalities.[142] As of November 6, approximately 198,392 acres of land have burned and over 700 structures have been destroyed or damaged.[143] The Circadian Fire in the northern part of the state and the San Francisco Bay Area created clouds of smoke that triggered a "Spare the Air" announcement, warning residents that the quality of air was unhealthy and unsafe and that those exposed to it could experience detrimental health effects.[144]

- **California power outages.** In an attempt to reduce the risk of wildfire created by the combination of hot, dry winds and sparks from an aging electric infrastructure, Pacific Gas & Electric shutoff power in some high-risk areas of the state. These planned blackouts created a related health emergency for some residents, including presenting significant risk to patients in healthcare and long-term care facilities, people with electrically-dependent medical equipment or medicines, such as oxygen, wheelchairs and insulin, and the safety of food and water.[145]

- **Flooding throughout the United States.** Many communities in the Midwest and South experienced record flooding—in terms of height, spread, and duration[146]—as the Arkansas, Mississippi and Missouri Rivers flooded, affecting nearly 14 million people.[147] As many as 7.9 percent of U.S. counties received Federal Emergency Management Agency (FEMA) natural disaster declarations as a result of the 2019 floods, and damages were estimated to exceed $10 billion.[148] *(See "2019: The Year of the Flood" on page 22.)*

2019: THE YEAR OF THE FLOOD

"The year of the flood," that's how many will remember 2019. In communities large and small, coastal and non-coastal, flooding created major damage and disruption. The winter of 2018–2019 was the wettest winter on record in the United States.[149] The health risks associated with this weather and subsequent flooding required mobilizations by public health emergency preparedness and response teams throughout the nation.

"Planning and training for weather-related emergencies enabled our partners to effectively evacuate 98 nursing home residents to safety during the Arkansas River flood of 2019."

Nathaniel Smith, MD and MPH
Arkansas Secretary of Health

Flooding along coastal areas tends to get the most media attention, particularly when associated with a hurricane or tropical storm. In 2019, there were 18 tropical storms and six hurricanes, three of which meteorologists classified as intense, including Hurricane Dorian, whose 185 miles per hour winds devastated the Bahamas and brought significant flood damage to North Carolina. Other storms that caused major damage and flooding included Hurricane Barry, which hit Louisiana, and Tropical Storm Imelda,[150] which hit Louisiana and Texas. Imelda led to an astounding three feet of rain in a large region of Texas, including Houston.

Also noteworthy was an increase in flooding in non-coastal areas[151] as a result of river and lake flooding caused by heavy rainfall, alterations in land usage, and/or rapid snow melting. A series of record floods occurred in the Mississippi River tributary basins, including the Ohio, Missouri, and Arkansas Rivers.[152] The Arkansas River had its worst flooding in nearly 30 years during May and June, reaching more than seven feet above flood stage and leaving downtown Little Rock inundated with water.[153] According to Arkansas state health officials, the 2019 flooding was unique in a number of ways, including the length of time before the water receded, about 25 days, and the fact that the flooding included highly populated areas.

Arkansas Secretary of Health Dr. Nathaniel Smith and Emergency Preparedness Director Dr. Micheal Knox and their teams prioritized the following during the flooding response: immunizing first responders and people who would be temporarily living in shelters (Hepatitis A and Tdap), ensuring access to healthcare for anyone displaced by the floods, insect control, communications, and monitoring for possible chemical releases or other contaminants in the Arkansas River and in municipal water systems and private wells.

According to Smith and Knox, it was fortunate that the state's health department had situational awareness about when the flood would hit and how it would progress. (The flooding was the result of an upriver reservoir release after heavy rain in Kansas and Oklahoma.) But the keys to success involved their prior planning and collaboration with a wide range of governmental and private agencies, including the Arkansas Department of Emergency Management.

A test of their preparedness and emergency planning occurred when the city had to evacuate patients from a long-term care facility and a major hospital—both evacuations were successful.

A lesson for the team, which they will incorporate into future planning, was the need to provide opioid reversal kits to shelters during large-scale emergencies.

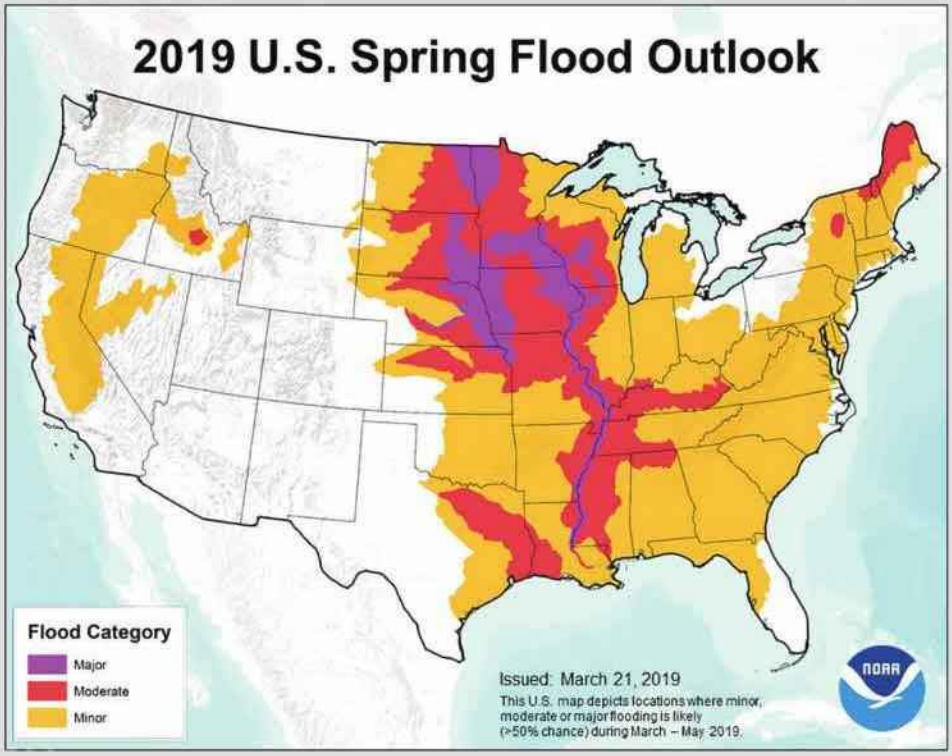
While reaching record levels in 2019, the problem of flooding has been growing for a number of years. The U.S. National Weather Service[154] recorded 10 rain storms and subsequent flooding in 2015–2016 that scientists expected to occur only once every 500 years.

The health risks associated with flooding includes drowning, sewage contamination, waterborne diseases (such as Vibrios skin infections or E. coli or salmonella-caused diarrheal disease), mold, and increased risk of mosquito-borne diseases. Following Hurricane Harvey in 2017, the Texas Department of State Health Services attributed 26 deaths[155] to a wide range of causes from unsafe or unhealthy conditions related to such factors as loss of electricity and clean water, lack of transportation, electrocutions, and/or infections from flood waters.

In addition, floods often increase the risk of the release of harmful chemicals and other pollution into the water or the air. In 2019, for example, the U.S. Environmental Protection Agency (EPA) closely monitored floods in areas with Superfund sites, taking immediate action in Nebraska, Missouri, and other locations to prevent the spread of contaminated groundwater.[156,157]

Additional consequences of flooding include loss of or damage to property, necessary relocation away from home, and the loss of income due to the temporary closing of businesses. Some people may be more negatively affected. Lower-income people and people of color may have fewer resources—such as flood insurance, alternative housing, transportation and cash for essential items like food and medicine—to help them survive and recover.

In response to the growing frequency and severity of flooding, public health agencies at the local, state, and federal levels are mobilizing. CDC supports a website page devoted to flooding with resources for local and state health departments: www.cdc.gov/disasters/floods/index.html.



The work of the Tulsa, Oklahoma, Health Department is an example of the comprehensiveness of the local public health response to the 2019 flooding. Departmental employees staffed the Tulsa County Emergency Operations and Medical Emergency Response Centers, opened and/or expanded vaccination sites, increased mosquito-control efforts to reduce the risks associated with elevated standing water, monitored drinking-water quality and the risk of exposure to sewage, sheltered pets and livestock, improved access to shelters for residents when evacuations were needed, inspected and reopened food and drink facilities shuttered by the flood, and used a stress response team to deal with the trauma that residents experienced.[158]

Events and Policy Actions:

- **Disaster relief bill.** In June 2019, President Trump signed a $19.1 billion disaster relief bill providing aid to communities recovering from hurricanes, flooding, and wildfires.[159] The bill included funds to provide nutrition assistance for Puerto Rico, cover crop losses for farmers, assist wildfire suppression efforts, and repair damaged highways and public lands.

- **U.S. officially withdraws from the Paris Climate Agreement.** In November, President Trump formally announced his intention to withdraw the United States from the Paris Agreement, which aims to reduce global greenhouse-gas emissions to keep temperatures from rising to dangerous levels.[160] As of November 11, the United States officially entered the agreement exit process, which will conclude on November 4, 2020.[161]

Notable Research Findings, Meetings, and Federal Hearings:

- **Extreme rain events.** The European Centre for Research and Advanced Training in Scientific Computing estimated that extreme rain events with a one in 1,000 chance of occurring in a given year will become two to five times more frequent if global temperatures rise 2 degrees Celsius higher than preindustrial levels.[162] Of all the regions in the United States, New England, the Southern Great Plains, and the Rocky Mountains are at the greatest risk of extreme rainfall.

- **National Mitigation Investment Strategy.** In August, FEMA released the National Mitigation Investment Strategy, an effort to improve the coordination and effectiveness of mitigation investments[163] for state and community officials, businesses, nonprofits, and others. FEMA released the strategy in response to the U.S. Government Accountability Office's recommendations, which identified the need for a coordinated federal and national investment strategy for risk reduction, following Hurricane Sandy.[164]

- **Oceanic warming.** A September special report by the 195-member Intergovernmental Panel on Climate Change found that the impact of climate change includes heating the oceans and altering their chemistry so dramatically that it is threatening seafood supplies, fueling cyclones and floods, and posing profound risks to the hundreds of millions of people living along the world's coastlines.[165]

- **Rising seas.** A November report by Climate Central found that rising seas will be a more serious problem than previously thought due to an increase in the number of people living on low ground. The report estimates that 110 million people are currently living below sea level and that even "very modest" climate change could increase that number to 150 million by 2050 and 190 million by 2100.[166]

- **Health effects of climate change.** A 2019 report in *The Lancet* found that the health effects of climate change will be unevenly distributed and that children will be among those especially harmed.[167]

THE DISPROPORTIONATE IMPACTS OF CLIMATE CHANGE

Climate change affects everyone, but certain populations and communities are at elevated risk for a disproportionate impact. According to the U.S. Global Change Research Project, the vulnerability of any population group is a measure of that group's exposure to climate risks and its capacity to respond. The project has identified 10 "populations of concern"—groups at a heightened risk for the health consequences of climate change: (1) low-income people; (2) some communities of color; (3) immigrant groups, including those with limited English proficiency; (4) indigenous people; (5) children; (6) pregnant women; (7) older adults; (8) vulnerable occupation groups; (9) people with disabilities; and (10) people with chronic or preexisting medical conditions.[168] Individuals who are socially, medically, or economically vulnerable or who are living near the coast or on a flood plain are also more likely to be physically at risk.[169]

Adverse health effects of climate change include heat-related disorders; infectious diseases, such as those spread by contaminated food, mosquitos, or water; respiratory and allergy disorders; malnutrition; and mental health issues. People with chronic health conditions are more likely to need emergency care following climate-related events, due to a lack of access to medication, electricity, and primary or behavioral healthcare.[170] Furthermore, in some places, climate change will affect where people can live due to rising sea levels, what land can be farmed, employment opportunities, and access to clean water—causing some people to become "environmental refugees."[171] Families with the fewest resources to relocate will be at higher risk of displacement.

Those of lower socioeconomic status often suffer the most severe consequences due to a lack of resources to prepare for and rebound from natural disasters.[172] For example, people with limited incomes may not be able to afford air conditioning to mitigate the likelihood of hyperthermia during heat waves, a particular vulnerability for older adults.

Researchers studying the impact of climate change on poor people and communities of color in California found that it has a disproportionate impact on those communities and coined the term "climate gap" to describe the unequal climate change impact on communities least able to prepare for and recover from climate events.[173] According to the report, Black residents of Los Angeles are almost twice as likely to die from a heat-related illness as are other L.A. residents.[174] The authors believe their California findings are representative of the risks facing low-income people and communities of color across the nation. They submit that policies and programs to adapt to the health impacts of climate change need to focus first on those people and communities most at risk.[175]

The impact of wildfires on California are another example of how a family's or a community's resources affect their ability to rebound and rebuild after a disaster. In 2018, California fires destroyed nearly 19,000 homes and led to more than $12 billion in insurance claims.[176] This high rate of insurance claims is affecting the current price of insurance, limiting the number of people who can afford it. According to industry experts, rate increases to annual premiums between 30 and 70 percent are likely, especially for homeowners in areas at high risk of fire.[177] Some homeowners may not be able to get any coverage through the private market. Their only option may be public insurance programs with limited coverage, and some may not be able to afford that.[178]

Adaptation programs can also have unintended consequences on lower-income people. Infrastructure improvements in neighborhoods to make them more climate resilient can also make those neighborhoods more attractive to developers and higher-income residents. A community's new viability can lead to increases in property values, rents, and property taxes, often forcing the original lower-income residents out of the area.[179] Post-storm rebuilding in Atlanta, Houston, Miami, New Jersey, and New Orleans are examples of places where post-event investments to protect communities against extreme weather have led to the gentrification of some formerly low-income communities and to the displacement of former residents.[180,181]

All Hazards Events and Policy Actions

Notable Incidents:

- **E-cigarette and Vaping injuries and deaths.** According to the CDC,[182] as of late December, 2,506 e-cigarette or vaping-associated lung injuries (EVALI) were reported nationally for the prior 11 months, causing 54 deaths. Additional deaths are under investigation. During the fall, the injuries and deaths were believed to be possibly linked to an additive oil, vitamin E acetate, found in THC-containing vaping materials used by many of the people who became sick; the substance was identified as a "chemical of concern."[183] Also during the fall, as public health officials worked to pinpoint the exact source of the illnesses, several states responded to the outbreak, as well as to the alarming rise in youth vaping,[184] by taking emergency actions: Massachusetts declared a public health emergency and a temporary ban on all vaping products, and New York implemented a ban on most flavored vaping products. Michigan, Rhode Island, Montana, Washington, California, and Oregon also passed executive orders or other processes to attempt to respond to the dual crises of severe lung illness and the youth vaping epidemic.[185]

In December the CDC released additional data showing that vitamin E acetate was "closely associated" to EVALI.[186]

A DIFFERENT TYPE OF EMERGENCY: E-CIGARETTE OR VAPING-ASSOCIATED LUNG INJURY

In August 2019, a public health emergency arose due to a multistate outbreak of e-cigarette/vaping-associated lung injury (EVALI).[187] Officials identified this emergency when local, state, and federal surveillance found a rapidly growing cluster of cases of serious lung injury and death among those who had used e-cigarette or vaping products.

In September, due to the seriousness of the health risk, the uncertainty about the cause, and the widespread usage of these products, including by adolescents and young adults, public health officials at the CDC and several states activated an emergency response.[188]

EVALI was a different type of health risk than is most common public health emergencies. No infectious disease was suspected, nor was the cause a single catastrophic event, such as a hurricane, wildfire, or flood. The outbreak illustrated the challenges of identifying an emerging health threat, building seamless communications between clinical providers and public health amid a rapidly changing event, and determining the source of illnesses with limited or delayed information. In some ways, the EVALI investigation was comparable to a contaminated-foodborne outbreak, during which health officials rush to identify the likely source. The EVALI response benefited from the existence of a public health emergency system, trained personnel, and well-established communication mechanisms that had been used for other emergencies.

The CDC, FDA, state, and local health departments as well as other clinical and public health partners began coordinated investigations, ultimately identifying more than 2,000 people with EVALI[189] due to their use of e-cigarette or vaping products. There has been at least one case in every state. As of December 17, 54 deaths were associated with EVALI.[190]

The EVALI investigation was made particularly challenging because e-cigarette vaping products are not fully regulated by the federal government, and therefore experts did not immediately know or understand the ingredients. Furthermore, the products were often purchased informally rather than from traditional retailers. So, tracing and testing the products was often difficult.[191]

Most of those who had serious medical problems were young people—78 percent were under 35 years old, with a median age of 24 years. What's more, 16 percent were under the age of 18, too young to even legally purchase the products. Two-thirds were male (67 percent). The majority of those injured did report using products that contained THC. During the fall, experts identified vitamin E acetate as a "chemical of concern" among people who became ill. Other chemicals have not been ruled out.[192] In December, and based on further data, the CDC said that vitamin E acetate was "closely associated" with EVALI.[193]

As with other emergencies, the public health sector sought to identify and define the risk factors; detect and track confirmed and probable cases; communicate actionable recommendations to state, local, and clinical audiences and the public; and establish procedures that could assist with the public heath investigation and patient care.

On September 16th, CDC activated its Incident Management System and used the Emergency Operations Center (EOC) to coordinate activities and assist states, public health partners, and clinicians around the nation. The EOC worked with states to create case definitions that allowed for the classification of patients, tested specimens in its laboratories, held regular calls with state and local health departments, and communicated frequently with the media. Epidemic Intelligence Service officers—who are customarily deployed in infectious disease outbreaks—were deployed to work in collaboration with those at the state and local levels.

As of December, more than 350 CDC staff had mobilized as part of the emergency response, with major representation from trained epidemiological staff including epidemiologists, clinicians, health communicators, policy analysts, and others. Because of the relatively unusual nature of this type of emergency operation, it was the first time that many from the non-infectious disease centers participated in an agency-wide response.

State and local health departments mobilized as well. For example, in Washington state, the health department used its emergency operations center, drawing on the expertise of both its core emergency preparedness team and its communicable and non-communicable disease staff. Their work included giving information to healthcare providers regarding the signs and symptoms of EVALI; communicating with the local health departments to which providers reported likely cases; developing standardized forms to be used for patient interviews; conducting patient interviews to determine the vaping products used; collecting sample products from the patients and regularly informing the public through email updates press events, interviews, and updated web-based data.

- **Lead in the water.** Throughout the year, some residents of Newark, New Jersey, had to rely on bottled water due to high levels of lead in their tap water. The problem began in 2017 when the city changed its water's acidity, which experts believe caused lead from aging pipes within the water system to enter the water supply.[194]

- **Mass shootings.** As of December 27, in the United States, there were 410 mass shootings—defined as an incident in which at least four people are shot, excluding the shooter—in 2019.[195] Mass shootings, such as those in Dayton, El Paso, Gilroy, and Virginia Beach, require an emergency health response, including mass-casualty healthcare management, communications, family assistance, and mental health first aid.[196] In addition, these events have long-term health effects on communities and survivors, including post-traumatic stress disorder, substance abuse, anxiety, and depression.[197]

Notable Events and Policy Actions:

- **Advancements in chemical medical countermeasures.** Some significant advancements in medical countermeasures against chemicals and other threats included an evidence-based chemical decontamination decision tool, a fast-acting spray for chemical decontamination,[198,199] and an agreement to bolster the supply of medical countermeasures against chemical warfare agents.[200]

- **Advisory guide for emergencies.** The U.S. Department of Homeland Security (DHS) Science and Technology Directorate worked with their associates in the United Kingdom and Canada to examine the recently updated *Science Advisory Guide for Emergencies*. The officials focused on potential public health threats to promote a department-wide approach that fosters a coordinated response. Specifically, officials participated in an activity that assessed communication obstacles and highlighted each country's strengths and shortcomings.[201]

- **National Health Security Strategy.** In January, the Office of the Assistant Secretary for Preparedness and Response released the *2019–2022 National Health Security Strategy*. The strategy outlines steps the nation should take to strengthen its ability to prevent, detect, assess, prepare for, mitigate, respond to, and recover from disasters and emergencies. The strategy identifies five potential threats: (1) extreme weather and natural disasters; (2) a chemical, biological, radiological, or nuclear (CBRN) incident; (3) infectious disease with pandemic potential; (4) cyber threats that could destabilize the healthcare system; and (5) advances in biotechnology that could be misused to cause harm. The strategy articulates three objectives: (1) prepare, mobilize, and coordinate a whole-of-government approach to health security; (2) protect against emerging and pandemic infectious diseases and CBRN threats; and (3) leverage the capabilities of the private sector as partners in the effort to protect the nation against health security threats.[202]

- **Pandemic and All-Hazards Preparedness and Advancing Innovation Act.** In June, President Trump signed the Pandemic and All-Hazards Preparedness and Advancing Innovation Act, which ensures that the United States is better equipped to respond to a range of public health emergencies.[203] The passage of this legislation expands funding for critical areas, such as strengthening the National Health Security Strategy, improving preparedness and response, advancing the emergency response workforce, prioritizing a threat-based approach, and enhancing communication and technologies for medical countermeasures.[204]

- **Pediatric disaster care centers.** In September, the Office of the Assistant Secretary of Preparedness and Response allocated $6 million to create a pilot program for two Pediatric Disaster Care Centers of Excellence. The centers will model programs designed to decrease the impacts of exposure to trauma, infectious disease, and other public health emergencies on children by providing pediatric-specific care (that is, specialized training, equipment, supplies, and pharmaceuticals) during public health emergencies.[205]

- **Repeal of clean water regulations.** In September, the administration announced the repeal of major clean water regulations that had placed limits on polluting chemicals that companies could use near certain bodies of water.[206]

- **National Response Framework.** FEMA released the *National Response Framework, Fourth Edition* in October.[207] The updated framework included additional emphasis on nongovernmental capabilities, including the role of individuals and private-sector partners in responding to disasters. A new Emergency Support Function also focused on leveraging coordination between government and infrastructure owners/operators.

Notable Research Findings, Meetings, and Federal Hearings:

- **WHO's 10 threats to global health.** The WHO identified 10 major threats to global health that demand attention from the WHO and its partners in 2019: (1) air pollution and climate change, (2) noncommunicable diseases, (3) global influenza pandemic, (4) fragile and vulnerable settings, (5) antimicrobial resistance, (6) high-threat pathogens, (7) weak primary healthcare, (8) vaccine hesitancy, (9) dengue, and (10) HIV. The report was part of the WHO's strategic plan, which strives to ensure 1 billion more people benefit from access to universal health coverage, 1 billion more people have protection from health emergencies, and, 1 billion more enjoy better health and well-being.[208]

- **DNA screening system.** Researchers at Battelle National Biodefense Institute developed a DNA screening system that compiles more than 10,000 sequences of concern and streamlines the review process of detecting and characterizing pathogens that pose threats to biosecurity.[209]

- **Congressional oversight of BioWatch replacement.** Bipartisan members of the House Energy and Commerce Committee asked the U.S. Government Accountability Office to evaluate a new system to detect airborne infectious disease agents, BioDetection 21, which is intended to replace the BioWatch system,[210] after reports questioned the effectiveness and accuracy of the new system. At an October congressional hearing—"Defending the Homeland from Bioterrorism: Are We Prepared?"—experts testified before the U.S. House Homeland Security Subcommittee on Emergency Preparedness, Response, and Recovery about BD21 and other bioterrorism concerns. Officials from the U.S. Government Accountability Office testified that obstacles pertaining to the nation's ability to adequately defend against biological threats include: (1) assessing enterprise-wide threats; (2) situational awareness and data integration; (3) bio-detection technologies; and (4) biological laboratory safety and security. While strategies such as the 2018 National Biodefense Strategy have been established to address some of these challenges, implementation and monitoring of these strategies are still in the process.[211] Other experts asserted that the country's efforts to develop new threat-detective technologies, such as BD21, were focused in the wrong direction.[212] In addition, public health experts testified as to the importance of the role of public health in detection, prevention, and mitigation of events but said that federal-local coordination, equipment, workforce, and training are needed.[213]

Interview with Germán Luis Parodi

Germán Luis Parodi is the Co-Executive Director of The Partnership for Inclusive Disaster Strategies and works with the United Nations Disaster Risk Reduction Focal Point for Persons with Disabilities in the Americas

Germán and co-executive director of the Partnership for Inclusive Disaster Strategies, Shaylin Sluzalis, at the general assembly of the UN during the CRPD State Parties convention.

Q: You have deployed as a disaster-responder, what have you seen and experienced first-hand about what happens to people with disabilities during an emergency?

A: As a first responder and a disabled person, I've witnessed first-hand how those who are marginalized, isolated, or not part of the local planning process, are left behind in an emergency. More often than not, children and adults with disabilities are left to the good intentions of family, neighbors and friends, while responders learn of and find people with disabilities, those who need rescue, last. Often, people with disabilities are forced to evacuate without essential assistive technology and durable medical equipment. Nationwide, rarely do you see an American Sign Language interpreter next to officials in disaster related press conferences and many emergency shelters are not accessible for people with access and functional needs. Then, for those people with disabilities lucky enough to survive the initial event, post event they must cope not only with their disability and possible post-traumatic stress, which is rarely attended to, but with aid processes and protocols of emergency management agencies that are, in my experience, intentionally discouraging.

Q: As you indicate, when disasters happen, people with disabilities are disproportionately affected. What needs to be done to protect the health and safety of people with disabilities during a disaster?

A: Government, community-based and volunteer organizations must involve us, people with disabilities and other subject matter experts in planning before an emergency or disaster! This is established law that has been ignored for years. Individuals with disabilities and advocates must be encouraged to be part of the planning process, including involvement in exercises and drills. During a disaster is no time to be introduced "for the first time" to emergency planners.

Disaster risk reduction can be achieved through inclusion. People with disabilities need to be included at the federal level all the way down to the municipal level. Including our voices in all mitigation and preparedness work will be the best way to help ensure that emergency

procedures will help to protect our health and safety when a disaster strikes.

Q: What are your main concerns for those who are either quadriplegic or paraplegic? Are there specific preparations or responses necessary for people with these conditions? Are there other disabilities you would highlight as requiring specialized care?

A: All people with disabilities must plan for themselves, as if no one is coming to assist or evacuate them. In most cases, that is exactly what happens. People with disabilities, most age-related, were the highest percentage to lose their lives in the Camp wildfire that devastated Paradise, California. After a disaster, during the recovery process, people who use assistive technology or durable medical equipment often go without supplies, which leads to involuntary and unnecessary institutionalization.

While there certainly might be additional training and knowledge responders need, much of what might be called "specialized" training or planning should actually be a part of any routine and inclusive training. If that were the case less "specialized" care would be needed. A couple big areas that come up when we talk about people with access and functional needs are building evacuations and accessible transportation and shelters. When we think of the elevator warnings in case of emergency, *use stairs*, we can immediately see a barrier for some quadriplegics or paraplegics that might need specialized care like the knowledge of how to use an evacuation chair. However, accessible responses to evacuating in a building with stairs would also be useful for anyone with mobility issues, endurance restraints, small children, etc. Similarly, a quiet room for people with sensory sensitivity could be useful for people to silently process the trauma of a disaster, or quietly observe religious prayer time.

People need a place to go and a way to get there. Having reliable and accessible transportation that can help individuals get to an accessible shelter (including the bathrooms!), is often not available.

Q: A lot of your work is advocating for policy change. What is your highest priority for action steps by policymakers to ensure that the health and safety of people with disabilities are considered during emergency planning and response? What legislation needs to be passed? What should the federal government do? What do state and local governments need to do?

A: The Partnership for Inclusive Disaster Strategies has worked with Senator Bob Casey's (PA) office and other members of Congress to introduce and build support for bicameral bills, the Real Emergency Access for Aging and Disability Inclusion for Disasters Act (REAADI) and the Disaster Relief Medicaid Act (DRMA). REAADI and DRMA create and expand policies which focus on inclusion of the disability community in federal response efforts. There is also already legislation that requires inclusion and communication with the disability community, as well as access requirements for anything funded with federal dollars. We need increased compliance and enforcement of the policies that already exist and help to rectify the harm caused by current response mechanisms. States and U.S. territories have centers for independent living, protection and advocacy organizations, ADAPT chapters and other disability centered organizations that can connect the state or city emergency management agencies with disabled people to inform, collaborate, and save lives when disasters strike.

A couple of big areas that come up when we talk about people with access and functional needs are building evacuations and accessible transportation and shelters.

Assessing State Preparedness

While it is important that every state be ready to handle public health emergencies, each faces its own mix of threats, and some are more prepared than others. To help states assess their readiness and to highlight a checklist of top-priority concerns and action areas, this report examines a set of 10 select indicators that we strive to use consistently year to year. The indicators, drawn heavily from the National Health Security Preparedness Index (NHSPI), a joint initiative of the Robert Wood Johnson Foundation, the University of Kentucky, and the University of Colorado, capture core elements of preparedness. Based on states' standing across the 10 indicators (see "Appendix A: Methodology" for scoring details), TFAH placed states into three performance tiers: high, middle, and low. (See Table 4.)

TABLE 4: State Public Health Emergency Preparedness
State performance, by scoring tier, 2019

Performance Tier	States	Number of States
High Tier	AL, CO, CT, DC, DE, IA, ID, IL, KS, MA, MD, ME, MO, MS, NC, NE, NJ, NM, OK, PA, TN, UT, VA, VT, WA, WI	25 states and DC
Middle Tier	AZ, CA, FL, GA, KY, LA, MI, MN, ND, OR, RI, TX	12 states
Low Tier	AK, AR, HI, IN, MT, NH, NV, NY, OH, SC, SD, WV, WY	13 states

Note: See "Appendix A: Methodology" for scoring details. Complete data were not available for U.S. territories.

Importantly, the implications of this assessment, and responsibility for continuously improving, extend beyond any one state or local agency. Such improvement typically requires sustained engagement and coordination by a broad range of policymakers and administrators. Moreover, some indicators are under the direct control of federal and state lawmakers, whereas improvement in other indicators requires multisector, statewide efforts, including by residents.

INDICATOR 1: ADOPTION OF NURSE LICENSURE COMPACT

KEY FINDING: 32 states participate in the Nurse Licensure Compact.

Workforce shortages can impair a state's ability to effectively manage disasters or disease outbreaks, potentially resulting in poorer health outcomes for those affected. Therefore, the capacity to quickly surge qualified medical personnel is critical. The ability to bring in additional healthcare workers from out of state is a key component of healthcare readiness.

This indicator examines whether states have adopted legislation to participate in the Nurse Licensure Compact (NLC). Launched in 2000 by the National Council of State Boards of Nursing, the NLC permits registered nurses and licensed practical nurses to practice with a single multistate license—physically or remotely—in any state that has joined the compact. The NLC provides standing reciprocity, with no requirement that an emergency be formally declared.

To help make participation in the compact more viable for states, the National Council of State Boards of Nursing enhanced its requirements in 2017–2018, standardizing licensure requirements among participating states, in addition to other changes.[214]

The NLC has been crucial to response efforts after several recent disasters.[215] In 2017, when Hurricane Harvey struck Texas, the storm's effects overwhelmed healthcare systems and nurses from many member states were able to immediately assist those in need. In 2018, when Hurricane Florence left severe damage in South Carolina from rain, flooding, and high winds, DaVita Renal Dialysis Centers were in dire need of nurses. Thanks to South Carolina's membership in the compact, DaVita was able to recruit nurses from other NLC states without delay. A few weeks later, when flooding from Hurricane Michael forced at least one hospital in the state to evacuate, nurses from other member states were able to assist.

As of November 2019, 32 states had adopted the NLC, with Alabama's membership taking effect on January 1, 2020.[216] This was a net increase of one since 2018 and six since 2017. Karen C. Lyon, the chief executive officer of the Louisiana State Board of Nursing, which joined the compact on July 1, 2019, said that doing so was a "large step toward advancing professional nursing practice in Louisiana and surrounding states."[217]

TABLE 5: 32 States Participate in the Nurse Licensure Compact
Participants and nonparticipants, 2019

Participants			Nonparticipants	
Alabama	Louisiana	Oklahoma	Alaska	Nevada
Arizona	Maine	South Carolina	California	New Jersey
Arkansas	Maryland	South Dakota	Connecticut	New York
Colorado	Mississippi	Tennessee	District of Columbia	Ohio
Delaware	Missouri	Texas	Hawaii	Oregon
Florida	Montana	Utah	Illinois	Pennsylvania
Georgia	Nebraska	Virginia	Indiana	Rhode Island
Idaho	New Hampshire	West Virginia	Massachusetts	Vermont
Iowa	New Mexico	Wisconsin	Michigan	Washington
Kansas	North Carolina	Wyoming	Minnesota	
Kentucky	North Dakota			

Note: Alabama began implementing the NLC in January 2020. Indiana and New Jersey have joined the NLC but had not yet set a date for implementation, as of December 2019.

Source: National Council of State Boards of Nursing.[218]

INDICATOR 2: HOSPITAL PARTICIPATION IN HEALTHCARE COALITIONS

KEY FINDING: Widespread hospital participation in healthcare coalitions was common in 2017; only four states (California, New Hampshire, Ohio, and South Carolina) reported 70 percent or fewer of their hospitals participated in coalitions supported by the HHS Hospital Preparedness Program.

The federal Hospital Preparedness Program (HPP), which is managed by the HHS Office of the Assistant Secretary for Preparedness and Response, provides grants to states, localities, and territories to develop regional coalitions of healthcare organizations that collaborate to prepare for, and in many cases respond to, medical surge events.[219] Coalitions prepare members with critical tools, including medical equipment and supplies, real-time information, enhanced communication systems, and exercises and training for healthcare personnel.[220] A healthcare coalition must contain a minimum of two acute-care hospitals, emergency medical services, emergency management, and public health agencies.[221] HPP invests in local capacity to prepare for and respond to events, reducing jurisdictions' reliance on federal medical assets during disasters.

Broad and meaningful participation by hospitals in healthcare coalitions means that when disaster strikes, systems are in place to coordinate the response, freeing hospitals to focus on clinical care. For example, when a train derailed on the border of two counties and two coalitions in Washington state in December 2017, nine participating hospitals across three counties used a shared tracking system to streamline the documentation and distribution of 69 patients and to aid family reunification.[222] The Houston area's coalition, which comprises 25 counties that are home to 9.3 million people and 180 hospitals, coordinated activities, such as evacuations and patient transfers, during and after Hurricane Harvey in 2017.[223] After Hurricane Florence knocked out communication capabilities at a major regional hospital in North Carolina in 2018, the area coalition established a backup system within eight hours.[224]

On average, 89 percent of hospitals in states belonged to a healthcare coalition in 2017, with universal participation, meaning every hospital in the state was part of a coalition, in 17 states (Alaska, Colorado, Connecticut, Delaware, Hawaii, Louisiana, Minnesota, Mississippi, Nevada, North Dakota, Oregon, Rhode Island, South Dakota, Utah, Vermont, Virginia, and Washington) and the District of Columbia. (See Table 6.) However, some states, such as Ohio (25 percent) and New Hampshire (47 percent) lagged behind.

Recent events such as Hurricane Maria, the California wildfires, mass shootings, and even a severe seasonal flu season have exposed gaps in healthcare preparedness at the individual facility, coalition and systems levels.[225] Some major gaps in healthcare preparedness include pediatric surge capacity[226] and coordinating surge capacity across the healthcare system;[227] building and maintaining preparedness for high-consequence infectious diseases,[228] such as Ebola; burn capacity and other specialty care needed for emerging threats; ongoing stress on the healthcare system's ability to provide emergency care; preparedness of facilities that serve people at higher risk, such as long-term care facilities; and lack of training and preparedness for events in healthcare.[229] While healthcare coalitions can help address some of these vulnerabilities, systemwide approaches to preparedness are needed.

TABLE 6: Widespread Participation of Hospitals in Healthcare Coalitions

Percent of hospitals participating in healthcare coalitions, 2017

States	Percent of Participating Hospitals
AK, CO, CT, DC, DE, HI, LA, MN, MS, NV, ND, OR, RI, SD, UT, VT, VA, WA	**100%**
ID, WI	**98%**
GA, WV	**97%**
KS	**96%**
AL, NE, NC, OK	**95%**
ME	**94%**
KY	**93%**
WY	**92%**
TN	**91%**
MI	**90%**
MD	**89%**
IL	**88%**
MO	**87%**
NY, PA	**86%**
MT	**83%**
MA, NJ	**82%**
AR	**81%**
IA, TX	**80%**
IN	**75%**
FL	**73%**
AZ	**72%**
NM	**71%**
CA	**70%**
SC	**56%**
NH	**47%**
OH	**25%**

Note: This indicator measures participation by hospitals in healthcare coalitions supported through the federal Hospital Preparedness Program of the Office of the Assistant Secretary for Preparedness and Response. The latest data available are for participation in 2017.

Source: NHSPI analysis of data from the Office of the Assistant Secretary for Preparedness and Response, U.S. Department of Health and Human Services.[230]

INDICATORS 3 AND 4: ACCREDITATION

KEY FINDING: Most states are accredited by one or both of two well-regarded bodies—the Public Health Accreditation Board and the Emergency Management Accreditation Program—but nine are not accredited by either.

The Public Health Accreditation Board (PHAB), a nonprofit organization that administers the national public health accreditation program, advances quality within public health departments by providing a framework and a set of evidence-based standards against which they can measure their performance. Among standards with direct relevance to emergency preparedness are assurances of laboratory, epidemiologic, and environmental expertise to investigate and contain serious public health problems, policies, and procedures for urgent communications and maintenance of an all-hazards emergency operations plan.[231] Through the process of accreditation, health departments identify their strengths and weaknesses, increase their accountability and transparency, and improve their management processes, which all promote continuous quality improvement.[232]

Emergency management, as defined by the Emergency Management Accreditation Program (EMAP), encompasses all organizations in a given jurisdiction with emergency or disaster functions, which may include prevention, mitigation, preparedness, response, and recovery. The EMAP helps applicants ensure—though self-assessment, documentation, and peer review—that they meet national standards for emergency response capabilities.[233]

The PHAB and the EMAP each provide important mechanisms for improving evaluation and accountability. Accreditation by these entities demonstrates that a state's public health and emergency management systems are capable of effectively responding to a range of health threats. The priority capabilities that the PHAB and the EMAP test include identification, investigation, and mitigation of health hazards; a robust and competent workforce; incident, resource, and logistics management; and communications and community-engagement plans.[234,235] (States sometimes aim to meet applicable standards, but do not pursue accreditation.)

As of November 2019, both the PHAB and the EMAP accredited 28 states and the District of Columbia—an increase of three (Iowa, Louisiana, Pennsylvania) since October 2018—and an additional 13 states received accreditation from one or the other. (See Table 7.) "This is a very important milestone in our continued efforts to promote healthy lifestyles, prevent injury and disease, and assure the safe delivery of quality healthcare to Pennsylvanians," said Dr. Rachel Levine, Pennsylvania's secretary of health. "Public health is an ever-changing landscape. … We are committed to preparing for each of these concerns and also being aware of new potential issues that could affect the health of Pennsylvanians each day."[236]

Just nine states (Alaska, Hawaii, Indiana, Nevada, New Hampshire, South Dakota, Texas, West Virginia, and Wyoming) received no accreditation from either body. (Nevada was previously accredited by the EMAP.) This analysis includes state-level accreditations only, it does not include accredited local or tribal health departments. In some instances, local public health departments have an accreditation in states that may not have one.

TABLE 7: 41 States and the District of Columbia Accredited by the PHAB and/or EMAP

Accreditation status by state, November 2019

PHAB and EMAP			PHAB only	EMAP only	No Accreditation
Alabama	Iowa	New York	Delaware	Kentucky	Alaska
Arizona	Kansas	North Dakota	Georgia	Michigan	Hawaii
Arkansas	Louisiana	Ohio	Maine	North Carolina	Indiana
California	Maryland	Oklahoma	Minnesota	South Carolina	Nevada
Colorado	Massachusetts	Pennsylvania	Montana	Tennessee	New Hampshire
Connecticut	Mississippi	Rhode Island	Oregon	Virginia	South Dakota
District of Columbia	Missouri	Utah	Washington		Texas
Florida	Nebraska	Vermont			West Virginia
Idaho	New Jersey	Wisconsin			Wyoming
Illinois	New Mexico				
28 states + D.C.			**7 states**	**6 states**	**9 states**

Note: These indicators track accreditation by the PHAB and the EMAP. TFAH classified states with conditional or pending accreditation at the time of data collection as having no accreditation. States sometimes aim to meet applicable standards but do not pursue accreditation.

Sources: NHSPI analysis of data from the PHAB and the EMAP.[237]

INDICATOR 5: STATE PUBLIC HEALTH FUNDING TRENDS

KEY FINDING: Most states held their public health funding steady or increased it in fiscal year 2019, but 11 reduced funding.

Funding for public health programs that support the infrastructure and workforce needed to protect health—including the ability to detect, prevent, and control disease outbreaks and mitigate the health consequences of disasters—is a critical ingredient of preparedness. General public health capabilities—such as those pertaining to epidemiology, environmental hazard detection and control, infectious disease prevention and control, and risk communications—and targeted emergency response resources are necessary to ensure that officials maintain routine capabilities, and that surge capacity is readily available for emergencies. A trained and standing-ready public health workforce, and one that knows its community, is critical to the surge capacity that is so often necessary during an emergency.

According to the Public Health Activities and Services Tracking project at the University of Washington, state public health programming and services span six core areas:[238]

1. **Communicable disease control.** Public health services related to communicable disease epidemiology, hepatitis, HIV/AIDS, immunization, sexually transmitted diseases, tuberculosis, etc.
2. **Chronic disease prevention.** Public health services related to asthma, cancer, cardiovascular disease, diabetes, obesity, tobacco, etc.
3. **Injury prevention.** Public health services related to firearms, motor vehicles, occupational injuries, senior fall prevention, substance-use disorder, other intentional and unintentional injuries, etc.
4. **Environmental public health.** Public health services related to air and water quality, fish and shellfish, food safety, hazardous substances and sites, lead, onsite wastewater, solid and hazardous waste, zoonotic diseases, etc.
5. **Maternal, child, and family health.** Public health services related to the coordination of services; direct service; family planning; newborn screening; population-based maternal, child, and family health; supplemental nutrition; etc.
6. **Access to and linkage with clinical care.** Public health services related to beneficiary eligibility determination, provider or facility licensing, etc.

The overall infrastructure of public health programming supports states' ability to carry out emergency responsibilities. But public health funding is typically discretionary, making it vulnerable to neglect or retrenchment, especially when times are tight. This can undermine emergency preparedness activities and weaken response and recovery efforts.

Fortunately, most states (39) and the District of Columbia maintained or increased public health funding in fiscal year 2019. (See Table 8.) But 11 states reduced the money they directed to these vital activities, increasing the likelihood that they will be less prepared and less responsive in the moments that matter most. Nevertheless, this was a notable improvement over fiscal year 2018, when public health funding was cut in 17 states and the District of Columbia. (This indicator does not assess the adequacy of states' public health funding.)

TABLE 8: State Public Health Funding Held Stable or Increased in 39 states and DC

Public Health Funding, by state FY 2018 - 2019

State	Percentage Change
Alabama	-5%
Alaska	1%
Arizona	2%
Arkansas	-3%
California	10%
Colorado	3%
Connecticut	4%
Delaware	2%
District of Columbia	10%
Florida	1%
Georgia	2%
Hawaii	6%
Idaho	-3%
Illinois	16%
Indiana	5%
Iowa	-1%
Kansas	9%
Kentucky	4%
Louisiana	3%
Maine	3%
Maryland	2%
Massachusetts	10%
Michigan	17%
Minnesota	7%
Mississippi	8%
Missouri	1%
Montana	-3%
Nebraska	-4%
Nevada	40%
New Hampshire	-6%
New Jersey	3%
New Mexico	3%
New York	-1%
North Carolina	-2%
North Dakota	9%
Ohio	7%
Oklahoma	12%
Oregon	27%
Pennsylvania	2%
Rhode Island	9%
South Carolina	5%
South Dakota	2%
Tennessee	4%
Texas	8%
Utah	0%
Vermont	4%
Virginia	4%
Washington	1%
West Virginia	-2%
Wisconsin	0%
Wyoming	-6%

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Note: Nebraska's year-over-year change incorporates a modification to its accounting methodology—some funds were previously double-counted—that the state was unable to apply retroactively to fiscal 2018. North Dakota's fiscal 2019 funding combines funds for the Department of Health and the Department of Environmental Quality, which were separated, beginning in fiscal 2019. Owing to differences in organizational responsibilities and budgeting, funding data are not necessarily comparable across states. See "Appendix A: Methodology" for a description of TFAH's data-collection process, including its definition of public health funding.

Source: TFAH analysis of states' public funding data.

INDICATOR 6: COMMUNITY WATER SYSTEM SAFETY

KEY FINDING: Few Americans drink from community water systems that are in violation of applicable health-based standards required by the Safe Drinking Water Act. But room for improvement remains.

Access to safe water is essential for consumption, sanitation, and the efficient operation of the healthcare system. In the United States, the vast majority of the population gets water from a public water system, and the EPA sets legal limits on contaminants in drinking water, including microorganisms, disinfectants and their by-products, chemicals, and radionuclides;[239] the EPA also requires states to periodically report drinking-water quality information.[240] Water systems must report any violations, such as failing to follow established monitoring and reporting schedules, failing to comply with mandated treatment techniques, violating any maximum contaminant levels, and failing to meet customer-notification requirements.[241]

The United States has one of the safest public drinking-water supplies in the world, but some communities, particularly low-income communities, are at greater risk for lack of access to safe water. When water safety issues occur, it can require a multisector emergency response, as well as a long-term public health response. The most prominent water-contamination crisis in recent years occurred in Flint, Michigan, where a 2014 change in water supply caused distribution pipes to corrode and to leach lead and other contaminants into the drinking water. Tens of thousands of residents, including young children, have been exposed to high levels of lead and other toxins.[242] In 2019, residents of Newark, New Jersey, had to rely on bottled water due to high levels of lead in their tap water.[243] In children, even low levels of exposure can damage the nervous system and contribute to learning disabilities, shorter stature, hearing loss, and impaired formation and function of blood cells.[244] These incidents could have long-term consequences on the health and brain development of children, as well as the mental health and trust of the community.

Other water-related emergencies and concerns in the United States include harmful algal blooms,[245] which impact the safety of seafood, damage the economies of affected communities, increase the presence of toxic chemicals like per- and polyfluoroalkyl substances, and reduce the availability of clean water during power outages,[246] a particular concern in rural areas where smaller utilities may not have enough backup power to meet the demands of the water and sewage services. Water shortages can have a particularly dire impact on healthcare systems, which rely on clean water for many procedures and hygiene practices.

According to the EPA, across the nation, 7 percent of state residents on average used a community water system in 2018 that failed to meet all applicable health-based standards, up slightly from 2017. That share was 0 to 1 percent in Arizona, Colorado, Delaware, Florida, Hawaii, Idaho, Illinois, Maine, Maryland, Minnesota, Missouri, Nevada, South Dakota, Vermont, Washington, and Wyoming. (See Table 9.) But in six states (Louisiana, New York, North Dakota, Oregon, Rhode Island, and West Virginia), more than 15 percent of residents used a community water system with health-based violations. These data do not include water safety on Indian reservations.

It is important to note that the EPA estimates that about 13 million American households get their drinking water from private wells.[247] The data reported by this indicator do not reflect the quality of the drinking water used by those households.

TABLE 9: Few Americans Used Contaminated Community Water Systems

Percent of state populations who used a community water system in violation of health-based standards, 2018

States	Percent of Population
HI, MO, NV	0%
AZ, CO, DE, FL, ID, IL, ME, MD, MN, SD, VT, WA, WY	1%
IN, NC, OH, SC, UT, VA	2%
AL, CT, IA, MI, NE, NH, TN	3%
DC, WI	5%
AR	6%
AK, MS, TX	7%
GA, KS, MT, NM	8%
KY	10%
MA, NJ	11%
CA	12%
OK, PA	13%
LA, ND, OR, WV	16%
RI	38%
NY	45%

Note: Some state residents use private drinking-water supplies, rather than community water systems. These data do not capture private supplies. Only regulated contaminants are measured.

According to health officials in New York, a drinking water system in New York City is in violation because of an uncovered reservoir, but it has no current violations with respect to contaminants.

Source: NHSPI analysis of data from the EPA.[248]

INDICATOR 7: ACCESS TO PAID TIME OFF

KEY FINDING: Just over half of workers in states, on average, had some type of paid time off (for example, sick leave, vacation, holidays) in 2019. Most states were closely clustered to that midpoint, with few outliers.

When workers without paid leave get sick, they face the choice of going to work and potentially infecting others or staying home and losing pay—or even their jobs. Similarly, when workers without paid leave have children who get sick, they face the choice of sending their sick child to school and potentially infecting others or, again, staying home with their child and losing pay or even their jobs. Furthermore, paid time off to care for a child has been associated with reductions in infant mortality, low birth weight, and premature birth. Therefore, paid time off, especially dedicated paid sick leave, can strengthen infection control and resilience in communities by reducing the spread of contagious diseases and bolstering workers' financial security. This is particularly important for industries and occupations that require frequent contact with the public. For example, people working in the food-service and childcare industries commonly have no paid sick leave.[249] This often leads service employees to work throughout a bout of the flu or return to work before their symptoms have fully subsided, when one or two days off could have dramatically reduced workplace infections.[250,251] At a societal level, flu rates have been shown to be lower in cities and states that mandate paid sick leave.[252,253] When employees who previously did not have access are granted paid or unpaid sick leave, rates of flu infections decreased by 10 percent.[254]

Paid time off also increases access to preventive care among workers and their families, including routine checkups, screenings, and immunizations. Delaying or skipping such care can result in poor health outcomes and can ultimately lead to costlier treatments. Workers without paid sick days are less likely to get a flu shot, and their children are less likely to receive routine checkups, dental care, and flu shots.[255] Lack of paid sick days can disproportionately impact lower-income workers.

In 2019, 55 percent of workers in states, on average, had some type of paid time off—the same percentage as in 2018—according to the Current Population Survey, which is sponsored jointly by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics.[256] Connecticut (64 percent), the District of Columbia (65 percent), Oregon (63 percent), and Texas (68 percent) stood out as states where relatively high percentages of workers had such benefits, whereas fewer workers had them in Arkansas (45 percent), South Carolina (45 percent), South Dakota (44 percent), Utah (45 percent), and Wyoming (47 percent).[257] (See Table 10.)

An important question is what policies lead to a higher percentage of workers having access to paid time off? More research is needed to fully answer this question, as no single explanation is known. For example, Connecticut and Maryland, two states in the top quadrant, have laws requiring paid sick leave.[258] However, as of May 2019, Texas and Mississippi, also in the top quadrant (Texas ranking at the top), did not, though large cities such as Austin, Dallas, and San Antonio had enacted such requirements. Some states have a disproportionate number of employers who offer paid time off. For example, a large share of Mississippi's workforce is employed by the military or other government (federal, state and local) entities.[259]

TABLE 10: 55 Percent of Workers, On Average, Received Paid Time Off

Percent of employed population with paid time off, 2019

States	Percent of Workers
TX	68%
DC	65%
CT	64%
MS, OR	63%
MD, NM, NY	61%
AK, IA, WA	60%
GA, HI, MA	59%
MT, VA	58%
NE	57%
CA, CO, KS, RI, VT, WI	56%
AL, IL, NV, OK, WV	55%
FL, NH	54%
LA, MO, TN	53%
MN, NJ	52%
ID, ME, NC, ND, PA	51%
IN	50%
MI, OH	49%
AZ, DE, KY	48%
WY	47%
AR, SC, UT	45%
SD	44%

Note: Paid time off includes sick leave, vacations, and holidays. Data are estimated based on a survey of a sample of the general population.

Source: NHSPI analysis of data from the Annual Social and Economic Supplement of the Current Population Survey.[260]

INDICATOR 8: FLU VACCINATION RATE

KEY FINDING: Flu vaccination coverage rose for the 2018–2019 season, with a greater share of every age group analyzed receiving a vaccine. Overall, 49 percent of U.S. residents ages 6 months and older received vaccinations—still well below the overall target level of 70 percent of the population vaccinated annually.

Vaccination is the best prevention against the seasonal flu. The CDC recommends that, with few exceptions, everyone ages 6 months and older get vaccinated annually; yet, year after year, even with a steady increase among adults over the past three decades, coverage estimates indicate that less than half of Americans do.[261] *Healthy People 2020* sets federal 10-year benchmarks for improving the health of all Americans including an overall seasonal influenza vaccination-rate target of 70 percent annually.[262] The 2017–2018 flu season in the United States was the deadliest in nearly 40 years; it is estimated that more than 800,000 people were hospitalized, and about 61,000 people died—tragically underscoring the importance of annual vaccination.[263]

Vaccination is particularly important for people at high risk of severe flu-related illnesses, including young children – especially those with special healthcare needs, pregnant women, people with certain chronic health conditions, and older adults. In addition to protecting Americans from the seasonal flu, establishing a cultural norm of vaccination, building vaccination infrastructure, and establishing policies that support vaccinations can help prepare the country to vaccinate all Americans quickly during a pandemic or disease outbreak.

Under the Affordable Care Act, all routine vaccines recommended by the Advisory Committee on Immunization Practices, including flu vaccines, are fully covered when provided by in-network providers, except in states that have not expanded their Medicaid programs in accordance with the law. Some barriers to flu vaccination may include a belief that the vaccine does

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not work very well; misconceptions about the safety of the vaccine;[264] or a belief that the flu does not carry serious risks.[265] State laws may also make it more difficult for parents to get their children vaccinated by a pharmacist—three states do not allow children to get flu vaccines at a pharmacy and 23 states and the District of Columbia have age restrictions,[266] while 12 states also require a physician's prescription.

During the 2018–2019 flu season, 49 percent of residents ages 6 months or older were vaccinated, according to the CDC. This rate was up substantially from 42 percent during the 2017-2018 flu season. The CDC cautioned that the increase might be due, in part, to limitations in its data collection process.[237] Another possible explanation is the increased awareness of the public, clinicians, and public health officials about the importance of vaccination due to the high number of illnesses and deaths the year prior.

Across the country, states have taken noteworthy actions. For example, during the 2018-2019 flu season, the Tennessee Department of Health organized statewide Fight Flu TN events with vaccination clinics, and this year it launched a statewide media campaign.[267] The state's flu vaccination rate (age 6 months or older) increased from 36.4 percent during the 2017-2018 flu season to 48.2 percent during the 2018-2019 season. Indiana's Department of Health has also engaged in focused efforts to increase vaccination rates, particularly among people who are uninsured or underinsured. One way it has done this is by partnering with local health departments and pharmacies to provide vaccinations, and by working with the Indiana Immunization Coalition to create education and outreach materials and social media messaging.[268] Indiana's flu vaccination rate (6 months or older) improved from 37.0 percent for the 2017-2018 flu season to 47.9 percent for the 2018-2019 season.

Rhode Island (60 percent), Massachusetts (59 percent), Maryland (57 percent), and Connecticut (57 percent) had the highest coverage, while vaccination rates were lowest in Nevada (38 percent), Wyoming (41 percent), Florida (41 percent), Louisiana (42 percent), and Mississippi (42 percent). (Data were not available for the District of Columbia or New Jersey.) (See Table 11.)

Children, particularly young children, were more likely to receive vaccinations than were adults. Nearly 63 percent of those ages 6 months to 17 years received vaccinations in 2018–2019, compared with just 45 percent of adults.[269]

TABLE 11: Less than Half of Americans Received a Seasonal Flu Vaccination
States seasonal flu vaccination rates for people ages 6 months and older, 2018–2019

State	Vaccination Rate, Ages 6 Months or Older
Rhode Island	60.4
Massachusetts	58.9
Maryland	57.1
Connecticut	56.8
North Carolina	54.9
Iowa	54.8
Virginia	54.7
South Dakota	54.4
Nebraska	54.2
Pennsylvania	54.2
Washington	53.8
Minnesota	52.7
New Hampshire	52
New York	51.9
Vermont	51.9
Colorado	51.6
Oklahoma	51.3
North Dakota	51.1
Wisconsin	50.9
Delaware	50.7
Kansas	50.7
Ohio	50.4
Hawaii	50.2
Missouri	50
New Mexico	49.9
Kentucky	49.6
Arkansas	48.8
Maine	48.8
Montana	48.7
Alabama	48.3
Oregon	48.3
Tennessee	48.2
West Virginia	48.2
Indiana	47.9
Texas	47.9
California	47.4
South Carolina	46.8
Michigan	46.1
Utah	45.9
Arizona	45.6
Illinois	45.4
Alaska	44.1
Idaho	43.6
Georgia	43.1
Mississippi	42
Louisiana	41.6
Florida	40.9
Wyoming	40.7
Nevada	37.8
District of Columbia	No data reported
New Jersey	No data reported

Note: Data are calculated from a survey sample, with a corresponding sampling error. Adult data were not publicly reported for the District of Columbia or New Jersey.

Source: Centers for Disease Control and Prevention.[270,271]

INDICATOR 9: PATIENT SAFETY IN HOSPITALS

KEY FINDING: On average, 30 percent of hospitals received an "A" grade in the fall 2019 hospital safety assessment administered by the Leapfrog Group, a nonprofit advocate for safety, quality, and transparency in hospitals.

Every year, hundreds of thousands of people die from hospital errors, injuries, accidents, and infections, collectively making such incidents a leading cause of death in the United States.[272,273] Keeping hospital patients safe from preventable harm is an important element of preparedness; those hospitals that excel in safety are less likely to cause or contribute to a public health emergency and are better positioned to handle any public health emergencies that put routine quality standards to the test.

The Leapfrog Group calculates the Hospital Safety Score by using 28 evidence-based metrics that measure the success of healthcare processes and outcomes. The measures track such issues as healthcare-associated infection rates, the number of available beds and qualified staff in intensive-care units, patients' assessments of staff communications and responsiveness, and a hospital's overall culture of error prevention.[274] These measures are especially critical for health systems' readiness for emergencies and outbreak prevention and control, which includes workforce training and availability, surge capacity, and infection-control practices.

In the Leapfrog Group's fall 2019 assessment, 30 percent of general acute-care hospitals across the United States, on average, met the requirements for an "A" grade—a slight increase from fall 2018, when the share was 28 percent. But results varied widely state to state, from no hospitals in Alaska, North Dakota, or Wyoming receiving the top score, to a majority of hospitals doing so in Maine (59 percent), Utah (56 percent), and Virginia (56 percent). (See Table 12.)

TABLE 12: Hospital Patient Safety Scores Vary Significantly by State
States percentage of hospitals with "A" grade, fall 2019

State	Percent of Hospitals
Maine	59%
Utah	56%
Virginia	56%
Oregon	48%
North Carolina	47%
Pennsylvania	46%
Idaho	45%
New Jersey	45%
Montana	44%
Rhode Island	43%
Illinois	43%
Massachusetts	42%
Michigan	41%
Ohio	39%
Wisconsin	38%
Texas	38%
Connecticut	38%
South Carolina	37%
Florida	37%
Colorado	36%
California	35%
Tennessee	34%
Delaware	33%
Vermont	33%
Washington	33%
Mississippi	31%
Louisiana	31%
New Hampshire	31%
Missouri	28%
Kansas	27%
Nevada	26%
Arizona	26%
Kentucky	26%
Georgia	26%
Hawaii	25%
Oklahoma	25%
Minnesota	23%
Alabama	23%
Maryland	23%
District of Columbia	20%
Indiana	17%
Arkansas	14%
Nebraska	13%
New Mexico	12%
South Dakota	10%
Iowa	9%
New York	7%
West Virginia	5%
Alaska	0%
North Dakota	0%
Wyoming	0%

Note: This measure captures only general acute-care hospitals.
Source: The Leapfrog Group[275]

INDICATOR 10: STATE PUBLIC HEALTH LABORATORY SURGE CAPACITY

KEY FINDING: Virtually every state reported having a plan in 2019 for a six- to eight-week surge in laboratory-testing capacity to respond to an outbreak or other public health event.

Public health laboratories are essential to emergency response and effective disease surveillance systems. They help detect and diagnose health threats as they emerge, and they track and monitor the spread of those threats, which can help public health officials learn how to control them. Public health labs exist in every state and territory and are the backbone of the Laboratory Response Network (LRN), a national network of laboratories that provide the infrastructure and capacity to respond to public health emergencies.[276]

When a disaster or disease outbreak strikes, public health laboratories must be able to surge to meet increased demand, just like hospitals and other responders. The Association of Public Health Laboratories defines internal surge capacity as a "sudden and sustained increase in the volume of testing that a LRN reference laboratory can perform in an emergency situation, implementing substantial operational changes as defined in laboratory emergency response plans and using all resources available within the laboratory."[277] Surging capacity can require staff movement or reassignment, extra shifts, and hiring. Labs also have to plan for infrastructure factors, such as sufficient biological safety cabinets and chemical fume hoods; amount and type of supplies; space for intake, processing, and storage of samples; versatility and capacity of analytical equipment and instruments; personal protective equipment; and power supply.[278]

Some challenges to the effectiveness of public health laboratory preparedness include funding gaps, workforce shortages, a lack of standardized platforms to exchange data electronically, and a limited ability to detect radiological, nuclear, and chemical threats.[279]

In 2019, the District of Columbia and all states except Utah and Vermont reported to the Association of Public Health Laboratories that they had a plan for a six- to eight-week surge in testing capacity, a net increase of four since 2017 and 2018. (See Table 13.) This indicator tracks only the existence of a plan, not its quality or comprehensiveness, or the frequency in which it is used or tested.

TABLE 13: Nearly Every State Planned for a Laboratory Surge
State public health laboratories had a plan for a six- to eight-week surge in testing capacity, 2019

Had a Plan				No Plan
Alabama	Illinois	Montana	Rhode Island	Utah
Alaska	Indiana	Nebraska	South Carolina	Vermont
Arkansas	Iowa	Nevada	South Dakota	
Arizona	Kansas	New Hampshire	Tennessee	
California	Kentucky	New Jersey	Texas	
Colorado	Louisiana	New Mexico	Virginia	
Connecticut	Maine	New York	Washington	
Delaware	Maryland	North Carolina	West Virginia	
District of Columbia	Massachusetts	North Dakota	Wisconsin	
Florida	Michigan	Ohio	Wyoming	
Georgia	Minnesota	Oklahoma		
Hawaii	Mississippi	Oregon		
Idaho	Missouri	Pennsylvania		

Note: The last edition of Ready or Not (2019) reported on states' plans in 2017. In 2018, Arkansas, Montana, Oregon, Utah, Vermont, and West Virginia reported that they did not have a plan for a six- to eight-week surge in testing capacity.

Source: Association of Public Health Laboratories.[280]

Recommendations for Policy Actions

Saving lives during a disaster or disease outbreak requires a proactive approach. As public health emergencies become more frequent, it becomes more urgent for all jurisdictions to have the underlying capacity, policies and people in place to prepare for, mitigate and recover from such emergencies. Effective preparedness and response also require a multipronged, multisector approach. No single entity or agency will improve the nation's preparedness on its own: cross-sector coordination, ongoing investment, and community engagement need to be high priorities at the federal, state and local level. TFAH's policy recommendations are based on the organization's research and analysis, consultation with experts, and a review of progress and gaps in federal and state preparedness policies and programs.

TFAH offers the following recommendations for federal, state and local policymakers and other stakeholders to improve readiness:

Priority Area 1: Provide Stable, Sufficient Funding for Domestic and Global Public Health Security

Despite growing health risks from preventable outbreaks, emerging infectious diseases and extreme weather, investment in health security remains relatively stagnant. The Public Health Leadership Forum estimates a $4.5 billion annual shortfall in the spending necessary to achieve comprehensive public health capabilities across the nation.[281] Funding for the Public Health Emergency Preparedness cooperative agreement, the main source of funding for health departments to build capabilities to effectively respond to a range of public health threats, has been cut by over 20 percent since fiscal year 2010, adjusting for inflation.[282] The HPP, the only federal source of funding to help the healthcare delivery system prepare for and respond to disasters, has been cut by 46.5 percent over the same time period, after adjusting for inflation.[283] Insufficient funding leads to higher public health workforce turnover and an inability to modernize to face new threats.[284] The United States simply cannot sustain the level of preparedness its residents expect if the nation fails to adequately invest in its health security infrastructure every year.

RECOMMENDATIONS FOR FEDERAL GOVERNMENT:

- **Invest in cross-cutting public health foundational capabilities and preparedness programs.** Strong foundational capabilities would improve the protection of all communities during emergencies. However, a nationwide funding shortage prevents health departments from developing and maintaining these cross-cutting capabilities, and health departments receive very little funding that is not tied to specific diseases or categories. Congress should invest in cross-cutting public health capabilities and increase funding for specific programs that support health security, including the Public Health Emergency Preparedness cooperative agreement and the HPP. These state and local preparedness programs have demonstrated their value by saving lives, improving the speed and quality of response, and ensuring that local authorities can adequately respond to most local health emergencies and outbreaks without federal assistance.

- **Revamp public health data capabilities.** One of the most foundational capabilities, affecting nearly every aspect of public health, is disease surveillance. Yet, some health departments are still dependent on 20th-century methods—such as phone and fax—for disease reporting.[285] These archaic methods delay the identification of and response to outbreaks, endangering lives. A 21st-century public health data initiative is necessary to transform the systems and workforce into a state-of-the-art, secure, and fully interoperable system. Congress appropriated a down payment on data modernization in FY20 and should provide at least $100 million in the next year to build upon these new investments to transform CDC, state, local, tribal, and territorial data systems and should increase funding for the Epidemiology and Laboratory Capacity Cooperative Agreement. Congress also directed CDC to release a five-year budget plan: this plan should include a strategic vision and multiyear budget estimate for the funding needed to upgrade bio-surveillance capacity and interoperability, to reduce and integrate siloed surveillance systems, and to invest in state and local capacity to adapt to updated systems.

- **Accelerate crisis responses through a standing public health emergency response fund and faster supplemental funding.** In public health emergencies, the response may overwhelm health departments and other response entities beyond existing resources, and there is often a lag between when resources are needed and the congressional approval of supplemental appropriations to provide such resources. In addition to stable core funding, the federal government needs readily available funds on hand to enable a rapid response while Congress assesses the need for supplemental funding. Congress should continue a no-year infusion of funds into the Public Health Emergency Rapid Response Fund or the Infectious Disease Rapid Response Fund to serve as available funding that would provide a temporary bridge between preparedness and supplemental emergency funds. Congress should replenish such funding on an annual basis, and it should not come from existing preparedness resources, as response capacity cannot substitute for adequate readiness. The HHS Secretary should only use such funding for acute emergencies that require a rapid response to save lives and protect the public. Some emergencies may also require emergency supplemental funding, as the H1N1 or Zika outbreaks did; Congress should take these public health emergencies seriously by quickly allocating supplemental funding when necessary for extraordinary events.

- **Enable efficient use of emergency funding.** Congress may allocate emergency funding following an event to multiple federal agencies. However, differing agency policies and practices can impede the coordination of funding across agencies. This can lead to disconnected and less effective emergency responses on the ground. To prevent this inefficiency, policymakers should adopt practices that allow for braiding funding from various sources to support a single initiative or strategy at the state, community, or program level. Braided funds remain in separate and distinguishable strands for tracking purposes but can have coordinated application processes and funding cycles, jointly funded line items, and uniform reporting mechanisms. The Office of Management and Budget, HHS, and FEMA should allow waivers of regulatory or administrative requirements to awardees of emergency response funding to allow funding braiding, to encourage coordination between programs and funding streams with similar goals, to provide flexibility to best meet the needs of the affected populations, and to increase efficiencies and reduce administrative duplication, such as in grant reporting.

- **Demonstrate a long-term commitment to global health security.** In September, the Global Preparedness Monitoring Board warned that the world is dangerously unprepared for a serious pandemic,[286] and the Global Health Security Index found that none of the 195 nations assessed were fully prepared for pandemics or epidemics.[287] The international donor community must help develop the core health security capacity of other countries to prevent and contain the threat of health emergencies. Congress should solidify America's role as a global health leader, commit to implementing the Global Health Security Strategy,[288] and provide sustained annual funding for global health security programs across HHS, including CDC, and The U.S. Agency for International Development.

Priority Area 2: Prevent Outbreaks and Pandemics

Infectious diseases represent a threat to the health, safety, and economic and social stability of the country. A deadly pandemic could upend the nation's social fabric through lives lost and economic instability. Estimates show that pandemics are likely to cost $6 trillion in the next century, with an expected annual loss of more than $60 billion for potential pandemics.[289] And there is evidence that the threat of a global pandemic is growing due to urbanization, global travel, and environmental degradation.[290] Yet, the nation's prevention of everyday outbreaks betrays weaknesses in the nation's defenses: seasonal influenza vaccination rates remain low, vaccine-preventable outbreaks are becoming more frequent, and antibiotic resistance kills thousands of Americans every year. In order to save lives and prepare for the next pandemic, the United States must address preventable ongoing infectious disease threats through infrastructure, policy, and innovation.

RECOMMENDATIONS FOR FEDERAL GOVERNMENT, HEALTHCARE, AND AGRICULTURE:

- **Support the vaccine infrastructure.** CDC's immunization program supports state and local immunization systems to increase vaccine rates among uninsured and underinsured adults and children, to respond to outbreaks, to educate the public, to target hard-to-reach populations, to improve vaccine confidence, to establish partnerships, and to improve information systems. Funding has not kept up with needs as states have to spend immunization dollars to respond to outbreaks,[291] deal with increases in the numbers of residents who lack health insurance,[292] and attempt to manage the impact of vaccine underutilization, including HPV and flu vaccines. Congress should increase funding for CDC's immunization program, which supports state and local infrastructure, outbreak prevention, and response, as well as the seasonal influenza program. Congress should also provide needed resources to the HHS to study the causes of vaccine resistance and to educate clinical providers on methods for improving vaccine acceptance. Several legislative proposals, including the VACCINES Act[293] and Lower Health Care Costs Act[294] included such provisions in 2019 to better promote vaccine acceptance.

- **Ensure first-dollar coverage for recommended vaccines under Medicaid, Medicare, and commercial insurance.** Public and private payers should ensure that vaccines recommended by the Advisory Committee on Immunization Practices (ACIP) are fully covered, as cost sharing, such as co-pays, can be a significant barrier to vaccination.[295] Congress should require zero cost sharing in Medicare Part D and B plans, and CMS should incentivize Part D plans to eliminate cost sharing and increase receipt of vaccines.[296] An example of legislation that takes steps to improve senior vaccination rates is the Protecting Seniors Through Immunization Act. CMS should encourage state Medicaid plans in states that have not expanded Medicaid to cover all ACIP-recommended vaccines without cost sharing.[297]

- **Significantly increase investments in public health initiatives to combat antimicrobial resistance.** Congress should increase funding for innovative methods of detecting and containing outbreaks supported by the Antibiotic Resistance Solutions Initiative at the CDC. CDC is investing in every state to strengthen lab capacity, track infections across healthcare systems, detect new threats and disrupt pathogens, coordinate prevention strategies, educate healthcare providers on appropriate antibiotic use, and advocate for other innovations. These investments have already had an impact, helping contribute to an 18 percent reduction in deaths from resistant infections since 2013.[298] However, progress varies across states. In addition, increases in funding are needed to build global capacity to prevent and detect resistant infections and combat this threat to national security.

- **Create incentives for discovery of new products to fight resistant infections.** There should be robust public/private investment in antibiotic discovery science, diagnostics, early stage product development, and research through the Biomedical Advanced Research and Development Authority, Combating Antibiotic-Resistant Bacteria Biopharmaceutical Accelerator, and other programs. The HHS should enable additional Medicare reimbursement solutions that come closer to covering the cost of new antibiotics for patients who need them without posing hurdles for appropriate prescribing. Stakeholders, including payers, should continue to work toward decoupling antibiotic reimbursement from drug sales so that drug developers have an incentive to innovate, despite efforts to conserve antibiotics.

- **Eliminate overuse of antibiotics in agriculture.** The FDA should enforce rules regarding veterinary oversight and the judicious use of antibiotics in food animals, ensure data collection and publication, promote antibiotic stewardship programs, and track the impact of these policies on resistance patterns. Farmers and the food industry should stop using medically important antibiotics to promote growth and prevent disease in healthy animals, as recommended by the WHO,[299] and they should invest in research to develop and adopt husbandry practices that reduce the need for routine antibiotics.
- **Decrease over-prescription of antibiotics through implementation of antibiotic stewardship and antibiotic-use reporting.** The CDC estimates that improving prescribing practices and preventing infections could save 37,000 lives over five years.[300] CMS should finalize, implement, and enforce requirements for all CMS-enrolled facilities to have effective antibiotic stewardship programs that align with the CDC's Core Elements guidance and to work with public health stakeholders to track progress in prescribing rates and resistance patterns.[301] All relevant facilities must drastically improve their reporting of antibiotic use and resistance through the National Healthcare Safety Network and should adopt stewardship programs that meet the CDC's Core Elements.[302]
- **Modernize food safety practices and policies and work toward better coordination across agencies.** Congress and state lawmakers should devote sufficient funding to implementing and enforcing the FDA's Food Safety Modernization Act to improve prevention and detection of outbreaks. Recent foodborne illness outbreaks have demonstrated challenges to the FDA's ability to quickly identify contaminated food products. The agency must do more to help establish effective food-product traceability systems, including guidance for the food industry.
- **Fund CDC to support state and local public health laboratories.** CDC should be sufficiently funded to support state and local public health laboratories at levels which would allow them to conduct active surveillance of foodborne pathogens; currently, the ELC grant is only funding approximately half of what is requested by laboratories and health department epidemiologists nationwide.

RECOMMENDATIONS FOR FEDERAL AND STATE GOVERNMENT:

- **Provide job-protected paid sick leave.** Earned paid sick leave is an important infection-control measure, protecting both workers and customers. Workers without earned sick leave are less likely to use preventive healthcare services, such as flu vaccinations, and workers are more likely to go to work or send their children to school when sick.[303] Congress should pass a federal paid sick days law, and states should ensure effective implementation by passing paid sick days laws and/or removing preemption exemptions.
- **Provide comprehensive syringe-access programs.** Congress and states should fund comprehensive syringe-service programs, which are among the most effective and scientifically based methods for reducing the rate of infectious diseases like Hepatitis B, Hepatitis C, and HIV.[304,305] All states should authorize syringe-access programs and remove barriers to those programs like drug-paraphernalia laws. Experts estimate that there would be a return on investment of as much as $7.58 for every $1 spent on syringe-access programs due to averted HIV treatment costs.[306]
- **Minimize state vaccine exemptions for schoolchildren and healthcare workers.** States should enact policies that enable universal childhood vaccinations to ensure children, their classmates, educators, and the general public are protected from vaccine-preventable diseases. This includes eliminating nonmedical exemptions and opposing legislation to expand exemptions.[307] States should ensure medical vaccine exemptions are only given when appropriate and are not used as a de facto personal-belief exemption in states where those exemptions have been eliminated. States should require healthcare personnel to receive all ACIP-recommended vaccinations in order to protect staff and patients, assure continuity of operations in the event of an outbreak, and achieve necessary healthcare infection control. Healthcare facilities should ensure access to vaccines for all staff and contractors and should remove barriers to staff receiving vaccines.

Priority Area 3: Build Resilient Communities and Promote Health Equity in Preparedness

Social, economic, and health disparities impact how people within specific communities experience disasters and how quickly they are able to recover. Addressing underlying inequities and intentionally and meaningfully engaging with the people and communities most likely to be impacted throughout the emergency planning process are critical to reducing vulnerability and ensuring that all receive appropriate services, regardless of circumstance. Policymakers and public health officials cannot assume that preparing for the entire community means applying a uniform approach to all neighborhoods and members of the community. Some communities have taken steps to integrate principles of equity throughout public health emergency activities,[308] but more needs to be done.

RECOMMENDATIONS FOR FEDERAL, STATE, AND LOCAL GOVERNMENT

- **Invest in policies and capacity to address the social determinants of health.** People at highest risk during disasters and those who have the hardest time recovering are often those with unstable housing, those with limited access to transportation, and those who live in low-socioeconomic-status communities.[309] State and local emergency planners should consult tools like the Social Vulnerability Index to understand and mitigate disparities that place some people at greater risk during disasters.[310]
- **Empower communities to enhance equity and resilience before, during, and after an event.** Federal grant makers and states should ensure that grants and sub-awards reach the grassroots level and communities most in need. Such funding and technical assistance should focus on capacity building for community-based organizations, providing community leaders the opportunity to fully participate in planning activities, allowing organizations to hire and engage community members so emergency plans better reflect the community, and ensuring that data collection reflects social determinants and demographic factors and that data are available for all communities.

RECOMMENDATIONS FOR STATE AND LOCAL GOVERNMENT AND COMMUNITY LEADERS:

- **State and local governments should build health equity leadership and adopt strategies to incorporate equity into preparedness.** All state and local governments, including health departments, should build up internal infrastructure to drive equity, including identifying a chief health equity or health resilience officer. Health equity and emergency preparedness officials should work across programs to incorporate equity issues and goals into preparedness policies and plans;[311] to improve staff capacity to understand how the legacies of discrimination, current-day racial trauma, and other structural inequities affect disaster resilience and recovery; and to collect and leverage data to identify unique community assets and advance equity before and during events.
- **Address behavioral health resource gaps and incorporate mental health first-aid and long-term behavioral health treatment into disaster response and recovery strategies.** Emergencies can exacerbate existing mental and behavioral health concerns, disrupt access to ongoing care, increase risk for domestic violence, and cause long-term anxiety, post-traumatic stress, and other issues. Young children and people with pre-existing mental disorders are at particular risk for mental health issues following a disaster.[312] State and local emergency and public health planners should incorporate immediate and long-term behavioral health needs into disaster plans, as required by the Pandemic and All-Hazards Preparedness and Advancing Innovation Act.[313]
- **Ensure access to care for people at disproportionate risk.** States, insurers, and HHS should employ waivers when needed to ensure all residents who need care are able to access it following a disaster, regardless of proof of insurance or if evacuations force a resident out of network over state lines. All localities should undertake community and subpopulation risk- and asset-assessment training before an emergency happens and invest resources in communities at the greatest risk. Additionally, localities should ensure that staffing and protocols are such that they reflect the diversity of and are relevant to the community they serve.
- **Plan with communities, not for them.** Local emergency planners must conduct meaningful engagement (such as by ensuring response teams mirror and are engaged with the community) as well as ongoing inclusion and hiring of community members (especially from communities typically at higher risk in disasters) in emergency planning. Officials should establish relationships with services and organizations that serve these populations before emergencies take place. Health departments and emergency management agencies should rely on the expertise of those who may bear a disproportionate risk, such as older adults, people with disabilities, and individuals with chronic health conditions to ensure emergency plans, procedures, and evacuation shelters meet the needs of all in the community.

Priority Area 4: Ensure Effective Leadership, Coordination, and Workforce

Perhaps more important than any technology or invention is the presence of trained, experienced people, from the frontline responder to the top of government. Effective crisis response requires coordination, cooperation, and leadership—elements that governments must build and sustain over time.

RECOMMENDATIONS FOR FEDERAL GOVERNMENT:

- **The White House should ensure the success of federal preparedness strategies.** The implementation of the Pandemic and All-Hazards Preparedness and Advancing Innovation Act;[314] the National Biodefense Strategy, which directs biodefense priorities and goals for multiple agencies; and the Executive Order on Modernizing Influenza Vaccines[315] will only be successful if they are backed by adequate funding and programmatic support, meaningful stakeholder engagement, and involvement of relevant public health and related agencies. The White House should ensure senior advisors to the president have a strong background in public health and/or biodefense, and they should ensure that senior-level interagency cooperation is progressing before, during, and after public health emergencies, including through regular meetings of the Biodefense Steering Committee and Biodefense Coordination Team.[316] The White House should release a more detailed implementation plan of the National Biodefense Strategy and the Modernizing Influenza Vaccines executive order, including assigned roles and responsibilities, milestones, opportunities for stakeholder feedback, and an integrated biodefense budget.[317,318]
- **HHS, the CDC, the Office of the Assistant Secretary for Preparedness and Response (ASPR), DHS, and FEMA should clarify roles and address gaps within the government's emergency support functions.** HHS and DHS agencies should continue to clarify roles and responsibilities to improve the efficiency and effectiveness of responses and to ensure no community or population group falls through the cracks during a response. The ASPR and the CDC should coordinate and align their preparedness and response activities, including by communicating effectively with stakeholders about roles and guidance, engaging with private-sector and volunteer organizations, maintaining systems and policies that are working well, avoiding duplicative efforts, and keeping experts connected to key functions.
- **Fund the recruitment and training of public health personnel.** The health security enterprise requires trained, experienced personnel. Federal, state, and local governments must prioritize stable, long-term funding for recruitment and retention of such a workforce, including one with experience in public health informatics, laboratory science and epidemiology. Governments should also fund investment in workforce development and retention programs, such as student loan repayment and other incentives. Public health schools should incorporate health equity and cultural competency into their preparedness curricula.

RECOMMENDATION FOR STATE GOVERNMENT:

- **Update personnel policies to allow for expedited emergency responses.** State policymakers should review and update hiring policies to facilitate the rapid hiring of emergency response workers when a disaster strikes.

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Priority Area 5: Accelerate Development and Distribution of Medical Countermeasures

An effective medical countermeasure (MCM) enterprise could negate a range of health threats, but a drug or vaccine is only effective if it reaches the right person at the right time. The short time window for responding to many public health threats—such as an anthrax attack—demonstrates the urgency of the right-product/right-time equation. The nation must reinforce the discovery of new products, including novel vaccines, antibiotics, and diagnostics, and be accompanied by the development, practice with and maintenance of appropriate distribution and dispensing capabilities.

RECOMMENDATIONS FOR FEDERAL GOVERNMENT:

- **Provide significant, long-term funding for the entire MCM enterprise.** The MCM enterprise involves research, manufacturing, surveillance, delivery, training and monitoring. Long-term coordinated and transparent funding would offer more certainty to the biotechnology industry and researchers and would strengthen public-private partnerships. The United States should grow its investment in innovative, flexible technologies and capabilities that will enable faster production of products for a range of biothreats.[319]

- **Evaluate and ensure success of the Public Health Emergency Medical Countermeasures Enterprise and the Strategic National Stockpile operations.** The Pandemic and All-Hazards Preparedness and Advancing Innovation Act codified the Public Health Emergency Medical Countermeasures Enterprise,[320] and administration of the Strategic National Stockpile moved from the CDC to the ASPR in 2018.[321] As HHS formalizes these transitions, the agency must strive to improve the programs by evaluating the impact of the transition of Strategic National Stockpile on procurement, replenishment, efficiencies of contracts, and state and local MCM capabilities; enabling regular input of state and local public health officials, as required by the Pandemic and All-Hazards Preparedness and Advancing Innovation Act, as well as the input of private-sector supply-chain partners into the Public Health Emergency Medical Countermeasures Enterprise process; aligning with CDC's support of state and local MCM dispensing capabilities; improving transparency with state, local, tribal, and territorial partners; clarifying roles between the CDC and the ASPR in day-to-day activities and incident response; avoiding administrative duplication and delay; and restoring necessary funding and staff to the CDC that were lost due to the transition.

RECOMMENDATIONS FOR FEDERAL, STATE, AND LOCAL GOVERNMENTS AND PARTNERS:

- **Prioritize the distribution and dispensing of MCMs.** It is important that MCMs reach the right person at the right time during emergencies, but gaps remain if a mass vaccination or dispensing were needed, according to the CDC's MCM Operational Readiness Review.[322,323] The HHS and state, local, tribal, and territorial health departments should be properly resourced and require integration of private-sector healthcare supply distributors and supply-chain partners into planning, exercises, and emergency responses to better leverage existing systems and resources. The CDC and ASPR should continue to assess and improve the training of state and local personnel to ensure well-coordinated MCMs deployments from the Strategic National Stockpile and from the private sector, as recommended by the Bipartisan Commission on Biodefense.[324]

- **Improve MCM guidance and communications for groups at higher risk during an event.** HHS, including the CDC, should consult with experts and work with healthcare professionals and state and local and tribal partners to develop standardized guidance for dispensing MCMs to children, older adults, people with disabilities, and people who are homebound. Officials should also take additional target groups, such as pregnant and postpartum women and infants, into consideration. Guidance should include dosing instructions for those who cannot swallow pills. And HHS and state, local, tribal, and territorial agencies should work with organizations that reach the public, especially communities at disproportionate risk—such as groups representing older Americans, people with disabilities, and limited English-proficient communities—to improve communications around MCM issues before an event. Communities need to be engaged before an outbreak or event to ensure their understanding of the risks, benefits, and distribution challenges of introducing a medical product to a large portion of the population and ultimately improving acceptance and access to MCMs. It is important to provide clear and accurate guidance to the public in multiple formats and languages, via trusted sources and multiple communications channels including formats that are accessible to people with hearing or vision loss.

Priority Area 6: Ready the Healthcare System to Respond and Recover

A major shortfall persists in the nation's healthcare readiness, especially medical surge capacity, for the tremendous number of patients likely to result from a pandemic or other large-scale biological event. The NHSPI has consistently found that healthcare delivery readiness scores are in the lowest levels among preparedness domains measured, with little progress in the past five years.[325] Recent events—like lives lost in a nursing facility following Hurricane Irma,[326] the need for extensive federal medical response during Hurricanes Irma and Maria,[327] and the surge of patients from seasonal flu in 2018[328]—have illustrated that much remains to be done to prepare the healthcare system for ongoing scenarios, let alone a major event.

A gap analysis by the Center for Health Security concluded that the United States is fairly well prepared for small-scale events, but less well prepared for large-scale and complex disasters, such as mass shootings, and poorly prepared for catastrophic health events, such as severe pandemics.[329] Existing programs—such as the HPP and the CMS Preparedness Rule—have created preparedness structures that would not have otherwise been built, but many states have not provided enough incentive to create true engagement of healthcare leadership, surge capacity and training, cooperation across the healthcare systems and across the spectrum of providers, and collaboration and integration of the healthcare system with emergency response. Many emergency departments see shortages of critical medicines on a day-to-day basis and report that they are not fully prepared for a disaster or mass-casualty incident.[330] Some emergency preparedness entities, including healthcare coalitions and public health departments, lack situational awareness of the healthcare delivery system in a disaster, and states and territories continue to depend on federal assets such as the National Disaster Medical System during disasters, rather than building mutual support within a region. Policymakers need to strengthen existing systems and consider long-term mechanisms to create sustainable healthcare readiness.

RECOMMENDATIONS FOR FEDERAL GOVERNMENT AND HEALTHCARE:

- **Strengthen the HPP.** In the near term, Congress and HHS should reinforce the HPP to build strong healthcare coalitions capable of engaging and supporting members during disaster responses. These models help ensure members have the equipment, supplies, information, and personnel to respond to disasters and the federal government must support them. Congress must provide more robust annual funding—which it has cut in half over the past decade. HHS and awardees should ensure healthcare leaders takes the lead on HPP planning and implementation to the extent possible, with support and coordination from public health, emergency management, and others, and awardees should ensure as much funding as possible is reaching healthcare coalitions. Healthcare administrators should ensure their facilities have tools and support for meaningful participation in healthcare coalitions, including the ability to share information and resources across the coalition. Congress should provide additional funding for a tiered regional disaster system to coordinate across coalitions and states, as authorized by the Pandemic and All-Hazards Preparedness and Advancing Innovation Act,[331] to map specialized disaster care (such as burn or pediatric care) across the country and to leverage those assets in a coordinated way.[332] Additional funding is also needed to sustain progress made in establishing Ebola and other high consequence pathogen treatment centers and training.[333]

- **Strengthen CMS Preparedness Standards and improve transparency.** An external review by the Government Accountability Office or a similar entity should assess how CMS preparedness standards have affected overall healthcare readiness, and HHS should begin tracking progress on preparedness measures over time. CMS should also strengthen preparedness standards by adding medical surge capacity and other capabilities, stratified by facility type, as a necessary requirement within the next iteration of the rule.[334]

- **Create incentives and ramifications to build sustainable preparedness and surge capacity across healthcare systems.** In a serious large-scale event, such as a pandemic, there will likely be shortages of beds, healthcare personnel, and equipment, requiring cooperation among healthcare entities, across systems, and across geographic borders. Although there has been progress in developing healthcare coalitions in many regions and meeting CMS and other accreditation preparedness standards by individual healthcare facilities, these existing mechanisms have not provided enough incentive for many healthcare facilities to create meaningful surge capacity and cooperation across competing entities. Similarly, the Joint Commission's preparedness standards apply to individual facilities and not to the readiness of the healthcare system as a whole.[335] In addition to strengthening healthcare preparedness grants and CMS standards, Congress and HHS should consider long-term sustainability for building healthcare readiness across the system, including meaningful incentives and disincentives:

  - An external self-regulatory body, in alignment with federal policy goals, could set, validate, and enforce standards for healthcare facility readiness, stratified by facility type, with authority for financial ramifications.[336]

  - Payment incentives could sustain preparedness, surge capacity, regional disaster partnerships, and reward facilities that maintain specialized disaster care.

RECOMMENDATIONS FOR STATE GOVERNMENT AND HEALTHCARE:

- **Integrate healthcare delivery into emergency preparedness and response.** States should remove barriers to participation of the healthcare sector in emergency responses, including plugging healthcare coalitions and other entities representing private healthcare and the healthcare supply chain into emergency planning and response and incident command. Health systems, healthcare coalitions, and public health should develop memoranda of understanding ahead of disasters to improve situational awareness across healthcare and to enable movement of patients, personnel, and supplies.

- **Strengthen state policies regarding disaster healthcare delivery.** States should review credentialing standards to ensure healthcare facilities can receive providers from outside their states, and health systems should ensure they can receive outside providers quickly during a surge response. States should also adopt policies that promote healthcare readiness and ease the ability to surge care and services, such as the NLC, the Interstate Medical License Compact, the Recognition of EMS Personnel Licensure Interstate CompAct,[337] the Uniform Emergency Volunteer Health Practitioners Act,[338] emergency prescription refill laws and protocols, and implementation and education of providers regarding crisis standards of care guidelines.[339,340] Governors should work with public health officials to incorporate public health considerations and messaging into all emergency declarations, including clarification of emergency waivers around healthcare.

Priority Area 7: Prepare for Environmental Threats and Extreme Weather

Environmental health involves detecting and protecting communities from hazardous conditions in air, water, food, and other settings, and it is therefore a critical component of the nation's health security. Increasingly, states have found that unsafe water[341] and changes in disease vectors, such as mosquitos,[342] require emergency response capacity. At the same time, climate impacts on health—including extreme weather events, flooding, droughts, and food-, water-, and vector-borne diseases—are growing.[343] Climate change can exacerbate health disparities and intensify threats. Environmental hazards impact communities differently, with people living in poverty, people of color, people with underlying health conditions, and children and older people at particular risk.[344]

RECOMMENDATIONS FOR FEDERAL AND STATE GOVERNMENT:

- **Support public health climate-adaptation efforts.** Funding for the CDC's Climate and Health program stands at $10 million per year, while the annual health costs of climate change events were estimated to be more than $14 billion in 2008.[345] Climate-informed health interventions include identifying likely climate impacts, potential health effects associated with these impacts, and the most at-risk populations and locations.[346] Congress should increase funding for environmental health programs, including the CDC's Climate and Health program and environmental health tracking to conduct surveillance and target interventions.
- **Develop sustainable state and local vector-control programs.** As the threat and geographic distribution of mosquitos, ticks, and other vectors changes, Congress should expand funding for the vector-borne disease program at the CDC to support state and local capacity to prevent and detect vector-borne diseases, such as Zika, West Nile Virus, and Lyme disease.
- **Guarantee clean water for all U.S. residents, including after disasters.** All states should include water security and sewage removal in their preparedness plans, and they should build relationships between health departments and local environmental and water agencies. The CDC should include national guidance and metrics for planning for a range of water-related crises. Measures to protect a safe water supply include: addressing the ongoing problem of lead, per- and polyfluoroalkyl substances, and other toxins in drinking water, and taking steps, such as those in the EPA's Clean Water Rule, to reduce the potential for waterborne illnesses and to increase protection against potential acts of biological and chemical terrorism on America's drinking and agricultural water.

RECOMMENDATIONS FOR STATE GOVERNMENT:

- **Every state should have a comprehensive climate vulnerability assessment and adaptation plan that incorporates public health.** Public health and environmental agencies should work together to track concerns, coordinate risk-management and communications, and prioritize necessary capabilities to reduce and address threats. States and localities should investigate what additional capacities are necessary and identify vulnerable populations and communities. State and local public health officials should incorporate environmental health into emergency operations planning and incident command.

Methodology

Trust for America's Health (TFAH) made major refinements to its methodology for *Ready or Not* in 2018. For more information, see the 2019 edition of the series, Appendix A: Methodology.[347]

To meet TFAH's criteria, each indicator must be:

- **Significant.** The indicator needed to be a meaningful measure of states' public health emergency preparedness. The NHSPI first measured significance by using a multistage Delphi process with a panel of experts and then again by TFAH through interviews with additional experts.
- **Broadly relevant and accessible.** The indicator needed to be relevant—and timely data needed to be accessible—for every state and the District of Columbia.
- **Timely.** Data for the indicator needed to be updated regularly.
- **Scientifically valid.** Data supporting the indicator needed to be credible and rigorously constructed.
- **Nonpartisan.** The indicator, and data supporting the indicator, could not be rooted in or seen as rooted in any political goals.

Using these criteria, TFAH aims to select a broad set of actionable indicators with which it—and other stakeholders, including states themselves—can continue to track states' progress. (Complete data were not available for U.S. territories.) TFAH will strive to retain all or most of these indicators for multiple years to assist states in tracking their progress against each measure.

TFAH seeks measures that are incorporated into the NHSPI and that most closely meet TFAH's criteria. There is one exception: a measure of state public health funding-level trends, which the NHSPI does not track.

TFAH wishes to more directly track readiness for extreme weather, which nearly all experts expect to worsen and become more frequent due to global climate change. *Ready or Not* did not include such a measure this year, but TFAH expects to release a separate report in 2020, in partnership with Johns Hopkins University, that addresses these issues in depth.

Indicator Data Collection

The NHSPI provided TFAH with data for every indicator except five (those data tied to the NLC, public health funding, flu vaccination, hospital patient safety, and laboratory surge capacity). In cases where newer data were available than those modeled in the 2019 edition of the NHSPI, TFAH collected and verified figures from their original sources.

Public Health Funding Data Collection and Verification

To collect public health funding data for this report, TFAH used states' publicly available funding documents. With assistance from the Association of State and Territorial Health Officials, TFAH provided data to states for review and verification. Informed by the Public Health Activities and Services Tracking project at the University of Washington, TFAH defines public health programming and services as inclusive of communicable disease control; chronic disease prevention; injury prevention; environmental public health; maternal, child, and family health; and access to and linkage with clinical care. Specifically, this definition includes:

- **Communicable disease control.** Public health services related to communicable disease epidemiology, hepatitis, HIV/AIDS, immunization, sexually transmitted diseases, tuberculosis, etc.
- **Chronic disease prevention.** Public health services related to asthma, cancer, cardiovascular disease, diabetes, obesity, tobacco, etc.
- **Injury prevention.** Public health services related to firearms, motor vehicles, occupational injuries, senior falls prevention, substance-use disorder, other intentional and unintentional injuries, etc.
- **Environmental public health.** Public health services related to air and water quality, fish and shellfish, food safety, hazardous substances and sites, lead, onsite wastewater, solid and hazardous waste, zoonotic diseases, etc.
- **Maternal, child, and family health.** Public health services related to the coordination of services; direct service; family planning; newborn screening; population-based maternal, child, and family health; supplemental nutrition; etc.
- **Access to and linkage with clinical care.** Public health services related to beneficiary eligibility determination, provider or facility licensing, etc.

TFAH excludes from its definition insurance coverage programs, such as Medicaid or the Children's Health Insurance Program, as well as inpatient clinical facilities.

TFAH, under the guidance of state respondents, revised data for the base year. (In this report, that was fiscal year 2018.) For some states, this was necessary to improve comparability between the two years when a reorganization of departmental responsibilities had occurred over the period.

All states and the District of Columbia verified their funding data.

Scoring and Tier Placements

TFAH grouped states based on their performance across the 10 indicators, and beginning in 2019, gave partial credit for some indicators to draw finer distinctions among states and within states over time. TFAH placed states into three tiers—high tier, middle tier, and low tier—based on their relative performance across the indicators.

Specifically, TFAH scored each indicator as follows:

- Adoption of the NLC: 0.5 point. No adoption: 0 points.
- Percent of hospitals participating in healthcare coalitions: TFAH scored states according to the number of standard deviations above or below the mean of state results.
  - Within one standard deviation above the mean (and states with universal participation): 1 point.
  - At the mean, or within one standard deviation below the mean: 0.75 point.
  - Between one and two standard deviations below the mean: 0.5 point.
  - Between two and three standard deviations below the mean: 0.25 point.
  - More than three standard deviations below the mean: 0 points.
- Accreditation by the PHAB: 0.5 point. Not accredited: 0 points.
- Accreditation by the EMAP: 0.5 point. Not accredited: 0 points.
- Size of state public health budget compared with the past year (nominally, not inflation-adjusted).
  - No change or funding increase: 0.5 point.
  - Funding decrease: 0 points.
- Percent of population who used a community water system that failed to meet all applicable health-based standards: TFAH scored states according to the number of standard deviations above or below the mean of state results.
  - Within one standard deviation above the mean (and states with 0 percent of residents who used a noncompliant community system): 1 point.
  - At the mean, or within one standard deviation below the mean: 0.75 point.
  - Between one and two standard deviations below the mean: 0.5 point.
  - Between two and three standard deviations below the mean: 0.25 point.
  - More than three standard deviations below the mean: 0 points.
- Percent of employed population with paid time off: TFAH scored states according to the number of standard deviations above or below the mean of state results.
  - More than one standard deviation above the mean: 1 point.
  - Within one standard deviation above the mean: 0.75 point.
  - At the mean, or within one standard deviation below the mean: 0.5 point.
  - Between one and two standard deviations below the mean: 0.25 point.
  - More than two standard deviations below the mean: 0 points.
- Percent of people ages 6 months or older who received a seasonal flu vaccination: TFAH scored states according to the number of standard deviations above or below the mean of state results.
  - More than one standard deviation above the mean: 1 point.

- Within one standard deviation above the mean: 0.75 point.
- At the mean, or within one standard deviation below the mean: 0.5 point.
- Between one and two standard deviations below the mean: 0.25 point.
- More than two standard deviations below the mean: 0 points.

Flu vaccination data for the 2018–2019 season were not available for the District of Columba or New Jersey. TFAH imputed their scores by comparing their average rates from 2010–2011 to 2016–2017 (District of Columbia) or 2017–2018 (New Jersey) with the average vaccination rate over that period in the 50 states and the District of Columbia.

- Percent of hospitals with a top-quality ranking ("A" grade) on the Leapfrog Hospital Safety Grade. TFAH scored states according to the number of standard deviations above or below the mean of state results.
  - More than one standard deviation above the mean: 1 point.
  - Within one standard deviation above the mean: 0.75 point.
  - At the mean, or within one standard deviation below the mean: 0.5 point.
  - Positive number, more than one standard deviation below the mean: 0.25 point.
  - No hospitals with a top-quality ranking ("A" grade): 0 points.
- Public health laboratory has a plan for a six- to eight-week surge in testing capacity: 0.5 point. Did not report having a plan: 0 points

The highest possible score a state could receive was 7.5 points.

TFAH placed states whose scores ranked among the top 17 in the high-performance tier. TFAH placed states whose scores ranked between 18th-highest and 34th-highest in the middle tier. TFAH placed states whose scores ranked between 35th-highest and 51st-highest in the low-performance tier. (Ties in states' scores prevented an even distribution across the tiers.)

This year, states in the high tier had scores ranging from 5.75 to 6.75; states in the middle tier had scores ranging from 5.25 to 5.5; and states in the low tier had scores ranking from 3.5 to 5.

Assuring data quality

Several rigorous phases of quality assurance were conducted to strengthen the integrity of the data and to improve and deepen TFAH's understanding of states' performance, especially that of outliers on specific indicators. During collection of state public health funding data, researchers systematically inspected every verified data file to identify incomplete responses, inconsistencies, and apparent data entry errors. Following this inspection, respondents were contacted and given the opportunity to complete or correct their funding data.

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New Report Places 25 States and DC in High Performance Tier on 10 Public Health Emergency Preparedness Measures

As Threats Increase, Annual Assessment Finds States' Level of Readiness for Health Emergencies is Improving in Some Areas but Stalled in Others

(Washington, DC) – Twenty-five states and the District of Columbia were high-performers on a three-tier measure of states' preparedness to protect the public's health during an emergency, according to a new report released today by Trust for America's Health (TFAH). The annual report, *Ready or Not 2020: Protecting the Public's Health from Diseases, Disasters, and Bioterrorism*, found year-over-year improvement among 10 emergency readiness measures, but also notes areas in need of improvement. Last year, 17 states ranked in the report's top tier.

For 2020, 12 states placed in the middle performance tier, down from 20 states and the District of Columbia in the middle tier last year, and 13 placed in the low performance tier, the same number as last year.

The report found that states' level of preparedness has improved in key areas, including public health funding, participation in healthcare coalitions and compacts, hospital safety, and seasonal flu vaccination. However, other key health security measures, including ensuring a safe water supply and access to paid time off, stalled or lost ground.

Performance Tier	States	Number of States
High Tier	AL, CO, CT, DC, DE, IA, ID, IL, KS, MA, MD, ME, MO, MS, NC, NE, NJ, NM, OK, PA, TN, UT, VA, VT, WA, WI	25 states and DC
Middle Tier	AZ, CA, FL, GA, KY, LA, MI, MN, ND, OR, RI, TX	12 states
Low Tier	AK, AR, HI, IN, MT, NH, NV, NY, OH, SC, SD, WV, WY	13 states

The report measures states' performance on an annual basis using 10 indicators that, taken together, provide a checklist of a jurisdiction's level of preparedness to prevent and respond to threats to its residents' health during an emergency. The indicators are:

Preparedness Indicators			
1	**Incident Management:** Adoption of the Nurse Licensure Compact.	**6**	**Water Security:** Percentage of the population who used a community water system that failed to meet all applicable health-based standards.
2	**Cross-Sector Community Collaboration:** Percentage of hospitals participating in healthcare coalitions.	**7**	**Workforce Resiliency and Infection Control:** Percentage of employed population with paid time off.
3	**Institutional Quality:** Accreditation by the Public Health Accreditation Board.	**8**	**Countermeasure Utilization:** Percentage of people ages 6 months or older who received a seasonal flu vaccination.
4	**Institutional Quality:** Accreditation by the Emergency Management Accreditation Program.	**9**	**Patient Safety:** Percentage of hospitals with a top-quality ranking ("A" grade) on the Leapfrog Hospital Safety Grade.
5	**Institutional Quality:** Size of the state public health budget, compared with the past year.	**10**	**Health Security Surveillance:** The public health laboratory has a plan for a six- to eight-week surge in testing capacity.

Four states (Delaware, Pennsylvania, Tennessee, and Utah) moved from the low performance tier in last year's report to the high tier in this year's report. Six states (Illinois, Iowa, Maine, New Mexico, Oklahoma, Vermont) and the District of Columbia moved up from the middle tier to the high tier. No state fell from the high to the low tier but six moved from the middle to the low tier: Hawaii, Montana, Nevada, New Hampshire, South Carolina, and West Virginia.

"The increasing number of threats to Americans' health in 2019, from floods to wildfires to vaping, demonstrate the critical importance of a robust public health system. Being prepared is often the difference between harm or no harm during health emergencies and requires four

things: planning, dedicated funding, interagency and jurisdictional cooperation, and a skilled public health workforce," said John Auerbach, President and CEO of Trust for America's Health.

"While this year's report shows that, as a nation, we are more prepared to deal with public health emergencies, we're still not as prepared as we should be. More planning and investment are necessary to saves lives," Auerbach said.

TFAH's analysis found that:

- A majority of states have plans in place to expand healthcare capacity in an emergency through programs such as the Nurse Licensure Compact or other healthcare coalitions. Thirty-two states participated in the Nurse Licensure Compact, which allows licensed nurses to practice in multiple jurisdictions during an emergency. Furthermore, 89 percent of hospitals nationally participated in a healthcare coalition, and 17 states and the District of Columbia have universal participation, meaning every hospital in the state (+ DC) participated in a coalition. In addition, 48 states and DC had a plan to surge public health laboratory capacity during an emergency.
- Most states are accredited in the areas of public health, emergency management, or both. Such accreditation helps ensure that necessary emergency prevention and response systems are in place and staffed by qualified personnel.
- Most people who got their household water through a community water system had access to safe water. Based on 2018 data, on average, just 7 percent of state residents got their household water from a community water system that did not meet applicable health standards, up slightly from 6 percent in 2017.
- Seasonal flu vaccination rates improved but are still too low. The seasonal flu vaccination rate among Americans ages 6 months and older rose from 42 percent during the 2017-2018 flu season to 49 percent during the 2018-2019 season, but vaccination rates are still well below the 70 percent target established by *Healthy People 2020*.
- In 2019, only 55 percent of employed people had access to paid time off, the same percentage as in 2018. The absence of paid time off has been shown to exacerbate some infectious disease outbreaks. It can also prevent people from getting preventive care.
- Only 30 percent of hospitals, on average, earned top patient safety grades, up slightly from 28 percent in 2018. Hospital safety scores measure performance on such issues as healthcare associated infection rates, intensive-care capacity and an overall culture of error prevention. Such measures are critical to patient safety during infectious disease outbreaks and are also a measure of a hospital's ability to perform well during an emergency.

The report includes recommended policy actions that the federal government, states and the healthcare sector should take to improve the nation's ability to protect the public's health during emergencies.

Other sections of the report describe how the public health system was critical to the vaping crisis response, how health inequities put some communities at greater risk during an emergency, and the needs of people with disabilities during an emergency.

The full text of the report can be accessed at www.tfah.org/report-details/readyornot2020

# # #

Trust for America's Health is a nonprofit, nonpartisan organization that promotes optimal health for every person and community and makes the prevention of illness and injury a national priority. www.tfah.org. Twitter: @healthyamerica1

- TFAH's new report #ReadyorNot2020 asks: Is the nation ready to protect the public's health from diseases, disasters, and bioterrorism? #publichealth http://www.tfah.org/report-details/readyornot2020/
- #DYK, only 30% of hospitals, on average, earned a top-quality patient safety grade, up slightly from 28% in 2018. Learn more in TFAH's #ReadyorNot2020 report. #publichealth http://www.tfah.org/report-details/readyornot2020/
- New TFAH report measures the nation's readiness to address diseases, disasters and bioterrorism. #ReadyorNot2020 #publichealth http://www.tfah.org/report-details/readyornot2020/
- Protecting Americans against domestic and global health security risks requires planning and funding. New report makes policy recommendations #ReadyorNot #publichealth http://www.tfah.org/report-details/readyornot2020/
- Seasonal flu vaccination rates rose during the 2018- 2019 flu season but were still below targets #publichealth #ReadyorNot2020 http://www.tfah.org/report-details/readyornot2020/
- The coronavirus is the latest example of an international health security risk. How prepared is the U.S.? #ReadyorNot2020 http://www.tfah.org/report-details/readyornot2020/
- TFAH's new #ReadyorNot2020 report measures state performance on 10 critical emergency preparedness indicators. #publichealth http://www.tfah.org/report-details/readyornot2020/

From: Schuchat, Anne MD (CDC/OD)
Sent: Tue, 4 Feb 2020 11:56:55 +0000
To: Dunworth, Soumya (CDC/DDPHSS/CSELS/OD) (CTR);CDC MMWR First Proof
Cc: Redd, Stephen (CDC/DDPHSIS/OD);Bunnell, Rebecca (CDC/DDPHSS/OS);Iademarco, Michael (CDC/DDPHSS/CSELS/OD);Jernigan, Daniel B. (CDC/DDID/NCIRD/ID)
Subject: RE: First Proof of 2019-nCoV Response Early Release for February 5
Attachments: Initial nCoV PH Response Guidance FIRST PROOF as.docx

Comments with track changes now – (b)(5)

(b)(5)

From: Dunworth, Soumya (CDC/DDPHSS/CSELS/OD) (CTR) <kya6@cdc.gov>
Sent: Monday, February 3, 2020 4:58 PM
To: CDC MMWR First Proof <MMWREditedDraft@cdc.gov>
Subject: First Proof of 2019-nCoV Response Early Release for February 5

Attached is the first proof of the *MMWR* early release "Initial Public Health Response and Interim Clinical Guidance for the 2019 Novel Coronavirus Outbreak — United States, December 31, 2019–February 3, 2020," scheduled for publication on February 5 at 1 p.m.

Please send any comments by **8 a.m. Tuesday.**

Thanks,
Soumya

Soumya Dunworth, PhD
Writer-Editor, *MMWR*
Contractor, Karna, LLC
sdunworth@cdc.gov

(b)(5)

(b)(5)

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* https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200121-sitrep-1-2019-ncov.pdf?sfvrsn.

† Includes any of the following: dyspnea, respiratory rate >30 breaths per minute, hypoxemia, or chest x-ray with multilobar infiltrates or pulmonary infiltration progressed >50% within 24–48 hours per WHO. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200123-sitrep-3-2019-ncov.pdf.

§ https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov).

¶ https://www.phe.gov/emergency/news/healthactions/phe/Pages/2019-nCoV.aspx.

** Criteria to guide evaluation and testing of patients under investigation for 2019-nCoV include 1) fever or signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person, including a health care worker, who has had close contact with a patient with laboratory-confirmed 2019-nCoV infection within 14 days of symptom onset; 2) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person with a history of travel from Hubei Province, China, within 14 days of symptom onset; or 3) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) requiring hospitalization in any person with a history of travel from mainland China within 14 days of symptom onset. More information is available at https://emergency.cdc.gov/han/han00427.asp and https://emergency.cdc.gov/han/han00426.asp.

†† https://wwwnc.cdc.gov/travel/notices/warning/novel-coronavirus-china.

§§ https://www.cdc.gov/media/releases/2020/p0117-coronavirus-screening.html.

(b)(5)

From: Schuchat, Anne MD (CDC/OD)
Sent: Wed, 5 Feb 2020 16:09:11 +0000
To: Green, Hugh (CDC/OD/OCS)
Subject: FW: MMWR Embargoed eBook for 2/5 Early Release
Attachments: mm6905e1-H.pdf

From: Turner Hoffman, Katherine (Kat) (CDC/DDPHSS/CSELS/OD) <ltd0@cdc.gov>
Sent: Wednesday, February 5, 2020 11:02 AM
To: MMWR Communications (CDC) <MMWRCommunications@cdc.gov>; Behm, Brittany (CDC/DDNID/NCCDPHP/DRH) <jiz9@cdc.gov>; Bonds, Michelle E. (CDC/OD/OADC) <meb0@cdc.gov>; Boyd, Martha F. (CDC/DDPHSS/CSELS/OD) <mfb2@cdc.gov>; Buckner, Amesheia (CDC/DDID/NCEZID/OD) <ynp5@cdc.gov>; Casey, Christine G. (CDC/DDPHSS/CSELS/OD) <zlv3@cdc.gov>; Clark, Cynthia K. (CDC/OD/OCS) <cfc8@cdc.gov>; Damon, Glenn (CDC/DDPHSS/CSELS/OD) (CTR) <nwx1@cdc.gov>; Daniel, Katherine Lyon (CDC/DDPHSIS/OD) <kdl8@cdc.gov>; DeNoon, Daniel (CDC/OD/OADC) (CTR) <xlz4@cdc.gov>; Doan, Quang (CDC/DDPHSS/CSELS/OD) (CTR) <qad0@cdc.gov>; Dott, Mary (CDC/DDPHSS/CSELS/OD) <mud9@cdc.gov>; Dunworth, Soumya (CDC/DDPHSS/CSELS/OD) (CTR) <kya6@cdc.gov>; Egeston, Christie (CDC/OD/OCS) <ksq9@cdc.gov>; Gindler, Jacqueline (CDC/DDPHSS/CSELS/OD) <jsg5@cdc.gov>; Green, Hugh (CDC/OD/OCS) <yke8@cdc.gov>; Hood, Teresa M. (CDC/DDPHSS/CSELS/OD) <tfh5@cdc.gov>; Hoskins, Sharon (K.D.) (CDC/OD/OADC) <sdh4@cdc.gov>; Iademarco, Michael (CDC/DDPHSS/CSELS/OD) <mai9@cdc.gov>; Kelly, Bertram (CDC/OD/OADC) <msy5@cdc.gov>; Kennedy, Veronica (CDC/OD/OCS) <bvo3@cdc.gov>; Kent, Charlotte (CDC/DDPHSS/CSELS/OD) <cgk3@cdc.gov>; King, Phyllis (CDC/DDPHSS/CSELS/OD) (CTR) <hxv5@cdc.gov>; Kroop, Seth (CDC/DDID/NCEZID/DHQP) <wpw7@cdc.gov>; Leahy, Maureen (CDC/DDPHSS/CSELS/OD) (CTR) <vth4@cdc.gov>; Mac Kenzie, William R. (CDC/DDPHSS/CSELS/OD) <wrm0@cdc.gov>; Martinroe, Julia (CDC/DDPHSS/CSELS/OD) (CTR) <uvc1@cdc.gov>; Omisore, Shannon L. (CDC/DDNID/NCCDPHP/DHDSP) <hyl5@cdc.gov>; Peaker, Brandy (CDC/DDPHSS/CSELS/OD) <vha6@cdc.gov>; Richards, Chesley MD (CDC/DDPHSS/OD) <cir6@cdc.gov>; Romanik, Nikki Jo (CDC/OD/OCS) <kon6@cdc.gov>; Rutledge, Terisa (CDC/DDPHSS/CSELS/OD) <txr7@cdc.gov>; Schieber, Richard A. (CDC/DDPHSS/CSELS/OD) <rbs4@cdc.gov>; Schuchat, Anne MD (CDC/OD) <acs1@cdc.gov>; Sokler, Lynn (CDC/OD/OADC) <zsz0@cdc.gov>; Spriggs, Stephen (CDC/DDPHSS/CSELS/OD) <hva2@cdc.gov>; Starr, Terraye (CDC/DDPHSS/CSELS/OD) <imt2@cdc.gov>; Tumpey, Abbigail (CDC/DDPHSS/CSELS/OD) <aws8@cdc.gov>; Weatherwax, Douglas (CDC/DDPHSS/CSELS/OD) <aoe8@cdc.gov>; Williams, Erinn (CDC/OD/OADC) <ovq3@cdc.gov>; Yang, Moua (CDC/DDPHSS/CSELS/OD) (CTR) <ktu0@cdc.gov>; Yang, Tong (CDC/DDPHSS/CSELS/OD) (CTR) <lnq5@cdc.gov>
Subject: MMWR Embargoed eBook for 2/5 Early Release

MMWR
Morbidity and Mortality Weekly Report

The MMWR is embargoed until 1 PM ET Wednesday, February 5, 2020

Please find the eBook for today's *MMWR* Early Release attached.

Initial Public Health Response and Interim Clinical Guidance for the 2019 Novel Coronavirus Outbreak — United States, December 31, 2019–February 4, 2020
Link when live:
https://www.cdc.gov/mmwr/volumes/69/wr/mm6905e1.htm?s_cid=mm6905e1_w

Thank you,
Kat

Katherine Turner Hoffman, MPH
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Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Early Release / Vol. 69
February 5, 2020

Initial Public Health Response and Interim Clinical Guidance for the 2019 Novel Coronavirus Outbreak — United States, December 31, 2019–February 4, 2020

Anita Patel, PharmD[1]; Daniel B. Jernigan, MD[1]; 2019-nCoV CDC Response Team

On December 31, 2019, Chinese health officials reported a cluster of cases of acute respiratory illness in persons associated with the Hunan seafood and animal market in the city of Wuhan, Hubei Province, in central China. On January 7, 2020, Chinese health officials confirmed that a novel coronavirus (2019-nCoV) was associated with this initial cluster (*1*). As of February 4, 2020, a total of 20,471 confirmed cases, including 2,788 (13.6%) with severe illness,* and 425 deaths (2.1%) had been reported by the National Health Commission of China (*2*). Cases have also been reported in 26 locations outside of mainland China, including documentation of some person-to-person transmission and one death (*2*). As of February 4, 11 cases had been reported in the United States. On January 30, the World Health Organization (WHO) Director-General declared that the 2019-nCoV outbreak constitutes a Public Health Emergency of International Concern.† On January 31, the U.S. Department of Health and Human Services (HHS) Secretary declared a U.S. public health emergency to respond to 2019-nCoV.§ Also on January 31, the president of the United States signed a "Proclamation on Suspension of Entry as Immigrants and Nonimmigrants of Persons who Pose a Risk of Transmitting 2019 Novel Coronavirus," which limits entry into the United States of persons who traveled to mainland China to U.S. citizens and lawful permanent residents and their families (*3*). CDC, multiple other federal agencies, state and local health departments, and other partners are implementing aggressive measures to slow transmission of 2019-nCoV in the United States (*4*,*5*). These measures require the identification of cases and their contacts in the United States and the appropriate assessment and care of travelers arriving from mainland China to the United States. These measures are being implemented in anticipation of additional 2019-nCoV cases in the United States. Although these measures might not prevent the eventual establishment of ongoing, widespread transmission of the virus in the United States, they are being implemented to 1) slow the spread of illness; 2) provide time to better prepare health care systems and the general public to be ready if widespread transmission with substantial associated illness occurs; and 3) better characterize 2019-nCoV infection to guide public health recommendations and the development of medical countermeasures including diagnostics, therapeutics, and vaccines. Public health authorities are monitoring the situation closely. As more is learned about this novel virus and this outbreak, CDC will rapidly incorporate new knowledge into guidance for action by CDC and state and local health departments.

Some coronaviruses, such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), are the result of human-animal interactions. Preliminary investigation of 2019-nCoV also suggests a zoonotic origin (*6*), but the exact origin has not yet been determined. Person-to-person spread is evident (*7*); however, how easily the virus is transmitted between persons is currently unclear. 2019-nCoV is similar to coronaviruses that cause MERS and SARS, which are transmitted mainly by respiratory droplets. Signs and symptoms of patients with confirmed 2019-nCoV infection include fever, cough, and shortness of breath (*8*). Based on the incubation period of illness from MERS and SARS coronaviruses, CDC believes that symptoms of 2019-nCoV infection occur within 2 to 14 days following

* Includes any of the following: dyspnea, respiratory rate >30 breaths per minute, hypoxemia, or chest x-ray with multilobar infiltrates or >50% progression of pulmonary infiltration within 24–48 hours per WHO. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200123-sitrep-3-2019-ncov.pdf.

† https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov).

§ https://www.phe.gov/emergency/news/healthactions/phe/Pages/2019-nCoV.aspx.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

infection. Preliminary information suggests that older adults and persons with underlying health conditions or compromised immune systems might be at higher risk for severe illness from this virus (*9*); however, many characteristics of this novel coronavirus and how it might affect individual persons and potentially vulnerable population subgroups, such as the elderly or those with chronic health conditions, remain unclear.

Summary

What is already known about this topic?

In December 2019, an outbreak of acute respiratory illness caused by a novel coronavirus (2019-nCoV) was detected in mainland China. Cases have been reported in 26 additional locations, including the United States.

What is added by this report?

Nine of the first 11 U.S. 2019-nCoV patients were exposed in Wuhan, China. CDC expects more U.S. cases.

What are the implications for public health practice?

CDC, multiple other federal agencies, state and local health departments, and other partners are implementing aggressive measures to substantially slow U.S. transmission of 2019-nCoV, including identification of U.S. cases and contacts and managing travelers arriving from mainland China to the United States. Interim guidance is available at https://www.cdc.gov/coronavirus/index.html and will be updated as more information becomes available.

Epidemiology of First U.S. Cases

On January 21, 2020, the first person in the United States with diagnosed 2019-nCoV infection was reported. As of February 4, a total of 293 persons from 36 states, the District of Columbia, and the U.S. Virgin Islands were under investigation based on current patient under investigation (PUI) definitions,[¶] and also included those being evaluated because they are close contacts. Of these PUIs, 11 patients have confirmed 2019-nCoV infection using a real-time reverse transcription–polymerase chain reaction (RT-PCR) assay developed by CDC. These 11 cases were diagnosed in the following states: Arizona (one), California (six), Illinois (two), Massachusetts (one), and Washington (one) (Table). Nine cases were in travelers from Wuhan. Eight of these nine cases were identified as a result of patients seeking clinical care for symptoms and clinicians connecting with the appropriate public health systems. Two cases (one each in California and Illinois) occurred in close contacts of two confirmed cases and were diagnosed as part of routine monitoring of case contacts. All patients are being monitored closely for progressing illness. No deaths have been reported in the United States.

Public Health Response

CDC established a 2019-nCoV Incident Management Structure on January 7, 2020. On January 21, CDC activated its Emergency Operations Center to optimize coordination for domestic and international 2019-nCoV response efforts. To date, CDC has deployed teams to the U.S. jurisdictions with cases to assist with epidemiologic investigation and to work closely with state and local partners to identify and monitor close contacts and better understand the spectrum of illness, transmission, and virulence associated with this novel virus. Information learned from these investigations will help inform response actions. CDC has closely monitored the global impact of this virus with staff members positioned in CDC offices around the world, including mainland China, and in coordination with other countries and WHO. This coordination has included deploying CDC staff members to work with WHO and providing active support to CDC offices in affected countries. In addition, CDC in response to the escalating risks of travel from China has issued a series of Travelers' Health Notices for both Wuhan and the rest of China regarding the 2019-nCoV outbreak. On January 27, CDC issued a Level 3 travel notice for travelers to avoid all nonessential travel to mainland China.[**]

U.S. quarantine stations, located at 18 major U.S. ports of entry, are part of a comprehensive regulatory system authorized under section 361 of the Public Health Service Act (42 U.S. Code Section 264), that limits the introduction of infectious diseases into the United States to prevent their spread. On January 17, consistent with existing communicable disease response protocols, CDC Quarantine staff members instituted enhanced entry screening of travelers on direct and connecting flights from Wuhan, China, arriving at three major U.S. airports: Los Angeles (LAX), New York City (JFK), and San Francisco (SFO),[††] which then expanded to include travelers arriving in Atlanta (ATL) and Chicago (ORD). These five airports together receive approximately 85% of all air travelers from Wuhan, China, to the United States. U.S. Customs and

[¶] Criteria to guide evaluation and testing of patients under investigation for 2019-nCoV include 1) fever or signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person, including a health care worker, who has had close contact with a patient with laboratory-confirmed 2019-nCoV infection within 14 days of symptom onset; 2) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person with a history of travel from Hubei Province, China, within 14 days of symptom onset; or 3) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) requiring hospitalization in any person with a history of travel from mainland China within 14 days of symptom onset. More information is available at https://emergency.cdc.gov/han/han00427.asp and https://emergency.cdc.gov/han/han00426.asp.

[**] https://wwwnc.cdc.gov/travel/notices/warning/novel-coronavirus-china.
[††] https://www.cdc.gov/media/releases/2020/p0117-coronavirus-screening.html.

TABLE. Characteristics of initial 2019 novel coronavirus cases (N = 11) — United States, January 21–February 4, 2020

Case	State	Approximate age (yrs)	Sex	Place of exposure	Date laboratory confirmation announced
1	Washington	30s	M	Wuhan	1/21/2020
2	Illinois	60s	F	Wuhan	1/24/2020
3	Arizona	20s	M	Wuhan	1/26/2020
4	California	30s	M	Wuhan	1/27/2020
5	California	50s	M	Wuhan	1/27/2020
6	Illinois	60s	M	Household Illinois	1/30/2020
7	California	40s	M	Wuhan	1/31/2020
8	Massachusetts	20s	M	Wuhan	2/01/2020
9	California	50s	F	Wuhan	2/02/2020
10	California	50s	M	Wuhan	2/02/2020
11	California	50s	F	Household California	2/02/2020

Abbreviations: F = female; M = male.

Border Protection officers identified travelers arriving from Wuhan and referred them to CDC for health screening.[§§] Any traveler from Wuhan with signs or symptoms of illness (e.g., fever, cough, or difficulty breathing) received a more comprehensive public health assessment performed by CDC public health and medical officers.[¶¶] All travelers from Wuhan were also provided CDC's Travel Health Alert Notice (T-HAN)[***] that advised them to monitor their health for 14 days and described recommended actions to take if relevant symptoms develop. As of February 1, 2020, a total of 3,099 persons on 437 flights were screened; five symptomatic travelers were referred by CDC to local health care providers for further medical evaluation, and one of these persons tested positive for 2019-nCoV.

On January 24, 2020, travel bans began to be instituted by the Chinese government, resulting in restricted travel in and out of Hubei Province, including the city of Wuhan, and fewer travelers undergoing entry screening in the United States. In response to the escalating risks associated with travel from mainland China, on January 31, 2020, the Presidential Proclamation further refined the border health strategy to temporarily suspend entry, undergo additional screening, or possible quarantine for individuals that have visited China (excluding Hong Kong, Macau, and Taiwan) in the past 14 days. These enhanced entry screening efforts are taking place at 11 airports at which all air travelers from China are being directed.

[§§] CDC's initial health screening includes a measurement of each traveler's temperature with a handheld noncontact thermometer, observation of these travelers for visible signs of respiratory illness (e.g., cough or difficulty breathing), and review of symptoms through a self-administered questionnaire.

[¶¶] The more comprehensive public health assessment determines, based on the traveler's illness and exposure, whether the traveler should be taken to a hospital for further medical evaluation and care, which might include testing for 2019-nCoV.

[***] https://www.cdc.gov/coronavirus/2019-ncov/travelers/communication-resources.html.

Laboratory and Diagnostic Support

Chinese health officials posted the full 2019-nCoV genome sequence on January 10, 2020, to inform the development of specific diagnostic tests for this emergent coronavirus (*1*). Within a week, CDC developed a Clinical Laboratory Improvement Amendments–approved real-time RT-PCR test that can diagnose 2019-nCoV respiratory samples from clinical specimens. On January 24, CDC publicly posted the assay protocol for this test (https://www.cdc.gov/coronavirus/2019-nCoV/lab/index.html). On January 4, 2020, the Food and Drug Administration issued an Emergency Use Authorization to enable emergency use of CDC's 2019-nCoV Real-Time RT-PCR Diagnostic Panel. To date, this test has been limited to use at CDC laboratories. This authorization allows the use of the test at any CDC-qualified lab across the country. CDC is working closely with FDA and public health partners, including the American Public Health Laboratories, to rapidly share these tests domestically and internationally through CDC's International Reagent Resource (https://www.internationalreagentresource.org/). In addition, CDC uploaded the genome of the virus from the first reported cases in the United States to GenBank, the National Institutes of Health genetic sequence database of publicly available DNA sequences (https://www.ncbi.nlm.nih.gov/genbank/). CDC also is growing the virus in cell culture, which is necessary for further studies, including for additional genetic characterization. Once isolated, the virus will be made available through BEI Resources (https://www.beiresources.org/) to assist research efforts.

Clinical and Infection Control Guidance

Additional information about 2019-nCoV is needed to better understand transmission, disease severity, and risk to the general population. Although CDC and partners are actively learning about 2019-nCoV, initial CDC guidance is based on guidance for management and prevention of respiratory illnesses including influenza, MERS, and SARS. No vaccine

or specific treatment for 2019-nCoV infection is currently available. At present, medical care for patients with 2019-nCoV is supportive.

On January 31, CDC published its third Health Advisory with interim guidance for clinicians and public health practitioners.[†††] In addition, CDC issued a Clinical Action Alert through its Clinician Outreach and Communication Activity network on January 31.[§§§] Interim guidance for health care professionals is available at https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html. Health care providers should identify patients who might have been exposed and who have signs or symptoms related to 2019-nCoV infection, isolate these patients, and inform public health departments. This includes obtaining a detailed travel history for patients being evaluated with fever and lower respiratory tract illness. Criteria to guide evaluation and testing of PUIs for 2019-nCoV include 1) fever or signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person, including health care workers, who has had close contact[¶¶¶] with a patient with laboratory-confirmed 2019-nCoV infection within 14 days of symptom onset; 2) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person with a history of travel from Hubei Province, China, within 14 days of symptom onset; or 3) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) requiring hospitalization in any person with a history of travel from mainland China within 14 days of symptom onset. Additional nonhospitalized PUIs may be tested based on consultation with state and local public health officials. Clinicians should evaluate PUIs for other possible causes of illness (e.g., influenza and respiratory syncytial virus) as clinically indicated.

CDC currently recommends a cautious approach to the examination of PUIs. These patients should be asked to wear a surgical mask as soon as they are identified, and directed to a separate area, if possible, separated by at least 6 ft (2 m) from other persons. Patients should be evaluated in a private room with the door closed, ideally an airborne infection isolation room, if available. Health care personnel entering the room should use standard precautions, contact precautions, airborne precautions, and eye protection (e.g., goggles or a face shield).

Clinicians should immediately notify the health care facility's infection control personnel and local health department. The health department will determine whether the patient needs to be considered a PUI for 2019-nCoV and be tested for infection. If directed by the health department, to increase the likelihood of detecting 2019-nCoV infection, CDC recommends collecting and testing both upper and lower respiratory tract specimens.[****] Additional specimen types (e.g., stool or urine) may be collected and stored. Specimens should be collected as soon as possible once a PUI is identified regardless of time since symptom onset.

For persons who might have 2019-nCoV infection and their close contacts, information and guidance on how to reduce the risk for transmitting and acquiring infection is available at https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-prevent-spread.html. Close contacts should immediately call their health care providers if they develop symptoms. In addition, CDC is working closely with state and local health partners to develop and disseminate information to the public on general prevention of respiratory illness, including the 2019-nCoV. This includes everyday preventive actions such as washing your hands, covering your cough, and staying home when you are ill. Additional information and resources for this outbreak are available on the CDC website (https://www.cdc.gov/coronavirus/2019-ncov/index.html).

Discussion

The 2019-nCoV has impacted multiple countries, caused severe illness, and sustained person-to-person transmission making it a concerning and serious public health threat. It is unclear how this virus will impact the U.S. over time. For the general population, who are unlikely to be exposed to this virus at the current time, the immediate health risk from 2019-nCoV is considered low. CDC, multiple other federal agencies, state and local health departments, and other partners are implementing aggressive measures to slow U.S. transmission of 2019-nCoV (*4*,*5*). These measures require the identification of cases and contacts in the United States and the effective management of the estimated 14,000 travelers arriving from mainland China to the United States each day (*3*). These measures are being implemented based on the assumption that there will be more U.S. 2019-nCoV cases occurring with potential chains of transmission, with the understanding that these measures might not prevent the eventual establishment of ongoing, widespread transmission of the virus in the United States.

[†††] https://emergency.cdc.gov/han/han00427.asp.

[§§§] https://emergency.cdc.gov/coca/calls/2020/callinfo_013120.asp.

[¶¶¶] Close contact is defined as 1) being within approximately 6 ft (2 m) of a 2019-nCoV patient for a prolonged period while not wearing recommended personal protective equipment (PPE) (e.g., gowns, gloves, National Institute for Occupational Safety and Health–certified disposable N95 respirator, and eye protection); close contact can occur while caring for, living with, visiting, or sharing a health care waiting area or room with a 2019-nCoV patient; or 2) having direct contact with infectious secretions of a 2019-nCoV patient (e.g., being coughed on) while not wearing recommended PPE.

[****] https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html.

It is important for public health agencies, health care providers, and the public to be aware of this new 2019-nCoV so that coordinated, timely, and effective actions can help prevent additional cases or poor health outcomes. The critical role that the U.S. health care system plays in halting or significantly slowing U.S. transmission of 2019-nCoV is already evident: eight of the first 11 U.S. cases were detected by clinicians collaborating with public health to test persons at risk. The early recognition of cases in the United States reduces transmission risk and increases understanding of the virus, including its transmission and severity, to inform national and global response actions.

2019-nCoV symptoms are similar to those of influenza (e.g., fever, cough, or sore throat), and the outbreak is occurring during a time of year when respiratory illnesses from influenza, respiratory syncytial virus, and other respiratory viruses are highly prevalent. To prevent influenza, all persons aged ≥6 months should receive an annual influenza vaccine, and vaccination is still available and effective in helping to prevent influenza (*10*). Reducing the number of persons in the United States with seasonal influenza will reduce possible confusion with 2019-nCoV infection and possible additional risk to patients with seasonal influenza. Public health authorities are monitoring the situation closely. As more is learned about this novel virus and this outbreak, CDC will rapidly incorporate new knowledge into guidance for action.

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