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COVID-19: SIMPLE ANSWERS TO TOP QUESTIONS

RISK COMMUNICATION GUIDE

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NOTE – THE UNDERSTANDING OF COVID-19 IS RAPIDLY EVOLVING AND THIS DOCUMENT WILL BE UPDATED PERIODICALLY TO REFLECT NEW INFORMATION AND RECOMMENDATIONS AS THEY BECOME AVAILABLE.

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I. INTRODUCTION

In February 2020, ASTHO sponsored the development of *COVID-19: Simple Answers to Top Questions*[i] with risk communication experts and a working group of State Health Officials using the science-based, risk communication message mapping development process.[ii] "Message Maps" are risk communication tools used to help organize complex information and make it easier to express current knowledge. The development process distills information into clear and easily understood messages.

ASTHO's *COVID-19: Simple Answers to Top Questions* is based on message maps and follows the belief that state health officials need both short and long answers. Messages are presented initially in no more than 3-5 short sentences and convey 3-5 key messages, ideally in the least number of words possible. The approach is based on surveys showing that lead or front-page media and broadcast stories usually convey only the soundbite: 3-5 messages usually in less than 9 seconds for broadcast media or 27 words for print. Each primary message normally has 3 to 5 supporting messages that can be used when and where appropriate to provide context for the issue being mapped. A brief description of the message mapping strategy is in the Appendices.

In the following pages, you will find 45+ top questions about COVID-19 answered with detailed message maps. ASTHO recommends that you review the Appendix "Media Interviews: Tips and Pitfalls" before you engage with the media.

[i] Please cite this publication as follows: Covello V. and Hyer R. *COVID-19: Simple Answers to Top Questions, Risk Communication Guide*. Association of State and Territorial Health Officials, March 6, 2020. Arlington, Virginia.

[ii] Contributions from the following people are acknowledged: Glen Nowak, Tom Hipper, Craig Manning, and Paula Hoelker-williams.

II. PREFACE

State and Territorial Health Officials (S/THOs) play a critical role in the health security of our nation. The demands are many and the margin of error is small. S/THOs must translate the best available public heath evidence and science into actionable policy advice for elected leaders and other cabinet agencies. They must act as a credible, timely, source of accurate information to variety of stakeholders. Equally important, the SHO and the public health team must convey a clear, compassionate, and caring message to the public to motivate appropriate protective behaviors without instilling inappropriate fear. All of this must occur while leading and managing complex public health agencies strained under the demands of an emergency response.

The role is all the more complex in a rapidly evolving situation in which many unknowns remain. Overconfidence or utilizing an inaccurate mental model of an issue can lead to missteps and diminish public trust. It is critical for this reason to be very cognizant of what is known, what is unknown, what is controllable, and what is not controllable. This humility allows rapid adjustments to strategies and tactics and allows an accurate and credible message to be delivered to and received by the public and policymakers.

ASTHO worked closely with Drs. Randall Hyer and Vincent Covello from the Center for Risk Communication/CrisisCommuncation.net to develop this communication guide to assist S/THOs in preparing to communicate with the public, media, and policymakers about COVID-19.

Over 30 state and territorial health officials prioritized the current top 45+ questions on COVID-19 for which these message map style answers were developed. Of course, a S/THO's judgment will determine the most appropriate response to an issue in his or her jurisdiction. It is our hope that this messaging guide can provide S/THOs with a baseline of consistent messages across our nation.

COVID-19: Simple Answers to Top Questions will be modified and updated as events evolve and more is known.

Thank you for your service of protecting and improving the health of our nation.

Michael Fraser, PhD, CAE
Chief Executive Officer
Association of State and Territorial Health Officials

III. TABLE OF CONTENTS

IV. COMMUNICATING WITH MESSAGE MAPS

This risk communication toolkit contains information about COVID-19. Answers to important questions are presented in a format called a "message map." According to the Centers for Disease Control and Prevention (CDC), a message map is a science-based risk communication tool used to help organize complex information and make it easier for information to be shared.

A message map distills information into a series of layered messages, from basic to more complex. Messages — e.g., answers to questions — are presented initially in a few bullets that convey key messages, ideally using the least number of words possible.[iii] The key messages are then followed by additional information.

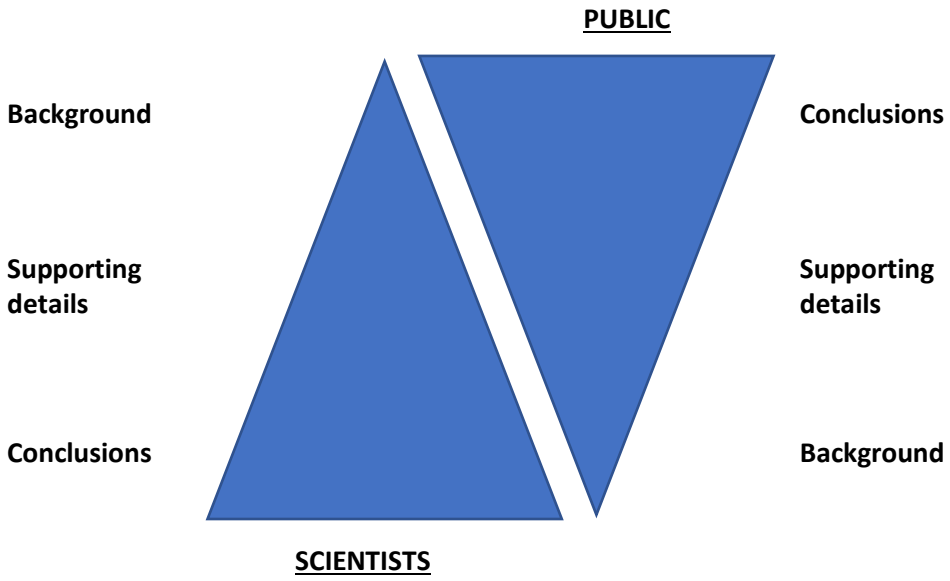
A key assumption of message mapping is people want clear answers to their questions about complex scientific issues as well as access to more detailed answers to those same questions.[iv] A second key assumption is if stakeholders — all those interested or impacted by the risk — are well-informed by the best and most up-to-date information about a complex scientific or technical issue, they are in a better position to engage, exchange information, and participate constructively in the decision-making process.

Unfortunately, many scientists face challenges in sharing complex scientific information. These challenges are addressed in part by message maps. First, scientists must overcome a basic obstacle to effective communication: people facing a perceived threat and under stress typically have difficulty processing information — hearing, understanding, and remembering. Second, as shown in Figure 2 on next page, scientists are used to communicating with their peers in a particular format, beginning with background information, moving to supporting details, and finally coming to their results and conclusions. For communicating with the public, however, a more effective approach is to invert that pyramid and begin with the conclusions — the bottom lines up front. The top line of a message map — the key messages — are the conclusions.

[iii] See https://www.cdc.gov

[iv] For more information about message mapping, see the U.S. Environmental Protection Agency: https://www.epa.gov

Figure 2: Scientific and Public Communication



Third, scientists often fail to craft clear messages that can be easily understood and recalled by non-experts. Message maps are designed to start with clear messages and build complexity through hierarchical layers. Fourth, because of details and lack of hierarchical structure, non-experts often have difficulty sorting out what is important from what is less important. Fifth, scientists sometimes speak in a code known only to other scientists, using the technical jargon of their field instead of plain language. Many words that seem perfectly normal to scientists are incomprehensible jargon to a lay audience. Sixth, scientists often fail to put findings into the context of the larger body of knowledge of what is scientifically well understood. Seventh, scientists often lead with what they do not know instead of what they do know. Eighth, scientists often fail to anticipate common misunderstandings and misperceptions.

Answering Questions with Message Maps

Message maps can be used to answer important questions in the form of a short answer consisting of ideally 3 (no more than 5) key messags expressed in 27 words. A longer answer consists of the shorter answer with supporting details. Best practices are to complete the answer to a question with repeating the shorter answer or key messages, which provides a soundbite that is easy to quote and to remember.

V. MESSAGE MAPS: SHORTER AND LONGER ANSWERS

000. What are key facts about COVID-19 in the U.S.?

Key Messages/Shorter Answer (Soundbite):

1. *The U.S. healthcare system has strategies for early detection, mitigation, and containment.*
2. *The U.S. public health system is identifying COVID-19 cases, isolating sick people, and tracing contacts.*
3. *Everyday basic hygiene is important to prevent infection.*

Longer Answer:

1. ***The U.S. healthcare system has strategies for early detection, mitigation, and containment.***
   - Health care providers have systems for the early detection and containment of COVID-19.
   - Health care providers are strengthening early detection and containment systems based on lessons learned from previous outbreaks to include:
     - Training and protocols for healthcare workers.
     - COVID-19 treatment facilities.
     - Risk and crisis communications.
     - Equipment, guidelines, and training for those involved in COVID-19 clean up.
2. ***The U.S. public health system is identifying COVID-19 cases, isolating sick people, and tracing contacts.*** [5]
   - People are thought to be highly contagious when they are most symptomatic (the sickest).
     - Early and potentially highly efficient transmission of the virus may occur before clinical symptoms or in conjunction with the very first mild symptoms.
   - Identifying and isolating COVID-19 cases quickly can significantly reduce transmission.
     - Health care workers are trained to be on the watch for patients with symptoms that in the early stages of illness may seem like the flu.
     - Health care workers can assess travel histories that may indicate contact with COVID-19.
     - Health care workers can test for COVID-19 in suspected individuals.
   - Tracing contacts of COVID-19 patients quickly can significantly reduce transmission.
     - People who have been in contact with an COVID-19 patient are monitored for symptoms.
     - People who have been in contact with an COVID-19 patient may be quarantined.
     - CDC has detailed guidelines on monitoring and movement related to COVID-19.
3. ***Everyday basic hygiene is important to prevent infection.*** [6]
   - Wash your hands often with soap and water for at least 20 seconds.
     - Wash your hands especially after going to the bathroom, before eating, and after coughing, sneezing, and blowing your nose.
     - Use a hand sanitizer if soap and water are unavailable.
   - Avoid touching your eyes, nose, and mouth with unwashed hands.
   - Cover your coughs and sneezes with a sleeve or tissue.
   - Clean frequently touched surfaces around the house with regular household cleaners.

[5] Available at: https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html

[6] Please see COVID-19: What the public should do (CDC)

100 Series: Basic Questions

101. What are the signs/symptoms of COVID-19 and when do they appear?

Key Messages/Shorter Answer (Soundbite):

1. *Common COVID-19 symptoms include fever, cough, and shortness of breath.*
2. *Symptoms of COVID-19 may appear 2-14 days after exposure.*
3. *The disease is often much more severe in the elderly and people with predisposing conditions that make them more susceptible to illness.*

Longer Answer:

1. ***Common COVID-19 symptoms include fever, cough, and shortness of breath.***[7]
   - Many people with COVID-19 have a mild to moderate upper respiratory tract infection similar to a cold.
   - Common symptoms include a cough, sore throat, headache and fever that can last for a couple of days.
   - People who test positive for COVID-19 commonly have had very mild or no symptoms.
   - Symptoms of COVID-19 in severe cases can lead to pneumonia or breathing difficulties, and can be fatal.
   - Older people and people with predispoing medical conditions, such as diabetes and heart disease, are more at risk for becoming severely ill from COVID-19.
2. ***Symptoms of COVID-19 may appear 2-14 days after exposure.***[6]
   - The time between when a person is exposed to an infectious agent (like the virus that causes COVID-19) and when symptoms appear is called the incubation period.
   - The current incubation period of COVID-19 is based on what has been seen previously with other coronaviruses like MERS (Middle East Respiratory Syndrome).
   - Our understanding of the incubation period of COVID-19 may change as more data become available.
3. ***The disease is often much more severe in elderly and people with predisposing conditions that make them more suspectiable to illness.***[8]
   - The mortality rate for COVID-19 varies depending upon existing health conditions, age, gender, and access to care.
   - The severity and mortality of COVID-19 are difficult to determine when new cases and data are being reported daily.
   - The mortality rate for COVID-19 is less than that for SARS (Severe Acute Respiratory Syndrome).
   - COVID-19 illness may be more severe in places where health resources are limited or overburdened by the outbreak.

[7] Please see Coronavirus Symptoms and Diagnosis (CDC)

[8] Please see What to do if you are sick with 2019 Novel Coronavirus (CDC)

102. Does COVID-19 affect children and adults differently?

Key Messages/Shorter Answer (Soundbite):

1. *Youth appears to offer partial protection from COVID-19.*
2. *The vast majority of COVID-19 cases around the world are people ages 30 to 79.*
3. *All age groups should engage in everyday preventive actions to avoid COVID-19 infection.*

Longer Answer:

1. Youth appears to offer partial protection from COVID-19.[9]

- Children age 10 and under account for just 1% of all COVID-19 cases.
  - Through mid-January 2020, no children in Wuhan, the epicenter of the Chinese outbreak, had contracted COVID-19.
- Young adults and teens do not appear to be contracting COVID-19 at significant rates.
  - Only about 8% of COVID-19 cases are those in their 20s and only about 1% are in their teens.
- It is still uncertain why young people have only mild or no symptoms from COVID-infection.
- Adults may be able to contract COVID-19 from children.

2. The vast majority of COVID-19 cases around the world are people ages 30 to 79.[9] [10]

- Being elderly and having other illnesses greatly increases the risk of dying from COVID-19.
- The World Health Organization mission to China found that nearly 80% of COVID-19 cases were people ages 30 to 79.
- The Chinese Centers for Disease Control has reported that the fatality rate for people 80 or older is over 14%.
- Higher COVID-19 cases and deaths among the elderly appears to be linked to presence of other diseases, a weaker immune system, poor overall health, or weakness of the respiratory system.
- Older people with underlying lung disease appear to be particularly vulnerable to becoming infected with COVID-19.

3. All age groups should engage in everyday preventive actions to avoid COVID-19 infection.[11] [12]

- Much is still unknown about COVID-19 including how easily it spreads from person-to-person and how many infected people develop severe illness.
- COVID-19 is behaving in some ways like seasonal flu, including demonstrating that standard measures to prevent spread can be effective.
- Preventive actions to avoid infection include cleaning hands often using soap and water or alcohol-based hand sanitizer, covering coughs and sneezes, and avoiding close contact with people who are sick.

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[9] 2019 Novel Coronavirus New England Journal of Medicine available at: https://www.nejm.org/coronavirus

[10] Please see https://www.cdc.gov/media/releases/2020/t0127-coronavirus-update.html

[11] Journal of the American Medical Association coronavirus updates available at: https://jamanetwork.com/journals/jama/pages/coronavirus-alert

[12] Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus–Infected Pneumonia in Wuhan, China available at: https://jamanetwork.com/journals/jama/fullarticle/2761044

103. What about pregnant women and COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Initial studies indicate COVID-19 does not pass to a fetus during late pregnancy or cause severe health outcomes in a newborn.*
2. *Information regarding COVID-19 in pregnant women and the developing fetus is very limited.*
3. *As true for the general U.S. population, the risk for pregnant women to COVID-19 is very low.*

Longer answer:

1. ***Initial studies indicate COVID-19 does not pass to a fetus during late pregnancy or cause severe health outcomes in a newborn.***[13] [14]
   - An initial study also found that symptoms of COVID-19 in pregnant women were similar to those reported in non-pregnant women.
     - Initial findings are based on a small number of cases, over a short period of time, and only included women who were late in their pregnancy and gave birth by caesarean section.
   - The health effects of COVID-19 on mothers infected during the first or second trimester of pregnancy are currently unknown.
2. ***Information regarding COVID-19 in pregnant women and the developing fetus is very limited.***[15]
   - Coronaviruses in general have the potential to cause severe harm to pregnant women and their developing child.
   - During pregnancy, the possibility of serious illness from virus infections is greater because the body's immune system is weakened.
   - SARS (Severe Acute Respiratory Syndrome) and MERS (Middle Eastern Respiratory Syndrome) caused severe complications among women who were infected during pregnancy.
   - Based on similarities to SARS (Severe Acute Respiratory Syndrome), pregnant women could be at increased risk of severe infections and illness.
3. ***As true for the general U.S. population, the risk for pregnant women to COVID-19 is very low.***[16] [17]
   - Influenza remains a much greater risk to pregnant women in the U.S. than COVID-19.
   - Pregnant women who believe they could have been exposed to COVID-19 should inform their doctor.
   - When a woman is pregnant, her immune system changes, making her more susceptible to respiratory illnesses.
   - Pregnant women with influenza are ~ 3.5 times more likely to be hospitalized than non-pregnant women.

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[13] 2019 Novel Coronavirus New England Journal of Medicine available at: https://www.nejm.org/coronavirus

[14] Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women available at: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30360-3/fulltext

[15] COVID-19 epidemic: what about pregnancies? available at: https://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(20)30311-1.pdf

[16] Journal of the American Medical Association coronavirus updates available at: https://jamanetwork.com/journals/jama/pages/coronavirus-alert

[17] What Parents Need to Know About Coronavirus, New York Times available at: https://parenting.nytimes.com/childrens-health/coronavirus-children-pregnant-women

104. Can pets and livestock be infected with COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *The virus that causes COVID-19 can cause illness in animals.*
2. *There is no evidence that animals or pets in the U.S. are carrying COVID-19.*
3. *Much remains unknown regarding the new coronavirus that causes COVID-19 and illness in pets and livestock.*

Longer Answer:

1. The virus that causes COVID-19 can cause illness in animals.[18]

- Coronaviruses are common in several species of domestic and wild animals, including cattle, horses, dogs, cats, ferrets, camels, bats, and others.
- Coronaviruses are a large family of diseases and are named for the crown-like spikes on their surface.
    - Examples of coronaviruses that infect humans include common colds, SARS (Severe Acute Respiratory Disease) and MERS (Middle East Respiratory Syndrome).
- Some coronaviruses, such as COVID-19, are zoonotic,meaning they normally exist in animals but can be transmitted to humans).

2. There is no evidence that animals or pets in the U.S. are carrying COVID-19.[19]

- There has been only one global report of a pet testing positive for the virus that causes COVID-19, but the test was considered to be only "weakly positive".
- It is not yet known if COVID-19 can infect or cause illness in dogs, cats, or livestock.

3. Much remains unknown regarding the new coronavirus that causes COVID-19 and illness in pets and livestock.[20]

- It is always safe to wash your hands with soap and water after contact with animals.
- Washing your hands protects you against various common bacteria such as E.coli and Salmonella that can pass between animals and humans.

[18] Please see World Health Organization Coronavirus https://www.who.int/health-topics/coronavirus

[19] Please see https://www.cdc.gov/coronavirus/COVID-19/index.html

[20] Occupational Safety and Health Administration Coronavirus information available at: https://www.osha.gov/SLTC/novel_coronavirus/

105. How is COVID-19 different from the flu and common cold?

Key Messages/Shorter Answer (Soundbite):

1. *Some of the symptoms of COVID-19 illness are similar to influenza.*
2. *Most coronavirus infections in people cause very similar types of respiratory illness.*
3. *Confirmed COVID-19 illness has ranged from mild symptoms to severe illness and death.*

Longer Answer:

1. ***Some of the symptoms of COVID-19 illness are similar to influenza.***[21] [22]
   - The main symptoms of COVID-19 are fever, cough, and shortness of breath.
   - People with COVID-19 can progress to high fever, difficulty breathing, and even pneumonia.
   - Different viruses can cause similar symptoms or types of illness.
   - Since initial symptoms are often similar to some of the symptoms of colds and flu (e.g., cough and fever) laboratory tests are required to know if a person has a COVID-19.
2. ***Most coronavirus infections in people cause very similar types of respiratory illness.***[23]
   - In some mild cases, COVID-19 causes runny nose, cough, sore throat, and fever.
   - Laboratory tests are needed to determine if someone has COVID-19.
   - Doctors are still trying to understand the full picture of disease symptoms and severity caused by COVID-19.
3. ***Confirmed COVID-19 illness has ranged from mild symptoms to severe illness and death.***[24]
   - For confirmed COVID-19, reported illnesses have ranged from people with mild symptoms to people being severely ill and dying.
   - The death rate for COVID-19 is still unclear, but estimates from initial studies are higher (up to 3.4%) than that of seasonal flu (which is under 1%).
   - If you have not been in close contact with someone who has COVID-19 and have only mild symptoms, you should proceed as if you have a cold or influenza.

[21] CDC Coronavirus information available at: https://www.cdc.gov/coronavirus/COVID-19/faq.html

[22] CDC What to Do If You Are Sick with COVID-19 available at: https://www.cdc.gov/coronavirus/COVID-19/about/steps-when-sick.html [3]

[23] How does the new coronavirus compare with the flu? available at: https://www.livescience.com/new-coronavirus-compare-with-flu.html

[24] Please see World Health Organization Coronavirus Questions and Answers https://www.who.int/news-room/q-a-detail/q-a-coronaviruses

106. How deadly is COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Older people and those with predisposing medical conditions are more likely to to have severe illness or die from COVID-19 than others who contract the virus.*
2. *Increasing COVID-19 cases show fewer people experiencing severe illness or death.*
3. *Experts believe the COVID-19 is less fatal than the SARS coronavirus.*

Longer Answer:

1. ***Older people and those with predisposing medical conditions are more likely to have severe illness or die from COVID-19 than others who contract the virus.*** [25] [26]
   - Symptoms of COVID-19 can be more severe for older people and those with predisposing medical conditions.
   - Symptoms of COVID-19 can lead to pneumonia or breathing difficulties.
   - COVID-19 can, rarely, cause severe illness that is deadly.
   - Being elderly and having other illnesses greatly increases the risk of dying from COVID-19.
     - The World Health Organization mission to China found that nearly 80% of COVID-19 cases were people ages 30 to 79.
     - The Chinese Centers for Disease Control has reported that the fatality rate for people 80 or older is over 14%.
   - Higher COVID-19 cases and deaths among the elderly appears to be linked to presence of other diseases, a weaker immune system, poor overall health, or weakness of the respiratory system.
   - Older people with underlying lung disease appear to be particularly vulnerable to becoming infected with COVID-19.
2. ***Increasing COVID-19 cases show fewer people experiencing severe illness or death.*** [25] [26] [27]
   - The majority of COVID-19 cases are mild.
   - Initial studies indicate that less than 15% of hospitalized patients for COVID-19 are severe.
3. ***Experts believe the COVID-19 is less fatal than SARS coronavirus.*** [25] [26]
   - The severity and mortality of COVID-19 are difficult to determine when new cases and data are being reported daily.
   - The mortality rate for COVID-19 varies depending upon age, and gender, as well as access to care.
   - Mortality rate for COVID-19 is less than that for SARS (Severe Acute Respiratory Syndrome).
   - COVID-19 illness may be more severe in places where health resources are limited or overburdened by the outbreak.

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[25] CDC Coronavirus information available at: https://www.cdc.gov/coronavirus/COVID-19/faq.html

[26] World Health Organization Coronavirus Questions and Answers available at: https://www.who.int/news-room/q-a-detail/q-a-coronaviruses

[27] Appendix G: Required Information for Effective Infectious Disease Outbreak Response SARS CoV-2 (COVID-19), updated 3/4/2020.

107. What is the difference between the virus that causes COVID-19 and other coronaviruses that already are circulating in the U.S.?

Key Messages/Shorter Answer (Soundbite):

1. *Many types of coronavirus circulate in the U.S. population.*
2. *Most circulating coronaviruses cause only mild respiratory illness or the "common cold."*
3. *Most COVID-19 illnesses are mild, although some people have severe illness and death.*

Longer Answer:

1. ***Many types of coronavirus circulate in the U.S. population.***[28] [29] [30] [31]
   - Coronaviruses are a large family of viruses found in both animals and humans.
   - There are several coronaviruses that are common in people.
   - The coronaviruses that are circulating in the U.S. and the world cause 10% to 30% of upper respiratory tract infections in adults.
   - Neither SARS (Severe Acute Respiratory Syndrome) nor MERS (Middle Eastern Respiratory Syndrome), both of which are caused by coronaviruses, are circulating in the U.S.
2. ***Most circulating coronaviruses cause only mild respiratory illness or the "common cold."***[28] [29] [30] [32]
   - The coronaviruses already in the U.S. usually cause a mild upper respiratory infection.
   - Some coronaviruses can infect the lower respiratory tract, like the lungs, thus causing more serious and sometimes deadly illness.
   - Person-to-person spread of the corona virus that causes COVID-19 may occur in a fashion similar to other coronaviruses, mainly via tiny droplets from an infected person's coughs or sneezes.
   - Unlike most coronavirus circulating in the U.S., the coronavirus causing COVID-19 has been found to cause both upper and lower respiratory tract infections.
3. ***Most COVID-19 illnesses are mild, although some people have severe illness and death.***[33]
   - Most people with COVID-19 appear to have had mild illness or symptoms, while some have been very ill.
   - Unlike other coronaviruses circulating in the U.S., the coronavirus causing COVID-19 can produce a severe respiratory illness, including severe pneumonia,respiratory failure, and death.
   - Some people who get infected with the virus that causes COVID-19 have no symptoms.
   - People who have mild or no symptoms are unlikely to know if they are infected with the virus that causes COVID-19.

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[28] CDC: Human Coronavirus Types https://www.cdc.gov/coronavirus/types.html

[29] "Coronavirus Infections: More Than Just the Common Cold" Journal of the American Medical Association https://jamanetwork.com/journals/jama/fullarticle/2759815[3]

[30] New York Times Coronavirus Updates https://www.nytimes.com/news-event/coronavirus

[31] WHO Coronavirus Updates https://www.who.int/news-room/q-a-detail/q-a-coronaviruses

[32] Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020 https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30183-5/fulltext

[33] Wired Science "What is Coronavirus?" https://www.wired.com/story/what-is-a-coronavirus/

108. How infectious is the virus that causes COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *The virus that causes COVID-19 spreads similarly to viruses that cause the common cold.*
2. *How easily the virus spreads from person-to-person appears highly variable.*
3. *Much is still unknown about the spread of the virus that causes COVID-19.*

Longer Answer:

1. ***The virus that causes COVID-19 spreads similarly to viruses that cause the common cold.*** [34] [35] [36] [37]
   - The virus that causes COVID-19 is a respiratory virus which spreads primarily through close contact with an infected person.
   - The virus can be spread through droplets that are created when a person coughs or sneezes, or through droplets of saliva or discharge from the nose.
   - People infected with COVID-19 appear to be most infectious when they are most ill.
   - It appears an infected person without symptoms can also transmit the virus that causes COVID-19.
2. ***How easily the virus spreads from person-to-person appears highly variable.*** [34] [35] [36] [37]
   - Since most cases of COVID-19 are mild, the disease may be more widespread than current testing numbers indicate.
   - As more people are tested, experts will better understand the extent of COVID-19.
   - Scientists have estimated that one infected person could spread COVID-19 to approximately two or three other people without effective mitigation measures.
   - Person-to-person spread usually happens after close contact (within about 6 feet) with an infected person.
3. ***Much is still unknown about the spread of the virus that causes COVID-19.*** [34] [35] [36] [38]
   - Based on currently available data, people who have symptoms are causing the majority of virus spread.
   - Research is needed to learn more specifics about how the virus that causes COVID-19 is spread, including if it spread from touching contaminated surfaces.
   - Effective prevention and control of COVID-19 will be difficult if the virus can be easily transmitted to other people.
   - If experts identify many more cases, guidance and control strategies may need to change.

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[34] CDC Coronavirus information available at: https://www.cdc.gov/coronavirus/2019-ncov/faq.html

[35] CDC Healthcare Professionals: Frequently Asked Questions and Answers available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html

[36] WHO Coronavirus Information available at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019

[37] New York Times Coronavirus Updates available at: https://www.nytimes.com/news-event/coronavirus

[38] Please see Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet 2020 https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30183-5/fulltext

109. Can you get COVID-19 from mail packages or imported goods that arrive from infected areas?

Key Messages/Shorter Answer (Soundbite):

1. *No cases of COVID-19 have been reported from packages or imported goods.*
2. *Studies suggest that most coronaviruses may persist on surfaces for a few hours or up to several days.*
3. *The risk of catching COVID-19 from a package that has been moved, travelled, and exposed to different conditions and temperatures is believed to be low.*

Longer Answer:

1. ***No cases of COVID-19 have been reported from packages or imported goods.***
   - Experts believe there is no risk of COVID-19 from shipped products or packages.
   - If you think a package may be suspect based on factors like origin, clean it with disinfectant.

2. ***Studies suggest that most coronaviruses may persist on surfaces for a few hours or up to several days.***
   - Survival of COVID-19 on surfaces appears to behave like other coronaviruses.
   - It is not certain how long the virus that causes COVID-19 survives on surfaces.
   - Virus survival varies under different conditions, such as type of surface, temperature, or humidity.

3. ***The risk of catching COVID-19 from a package that has been moved, travelled, and exposed to different conditions and temperatures is believed to be low.***
   - People receiving packages from countries with confirmed COVID-19 are unlikely to be at increased risk of infection from the package or packaging.
   - The likelihood of a person with COVID-19 contaminating commercial goods is believed to be low.

110. How can people avoid or reduce social stigma associated with COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Stigma can be as dangerous as the virus that causes COVID-19.*
2. *A virus can infect anyone regardless of race, ethnicity, country, or beliefs.*
3. *People can stop stigma.*

Longer Answer:

1. ***Stigma can be as dangerous as the virus that causes COVID-19.***
   - Viruses are a threat to all people, regardless of race, ethnicity, or the country one lives in.
   - Stigma and discrimination can occur when people associate an infectious disease with a specific geographical region.
   - Stigma hurts everyone by creating fear or anger towards ordinary people instead of the virus that is causing the problem.
     - Stigmatizaiton of special populations, such as the homeless and non-English speaking people, can spark dangerous incidents.

2. ***A virus can infect anyone regardless of race, ethnicity, country, or beliefs.***
   - Ancestry does not make a person more vulnerable to COVID-19.
   - People should not assume that wearing a facemask implies COVID-19.
     - People wear facemasks for many reasons, including air pollution and pollen.
   - As COVID-19 continues to spread in the U.S. and the world, any person could become infected and get sick.

3. ***People can stop stigma.***
   - Speak up if you hear, see, or read misinformation or harassment.
   - Show compassion and support for those most closely impacted.
   - Report harassment.
   - Avoid predjudicial language and actions that imply blame.
   - Share accurate information and cautious about images that reinforce stereotypes.
   - Share stories of people experiencing stigma and the damage it can do.

200 Series: Travel Questions

201. How effective are travel restrictions and quarantines?

Key Messages/Shorter Answer (Soundbite):

1. *Travel restrictions and quarantines help limit the spread of contagious disease.*
2. *Travel restrictions and quarantine measures can help public health authorities control outbreaks.*
3. *Effective travel restrictions and quarantine alone may not stop disease spread.*

Longer Answer:

1. ***Travel restrictions and quarantines help limit the spread of contagious disease.***
   - Travel restrictions and quarantines give public health officials important tools for limiting the person-to-person spread of a contagious disease.
   - The primary purpose of a travel restriction is typically to restrict the geographical movement of people who are, or may be, infected with an infectious disease and thus the geographic range of contact with the disease.
   - The primary purpose of a quarantine is typically to separate from the general population individuals who may have been exposed to an infectious disease but who are not ill.
2. ***Travel restrictions and quarantines measures can help public health authorities control outbreaks.***
   - Travel restrictions and quarantines help limit and slow the transmission of cases in the general population by preventing exposures to infected individuals.
   - Travel restrictions and quarantines facilitate contact tracing, i.e., the process of tracking down individuals who were in contact and may have been infected by someone confirmed to be sick.
   - For a new virus for which much is unknown or uncertain, travel restrictions and quarantine measures give scientists more time to understand the virus, develop testing mechanisms, and explore treatment options.
   - Travel restrictions and quarantines reduce strain on treatment facilities and health care providers.
3. ***Effective travel restrictions and quarantine alone may not stop disease spread.***
   - Public health strategies, including social distancing measures, such as school closures or cancelling large public gatherings, may be needed to limit the spread of disease.
   - Travels restrictions and quarantines are typically less effective when people are infected with a disease but do not display signs or symptoms of illness.
   - If used excessively, travel restrictions can limit and restrict the movement of needed and critical goods and services, such as prescription drugs and personal protective equipment.
   - Travel restrictions and quarantine can result in stigmatizing people.[39]

[39] Information on stigmatization and COVID-19 available at: https://www.cdc.gov/coronavirus/2019-ncov/about/related-stigma.html

202. Should I be concerned about travel within the U.S.?

Key Messages/Shorter Answer (Soundbite):

1. *It is understandable that people are concerned about travelling.*
2. *The current health threat of becoming infected while travelling domestically is low.*
3. *The best way for travelers to prevent COVID-19 is ractice good hygiene and minimize close contact with infected persons.*

Longer Answer:

1. ***It is understandable that people are concerned about travelling.***
   - People are concerned because COVID-19 is a new disease infecting large numbers of people in numerous countries.
   - People are concerned because of the increasing number of travel advisories.
   - People are concerned because of the increasing number of countries impacted.
   - People are concerned because air travel presents the opportunity for getting sick due to an often crowded and confined environment.
2. ***The current health threat of becoming infected while travelling domestically is low.***
   - Few cases of COVID-19 related to domestic travel have been confirmed in the U.S.
   - As COVID-19 continues to spread, travel operations, advisories and guidance are changing.
   - American travelers should avoid non-essential travel to other countries where community transmission is widespread.
     - Continue to stay informed by following the Centers for Disease Control and Prevention (CDC) and U.S. State Department travel websites[40] for the latest information.[41]
3. ***The best way for travelers to prevent COVID-19 is practice good hygiene and minimize close contact with infected persons.***
   - Travelers should do their best to avoid close contact (within six feet) of people who are sick, especially those who are coughing and sneezing.
   - Travelers should take precautionary actions including frequent hand washing, use of hand sanitizer, covering coughs and sneezes, and avoiding touching their eyes, nose, and mouth.
   - Travelers should use alcohol wipes to wipe surfaces such as tray tables, seat belts, and arm rests.
   - People who are sick with fever, cough, or difficulty breathing should postpone traveling.

[40] Travel information available at: https://travel.state.gov/content/travel/en/traveladvisories/traveladvisories.html/

[41] Travel information available at: https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html

203. How are travel restriction decisions made?

Key Messages/Shorter Answer (Soundbite):

1. *Travel restrictions must balance risk of exposure against cost of disrupting trade and traffic.*
2. *As countries experience COVID-19 outbreaks, the United States may impose travel restrictions.*
3. *Travel restriction information is continually updated at the CDC and U.S. State Department websites.*

Longer Answer:

1. ***Travel restrictions must balance risk of exposure against cost of disrupting trade and traffic.***
   - Free movement of persons and goods between the U.S. and other countries is important to the global economy.
   - Travel restrictions can adversely impact the ability of Americans traveling abroad to return to the US without undue interference.
   - Severe travel restrictions are normally imposed only when the risks arising from the free movement of goods and persons outweigh the benefits of free movement.
2. ***As countries experience COVID-19 outbreaks, the United States may impose travel restrictions.***
   - The U.S. has imposed major travel restrictions as a result of widespread transmission of COVID-19 in specific countries.
   - Balancing of risks, costs and benefits is reassessed and re-evaluated as conditions change.
   - U.S. travel restrictions may change as more is known about the spread of the disease and about why there is so much variability in sickness from the disease.
3. ***Travel restriction information is continually updated at the CDC and US State Department websites.***[42] [43]
   - U.S. travel restrictions may change if outbreaks of COVID-19 intensify beyond current levels.
   - Travel health warnings and notices can be issued, discouraging all non-essential travel to countries where widespread transmission is taking place.
   - U.S. travel restrictions may change as more is known about the extent to which a person infected with COVID-19 and experiencing no symptoms can spread the disease to others.

[42] CDC travel information available at: https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html

[43] US State Department travel information available at: https://travel.state.gov/content/travel/en/traveladvisories/traveladvisories.html/

204. Why has the U.S. adopted travel restrictions that are more stringent than those recommended by the World Health Organization?

Key Messages/Shorter Answer (Soundbite):

1. *Each country must weigh many factors in setting COVID-19 travel restrictions.*
2. *WHO has called on countries not to impose excessive COVID-19 travel restrictions.*
3. *The US has adopted a balanced approach to setting COVID-19 travel restrictions.*

Longer Answer:

1. ***Each country must weigh many factors in setting COVID-19 travel restrictions.***
   - Risk factors include the number of cases, deaths from the cases, the ease of transmission, and the effectiveness of risk management controls.
   - Geographic factors include proximity between the countries, the length of a common border, and the ease of evading restrictions.
   - Economic factors include adverse effects on the trade of needed goods and services.
   - Risk and other factors important to one country may be different from those important to other countries.
2. ***WHO has called on countries not to impose excessive COVID-19 travel restrictions.***
   - Excessive travel restrictions may encourage evasion, deliberate self-concealment of illness, and illegal border crossings to avoid scrutiny and possible detection.
   - Excessive travel restrictions can limit and restrict the movement of needed goods and services, including personal protective equipment.
   - Excessive travel restrictions may result in stigmatizing the sick and impinging on civil liberties.
3. ***The U.S. has adopted a balanced approach to setting COVID-19 travel restrictions.***
   - The U.S. balances risks and other factors in setting COVID-19 travel restrictions.
   - Entry points into the U.S. are generally more controllable than in many other countries.
   - Screening of travelers can typically be conducted more effectively and comprehensively in the U.S. than in many other countries.

205. Why are you restricting travel from some countries but not restricting travel from other countries with COVID-19 cases?

Key Messages/Shorter Answer (Soundbite):

1. *The U.S. has set travel restrictions on specific countries with COVID-19 outbreaks.*
2. *In setting travel restrictions, experts balance risks, costs and benefits.*
3. *CDC has established risk-based criteria for setting travel restrictions.*

Longer Answer:

1. The U.S. has set travel restrictions on specific countries with COVID-19 outbreaks.

- CDC provides a daily update of destinations to be avoided.[44]
- U.S. border patrol agents are asking travelers about their recent travel history and passing out educational materials.
  - CDC has deployed additional staff to screen travelers at entry points.
- CDC has asked healthcare providers to be alert for travelers from countries with significant COVID-19 outbreaks.

2. In setting travel restrictions, experts balance risks, costs, and benefits.

- Excessive travel restrictions may encourage evasion, deliberate self-concealment of illness, and illegal border crossings to avoid scrutiny and possible detection.
- Excessive travel restrictions can limit and restrict the movement of needed goods and services.
- Excessive travel restrictions may result in stigmatizing populations and impinging on civil liberties.
- U.S. travel restrictions may change as greater clarity is gained about COVID-19.

3. CDC has established risk-based criteria for setting travel restrictions.

- CDC's risk assessment travel restriction criteria are:
  - Widespread sustained (ongoing) transmission and restrictions on entry by foreign nationals to the United States;
  - Widespread sustained (ongoing) transmission;
  - Sustained (ongoing) community transmission; and
  - Limited community transmission.
- Travelers should consult the CDC travel information web page for current information.[44]

[44] CDC traveler information available at: https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html

300 Series: Protection Questions

301. What should I do if I had contact with someone with COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Tell your health care provider about your contact with the infected person.*
2. *The virus can be transmitted from person-to-person through close contact.*
3. *Call your health care provider if you notice symptoms of COVID-19.*

Longer Answer:

1. ***Tell your health care provider about your contact with the infected person.***[45]
   - Call your your health care provider and tell them about your contact with the infected person.
   - Your health care provider will work with your state's public health department and the Centers for Disease Control and Prevention (CDC) to determine if you need to be tested.
   - If seeing a health care provider is not possible, immediately contact the CDC (800-CDC-INFO) to get advice on what to do.
2. ***The virus can be transmitted from person-to-person through close contact.***[46] [47]
   - Much is unknown about how the virus spreads and current knowledge is largely based on what is known about similar viruses.
   - Person-to-person spread occurs mainly via respiratory droplets produced when an infected person coughs or sneezes.
   - Person-to-person spread usually happens after close contact (within about 6 feet) with an infected person.
3. ***Call your health care provider if you notice symptoms of COVID-19.***[45] [46] [48]
   - Watch for signs and symptoms of COVID-19 infection, such as fever, cough, and shortness of breath.
   - If you notice symptoms of COVID-19, call your health care provider in advance to advise you on how to seek care.
   - Calling before you show up for care also allows your provider to take precautions that will help prevent spreading COVID-19 to others.
   - If you notice COVID-19 symptoms, seek advice before travelling to get medical care.

[45] Please see Interim guidance for persons who may have COVID-19 (CDC)

[46] Please see How COVID-19 Spreads (CDC)

[47] Please see Q&A on Coronaviruses (WHO)

[48] Please see What to Do If You Are Sick With COVID-19 (CDC)

302. What can people do to prevent infection with COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *The best way to prevent infection is avoiding exposure to the virus.*
2. *Facemasks have limited ability to prevent infection in otherwise healthy people.*
3. *Everyday basic hygiene is important to prevent infection.*

Longer Answer:

1. ***The best way to prevent infection is avoiding exposure to the virus.***[49] [50] [51]
   - Avoid close contact (about 6 feet) with people who are sick.
   - If you are sick, stay home and limit contact with others to avoid spreading the virus.
   - Avoid non-essential travel to places where widespread transmission is happening.
2. ***Facemasks have limited ability to prevent infection in otherwise healthy people.***[48]
   - CDC does not recommend routine use of facemasks as they create a false sense of security and require proper fitting.
   - Facemasks should be worn by people who show symptoms of COVID-19 to help prevent the spread of disease to others.
   - The use of facemasks is crucial for health workers and people who are taking care of someone in close settings (at home or at a health care facility).
   - Unnecessary use of facemasks increases the likelihood of a limited supply for those who are sick and for health care workers who are at the highest risk for disease transmission.
3. ***Everyday basic hygiene is important to prevent infection.***[52]
   - Wash your hands often with soap and water for at least 20 seconds.
     - Wash your hands especially after going to the toilet, before eating, and after coughing, sneezing, and blowing your nose.
   - Avoid touching your eyes, nose, and mouth with unwashed hands.
   - Use a hand sanitizer if soap and water are unavailable.
   - Cover your coughs and sneezes with a sleeve or tissue (and then throw away the tissue).
   - Clean frequently touched surfaces around the house with regular household cleaners.

[49] Please see Coronavirus Prevention and Treatment (CDC)

[50] Please see Q&A on Coronaviruses (WHO)

[51] Please see Novel Coronavirus Information for Travelers (CDC)

[52] Please see COVID-19: What the public should do (CDC)

303. Are facemasks useful to prevent COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Facemasks can help sick people from spreading the virus.*
2. *Facemasks are not recommended for people who are healthy.*
3. *If you wear a facemask, you should also use other preventive measures.*

Longer Answer:

1. Facemasks can help sick people from spreading the virus.[53] [54] [55]

- If you are sick with COVID-19, you should wear a facemask when you are around other people.
- A facemask should be used to protect others from getting infected.
- If you are not able to wear a facemask while you are sick (for example, if you find it hard to breathe while wearing it), then others should not stay in the same room as you or they should wear a mask.
- The use of facemasks is also crucial for health workers and people who are taking care of someone sick with COVID-19 in close settings.

2. Facemasks are not recommended for people who are healthy.[56]

- CDC does not recommend routine use of facemasks as they create a false sense of security and require proper fitting.
- Unnecessary use of masks increases the likelihood that masks may be in short supply for those who are sick and for health care workers who are at the highest risk for disease transmission.
- You should use a facemask if you are caring for someone with suspected COVID-19 infection when in close quarters.

3. If you wear a facemask, you should also use other preventive measures.[48] [52] [53]

- Wash your hands often with soap and water for at least 20 seconds.
  - Wash your hands especially after going to the toilet, before eating, and after coughing, sneezing, and blowing your nose.
  - Use a hand sanitizer if soap and water are unavailable.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Cover your coughs and sneezes with a sleeve or tissue.
- Clean frequently touched surfaces around the house with regular household cleaners.

[53] Please see What to do if you are sick with COVID-19 (CDC)

[54] Please see Q&A on Coronaviruses (WHO)

[55] Please see COVID-19 advice for the public: When and how to use masks (WHO)

[56] Please see Coronavirus Prevention and Treatment (CDC)

304. What type of facemask may be effective against COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *A medical facemask can help an infected person prevent spreading the virus.*
2. *N95 respirators may be used by healthcare personnel when caring for an infected patient.*
3. *If wearing a medical facemask, you should still practice basic hygiene.*

Longer Answer:

1. ***A medical facemask can help an infected person prevent spreading the virus.***[57] [58]
   - Medical facemasks are flat or pleated (some are like cups) and are attached to the head with straps.
   - The role of a medical facemask is to prevent contamination of the surrounding area when a person coughs or sneezes.
   - Medical facemasks are loose-fitting and only provide protection against droplets, including large respiratory particles from coughs or sneezes.
   - A medical facemask should be used by people who have been exposed to COVID-19 and are showing symptoms of illness like coughing or sneezing.
2. ***N95 respirators may be used by healthcare personnel when caring for an infected patient.***[52]
   - A N95 respirator is a tight-fitting personal protective device and requires training and testing to ensure a proper seal.
   - The N95 respirator filters out at least 95% of particles in the air, including large and small particles.
   - N95 respirators are not recommended for routine use in the community.
3. ***If wearing a medical facemask, you should still practice basic hygiene.***[48] [49] [50] [59]
   - Wash your hands often with soap and water for at least 20 seconds.
     - Wash your hands especially after going to the toilet, before eating, and after coughing, sneezing, and blowing your nose.
   - Avoid touching your eyes, nose, and mouth with unwashed hands.
   - Use a hand sanitizer if soap and water are unavailable.
   - Cover your coughs and sneezes with a sleeve or tissue.
   - Clean frequently touched surfaces around the house with regular household cleaners.

[57] Please see Frequently Asked Questions about Respirators and their Use (CDC)

[58] Please see Advice on the Use of Masks during COVID-19 Outbreak (WHO)

[59] Please see COVID-19 advice for the public: When and how to use masks (WHO)

305. Is there a sufficient supply of facemasks and N95 respirators?

Key Messages/Shorter Answer (Soundbite):

1. *Public health officials are working to ensure adequate supply for critical personnel.*
2. *Medical facemasks and special respirators should be used only where recommended.*
3. *Facemasks have limited ability to prevent infection in otherwise healthy people.*

Longer Answer:

1. ***Public health officials are working to ensure adequate supply for critical personnel.***[60] [61] [62] [63]
   - Supplies of N95 respirators — 95% effective in filtering infectious agents — can become depleted when in exceptionally high demand.
   - Supplies and demand for facemasks and N95 respirators will vary by location.
     - It is likely that high demand and high need may cause shortages in some places.
   - Countries, public health officials, and suppliers are continually and closely monitoring the availability of medical facemasks as well as N95 respirators.
2. ***Medical facemasks and N95 respirators should be used only where recommended.***[56] [60]
   - Medical facemasks are recommended for use by people who have a confirmed respiratory infection and for people who are taking care of someone in close settings.
   - N95 respirators are recommended for health care workers and are not recommended for routine use in the community.
   - Hoarding of medical facemasks and N95 respirators could prevent the people who need them most from getting them.
3. ***Facemasks have limited ability to prevent infection in otherwise healthy people.***[53] [57]
   - CDC does not recommend routine use of facemasks as they create a false sense of security and require proper fitting.
   - Facemasks should be worn by people who show symptoms of COVID-19 to help prevent the spread of disease to others.
   - The use of facemasks is crucial for health workers and people who are taking care of someone in close settings (at home or at a health care facility).
   - Unnecessary use of facemasks increases the likelihood of a limited supply for those who are sick and for health care workers who are at the highest risk for disease transmission.

[60] Please see Coronavirus Basics (CDC)

[61] Please see Respirators and Their Use (CDC)

[62] Pease see When and How to Use a Mask (WHO)

[63] Please see CIDRAP Experts Explain Necessary Respiratory Protection for COVID-19

400 Series: Transmission Questions

401. How is COVID-19 acquired?

Key Messages/Shorter Answer (Soundbite):

1. *The virus that causes COVID-19 likely originally emerged from an animal source.*
2. *The virus that causes COVID-19 can be transmitted from person-to-person.*
3. *The best way to prevent infection is avoiding exposure to the virus.*

Longer Answer:

1. ***The virus that causes COVID-19 likely originally emerged from an animal source.***[64] [65]
   - Coronaviruses are common in many different species of animals, including camels, cattle, cats, and bats.
   - An animal coronavirus can, upon occasion, mutate to become a virus that can infect people.
   - It's likely that an animal source from a live animal market in China was responsible for some of the first reported human infections.
2. ***The virus that causes COVID-19 can be transmitted from person-to-person.***[66]
   - Person-to-person spread usually happens after close contact (within 6 feet) with an infected person.
   - Person-to-person spread occurs mainly via respiratory droplets produced when an infected person coughs or sneezes or through droplets of saliva or discharge from the nose.
   - How easily a particular virus spreads from person-to-person can vary under differing environmental conditions like humidity.
   - It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or eyes.
   - Much is still unknown about how COVID-19 spreads and current knowledge is largely based on what is known about other similar coronaviruses.
3. ***The best way to prevent infection is avoiding exposure to the virus.***[64]
   - Avoid close contact with people who are sick.
   - Wash your hands often with soap and water for at least 20 seconds, especially after going to the toilet, before eating, and after coughing, sneezing, or blowing your nose.
   - Cover your mouth and nose with a tissue or your sleeve (not your hands) when coughing or sneezing.
   - Avoid touching your eyes, nose, and mouth with unwashed hands.

[64] Please see What You Need to Know About COVID-19 (CDC)

[65] Please see Q&A on Coronaviruses (WHO)

[66] Please see How 2019_nCoV Spreads (CDC)

402. Can a person spread the COVID-19 even if they have no symptoms?

Key Messages/Shorter Answer (Soundbite):

1. *It is possible that people infected with COVID-19 may be infectious before showing symptoms.*
2. *More detailed studies are being done to determine whether people acquire COVID-19 from those without symptoms.*
3. *People are thought to be highly contagious when they are most symptomatic (the sickest).*

Longer Answer:

1. ***It is possible that people infected with the COVID-19 may be infectious before showing symptoms.***[67]
   - Some experts believe it is possible for the virus that causes COVID-19 to be acquired from people who have no symptoms or signs of infection.
   - There have been credible reports that people have acquired COVID-19 from infected people who did not have noticeable symptoms nor signs of illness.
2. ***More detailed studies are being done to determine whether people acquire COVID-19 from those without symptoms.***[68] [69] [70] [71]
   - There is still much to be learned about how COVID-19 is acquired.
   - Current knowledge is largely based on what is known about similar coronaviruses.
   - Health authorities will continue to watch how COVID-19 is acquired.
   - If people without symptoms can spread the virus effectively, it will be much harder to prevent outbreaks.
3. ***People are thought to be highly contagious when they are most symptomatic (the sickest).*** [72]
   - COVID-19 is most likely acquired from someone who is actively sick.
   - Person-to-person spread usually happens after close contact (within about 6 feet) with an infected patient.
   - Early and potentially highly efficient transmission of the virus may occur before clinical symptoms or in conjunction with the very first mild symptoms.
   - Most viral respiratory infections, including those caused by coronaviruses, are spread through the coughs and sneezes of infected people who have symptoms.

[67] Please see Presumed Asymptomatic Carrier Transmission of COIVD-19 (JAMA)

[68] Please see How 2019_nCoV Spreads (CDC)

[69] Please see Q&A on Coronaviruses (WHO)

[70] Please see National Institutes of Health (NIH) Coronavirus Resources

[71] Please see New England Journal of Medicine Coronavirus Resources

[72] Available at: https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html

403. How efficient is the spread of COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Initial data suggest that each person with COVID-19 may infect up to two or three additional people if no mitigation measures are used.*
2. *It is possible that people infected with COVID-19 may be infectious before showing symptoms.*
3. *Person-to-person infection of COVID-19 usually happens after close contact with an infected person.*

Longer Answer:

1. ***Initial data suggest that each person with COVID-19 may infect up to two or three additional people if no mitigation measures are used.***[73] [74] [75] [76]
   - How easily a virus spreads from person-to-person depends on properties of the virus and the environment.
     - A strain of virus that spreads more easily through aerosols rather than heavier droplets released when an infected person sneezes or coughs is typically more contagious.
   - The virus that causes COVID-19 seems to be more contagious than most strains of flu, but less contagious than measles.
   - Initial data suggest that the virus that causes COVID-19 is more contagious but less deadly than the virus that causes SARS (Severe Acute Respiratory Syndrome).
   - The virus that causes COVID-19 seems to be acquired easily in confined spaces.
   - COVID-19 is a new disease and there is more to learn about how it is acquired.
2. ***It is possible that people infected with COVID-19 may be infectious before showing symptoms.***[77]
   - Although people appear highly contagious when they are sickest and producing the most droplets, asymptomatic transmission of the virus that causes COVID-19 has been reported.
   - Early and potentially highly efficient transmission of the virus may occur before clinical symptoms or in conjunction with the very first mild symptoms.
   - There have been credible reports that people can acquire COVID-19 from infected people without noticeable symptoms or signs of illness.
3. ***Person-to-person infection of COVID-19 usually happens after close contact with an infected person.***[69]
   - Person-to-person acquisition of COVID-19 usually happens between people who are within about 6 feet of each other.
   - Person-to-person acquisition occurs mainly via respiratory droplets produced when an infected person coughs or sneezes or through droplets of saliva or discharge from the nose.
   - It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or eyes.

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[73] Please see: WHO Statement on IHREC

[74] Please see: Study of 72,000 COVID-19 Patients (CIDRAP)

[75] Please see: COVID-19: Navigating the Uncharted (NEJM)

[76] Please see: How COVID-19 Spreads (CDC)

[77] Please see Presumed Asymptomatic Carrier Transmission of COIVD-19 (JAMA)

404. Can the COVID-19 be spread from contaminated surfaces?

Key Messages/Shorter Answer (Soundbite):

1. *COVID-19 can be acquired from contaminated surfaces.*
2. *Clean and disinfect frequently touched objects and surfaces.*
3. *Most often, spread happens among close contacts through respiratory droplets.*

Longer Answer:

1. ***COVID-19 can be acquired from contaminated surfaces.***[78] [79]
   - Some spread may happen by touching the contaminated surface and touching the eyes, nose, or mouth.
   - Wash your hands often with soap and water for at least 20 seconds, especially after going to toilet, before eating, and after coughing, sneezing, or blowing your nose.
   - Though the virus that causes COVID-19 can exist for hours to days on surface, it is unknown how long the virus remains infectious.
2. ***Clean and disinfect frequently touched objects and surfaces.***[80]
   - Simple disinfectants can inhibit the virus that causes COVID-19 from infecting people.
   - If you are sick with COVID-19, do not share personal items with other people in your home.
   - Personal items used by a person with COVID-19 should be thoroughly washed with soap and water.
3. ***Most often, spread happens among close contacts through respiratory droplets.***[81]
   - Acquisition of COVID-19 occurs primarily through respiratory droplets produced when an infectious person coughs or sneezes.
   - Close contact is defined as being within approximately 6 feet of a person with COVID-19 for a prolonged period of time.
   - Close contact can occur while caring for, living with, visiting, or sharing a health care waiting area with a person with COVID-19.
   - Surfaces contaminated with the virus that causes COVID-19 are not thought to be the primary way the virus is spread.

[78] Please see Q&A on Coronaviruses (WHO)

[79] Please see Persistance of Coronaviruses on surfaces (J of Hospital Infection)

[80] Please see What to do if you are sick with COVID-19 (CDC)

[81] Please see Interim guidance for persons who may have COVID-19 (CDC)

405. Can COVID-19 be spread in the air, like measles or tuberculosis, or only by droplets?

Key Messages/Shorter Answer (Soundbite):

1. *People primarily acquire COVID-19 by respiratory droplets from coughs or sneezes.*
2. *There are important differences between droplet and airborne transmission.*
3. *Airborne spread of COVID-19 is through respiratory droplets, whereas measles and tuberculosis (TB) include suspended airborne particles.*

Longer Answer:

1. ***People primarily acquire COVID-19 by respiratory droplets from coughs or sneezes.***[79] [82]
   - Spread of COVID-19 may also happen by touching a surface contaminated with an infected droplet and touching the eyes, nose, or mouth.
   - Unlike measles and tuberculosis, COVID-19 does not spread via the airborne route.
   - Initial data suggest that each person with COVID-19 may infect up to two or three additional people if no mitigation measures are used.
2. ***There are important differences between droplet and airborne transmission.***[83] [84]
   - Droplets are too large and heavy to remain airborne and instead settle.
   - Only a limited number of diseases are capable of airborne transmission.
3. ***Airborne spread of COVID-19 is through respiratory droplets, whereas measles and TB include suspended airborne particles.***[85] [86]
   - Measles virus is acquired by direct contact with infectious droplets or by airborne spread when an infected person breathes, coughs, or sneezes.
   - Measles virus can remain infectious in the air for up to two hours after an infected person leaves an area.
   - TB bacteria are acquired via the airborne route and can remain in the air for several hours with the potential to infect large numbers of people.

[82] Please see How COVID-19 Spreads (CDC)

[83] Please see Methods of Disease Transmission (Mount Sinai)

[84] Please see How TB Spreads (CDC)

[85] Please see Measles (CDC)

[86] Please see Extensive Nosocomial Transmission of Measles (PubMed)

406. Should schools and social gatherings be canceled?

Key Messages/Shorter Answer (Soundbite):

1. *Communities need to start planning for "social distancing" and closing schools.*
2. *Quick action by communities may be needed to stop person-to-person spread of COVID-19.*
3. *Communities should look to federal, state, and local health departments for guidance on social distancing and school closures.*

Longer Answer:

1. Communities need to start planning for "social distancing" and closing schools.

- "Social distancing" is the public health practice of putting distance between people to prevent the spread of a disease.
  - Most exposures to coronavirus occur after close contact with ill persons.
- Social distancing measures include closing schools and cancelling large public gatherings like church, sporting events, conferences, and festivals.
  - Many communities around the world have already implemented social distancing.
- Public health officials are asking communities and schools to think ahead and prepare for the possible challenges ahead.
- Communities should work with their state and local health departments to determine the risk and impact of disease in each of their communities.

2. Quick action by communities may be needed to stop person-to-person spread of COVID-19.

- Schools may need to close because they are places where large number of people congregate.
  - To protect parents, teachers, school staff, and children from becoming infected, school closures may be an important social distancing tool.
  - Children may be unaware that they are carrying the virus that causes COVID-19 and could infect others.
- Communities should encourage people to avoid close contact – at least 6 feet – with people who are coughing, sneezing, and have a fever.
- Closures of schools or other gatherings should only be used in communities where there is a very high rate of spread.
  - Unintended consequences of school closures, such as impact on working parents, should be thoroughly considered.
  - Schools should start planning alternative schooling strategies.

3. Communities should look to federal, state, and local health departments for guidance on social distancing and school closures.

- Social distancing has been used successfully in the past to prevent the spread of communicable diseases.
  - Public health authorities have seen the value of social distancing from experiences with measles, SARS, pandemic influenza, and seasonal influenza.
- Communities should coordinate their planned social distancing efforts with the business sector, such as teleworking and changes to leave policies.
- Communities should coordinate the social distancing efforts of community-based organizations such as businesses, faith-based organizations, and non-profit organizations.

407. Do you think state and local health departments are doing enough to prevent the spread of COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *State and local health departments are providing timely and accurate information on COVID-19.*
2. *State and local health departments have extensive training and experience controlling disease outbreaks.*
3. *State and local health departments look to the public and communities for help in controlling the spread of COVID-19.*

Longer Answer:

1. ***State and local health departments are providing timely and accurate information on COVID-19.***
   - State and local health departments are disseminating information on the progress of their response efforts.
   - State and local health departments are providing guidance to communities on prevention and mitigation.
   - State and local health departments are responding quickly to dispel rumors, misperceptions, and stigmatization of affected groups.
   - State and local health departments are providing guidance to private and public sector organizations on social distancing.
   - State and local health departments are working closely with federal agencies, Governors, and local and state emergency management agencies to help inform and plan for the response to COVID-19.
2. ***State and local health departments have extensive training and experience controlling disease outbreaks.***
   - State and local health departments have extensive experience monitoring travelers to prevent disease outbreaks.
   - State and local health departments have successfully controlled outbreaks of SARS (Severe Acute Respiratory Syndrome), Ebola, Zika, measles, pandemic influenza, seasonal influenza, and food borne diseases.
   - State and local health departments government have a highly trained and experienced workforce with years of preparing and practicing for situations like coronavirus.
3. ***State and local health departments look to the public and communities for help in controlling the spread of COVID-19.***
   - The best way to prevent the spread of COVID-19 is to avoid being exposed to COVID-19.
     - Everyday preventive actions such as hand washing help prevent the spread of COVID-19.
   - The public and communities can help state and local health departments by preparing now for social distancing.

500 Series: Outbreak Questions

501. What is the source of COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *COVID-19 is a coronavirus – a large family of viruses that circulate among humans and animals.*
2. *An animal is likely to be the source for the coronavirus that causes COVID-19.*
3. *There is no evidence that any animals in the United States might be a source of COVID-19.*

Longer Answer:

1. ***COVID-19 is a coronavirus – a large family of viruses that circulate among humans and animals.***
   - Coronaviruses occur in several species of animals and reptiles.
     - Potential animal sources of COVID-19 include bats, cattle, horses, dogs, cats, ferrets, camels, bats, and snakes.
   - Some coronaviruses can cause illness in animals and spread between animals and humans.
   - Coronaviruses are zoonotic, meaning they can be transmitted between animals and humans.
   - For a coronavirus to spread from animals to humans, the virus must first go through a series of genetic mutations as it is believed is the case for COVID-19.
2. ***An animal is likely to be the source for the coronavirus that causes COVID-19.***
   - The first persons infected with COVID-19 are likely to have acquired the virus directly from animals.
   - The coronavirus that causes COVID-19 has genetic similarities to MERS and SARS that suggest it has its origins in bats.
     - The coronaviruses that caused MERS CoV and SARS CoV have their origins in bats.
   - Researchers in China have suggested that pangolins, which are long-snouted mammals often used in traditional Chinese medicine, may be the animal source of the virus that causes COVID-19.
   - Scientists do not know whether bats were the source of infection for other animals.
3. ***There is no evidence that any animals in the United States might be a source of COVID-19.***
   - There is no evidence to suggest that animals pose a risk for spreading COVID-19 in the U.S.
   - There have not been reports of pets or other animals becoming sick with COVID-19 in the U.S.
   - It is not yet known if COVID-19 can infect or cause illness in dogs, cats, or livestock.
   - There are still many uncertainties regarding COVID-19 and illness in animals.

502. How worried should people be about COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *It is understandable that people are worried about COVID-19.*
2. *The current health threat of becoming infected in the U.S. is low.*
3. *The best way to prevent becoming infected is to avoid being exposed to the virus.*

Longer Answer:

1. It is understandable that people are worried about COVID-19.

- People are concerned because COVID-19 is a new disease infecting large numbers of people and spreading rapidly throughout the world.
- People are concerned because of the increasing number of dramatic and concerning media stories.
- People are concerned because everyday life presents multiple opportunities for getting sick due to often crowded and confined environments.
- People are concerned because, even though COVID-19 is like the common cold, much is still unknown about it.

2. The current health threat of becoming infected in the U.S. is low.

- Few cases of COVID-19 have been confirmed in the U.S. compared to the most highly impacted countries.
- If COVID-19 begins to spread more consistently in communities in the U.S., public health officials will review and reconsider current guidance.
- American travelers should avoid non-essential travel to other countries where community transmission is widespread.
    - Travelers should stay informed by following the U.S. State Department[87] and Centers for Disease Control and Prevention (CDC) travel website[88] for the latest information.

3. The best way to prevent becoming infected is to avoid being exposed to the virus.

- People should do their best to avoid close contact (within six feet) of people who are sick, especially those who are coughing and sneezing.
- People should take precautionary actions including frequent hand washing, use of hand sanitizer, covering coughs and sneezes, and avoiding touching their eyes, nose, and mouth after touching surfaces.
- People who are especially concerned about infection should use alcohol wipes to wipe surfaces such as tables and doorknobs.
- People who are sick with fever, cough, or difficulty breathing should stay home and contact their health care provider.

[87] https://travel.state.gov/content/travel/en/traveladvisories/ea/novel-coronavirus-hubei-province--china.html

[88] https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html

503. How contagious is the virus that causes COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *The virus that causes COVID-19 spreads similarly to viruses that cause the common cold.*
2. *How easily the virus spreads from person-to-person appears highly variable.*
3. *Much is still unknown about the spread of the virus that causes COVID-19.*

Longer Answer:

1. ***The virus that causes COVID-19 spreads similarly to viruses that cause the common cold.*** [89] [90] [91] [92]
   - The virus that causes COVID-19 is a respiratory virus which spreads primarily through close contact with an infected person.
   - The virus can be spread through droplets that are created when a person coughs or sneezes, or through droplets of saliva or discharge from the nose.
   - People infected with COVID-19 are most infectious when they are most ill.
   - It appears an infected person without symptoms may transmit the virus that causes COVID-19.
2. ***How easily the virus spreads from person-to-person appears highly variable.*** [34] [35] [36] [37] [93]
   - Since most cases of COVID-19 are mild, the disease may be more widespread than current testing numbers indicate.
   - Scientists have estimated that an infected person could spread COVID-19 to two or three additional people if no mitigation measures are used.
   - Person-to-person spread usually happens after close contact (within about 6 feet) with an infected person.
   - People are thought to be highly contagious when they are most symptomatic (the sickest).
     - Early and potentially highly efficient transmission of the virus may occur before clinical symptoms or in conjunction with the very first mild symptoms.
3. ***Much is still unknown about the spread of the virus that causes COVID-19.*** [34] [35] [36] [94]
   - Based on currently available data, people who have symptoms are causing the majority of virus spread.
   - Research is needed to learn more specifics about how the virus that causes COVID-19 is spread, including if it spread from touching contaminated surfaces.
   - Effective prevention and control of COVID-19 will be difficult if the virus can be easily transmitted to other people.

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[89] CDC Coronavirus information available at: https://www.cdc.gov/coronavirus/2019-ncov/faq.html

[90] CDC Healthcare Professionals: Frequently Asked Questions and Answers available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html

[91] WHO Coronavirus Information available at: https://www.who.int/emergencies/diseases/novel-coronavirus-2019

[92] New York Times Coronavirus Updates available at: https://www.nytimes.com/news-event/coronavirus

[93] Available at: https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html

[94] Clinical features of patients infected with 2019 novel Coronavirus in Wuhan, China. Lancet 2020 available at: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30183-5/fulltext

504. How rapidly does COVID-19 move from place to place?

Key Messages/Shorter Answer (Soundbite):

1. *The virus that causes COVID-19 has moved rapidly rapidly from region to region.*
2. *Scientists are uncertain about how rapidly COVID-19 will continue to move from place to place.*
3. *The virus that causes COVID-19 appears to move more rapidly than influenza or the SARS viruses.*

Longer Answer:

1. ***The virus that causes COVID-19 has moved rapidly from region to region.***
   - COVID-19 is thought to move mainly from person-to-person through the small droplets produced when an infected person coughs or sneezes.
   - Some transmission of COVID-19 may occur before people show symptoms.
2. ***Scientists are uncertain about how rapidly COVID-19 will continue to move from place to place.***
   - How easily a virus like COVID-19 spreads from person-to-person can vary, depending on different conditions, such as environment.
   - People are thought to be highly contagious when they are most symptomatic (the sickest), but may also be contagious without showing symptoms.
     - Early and potentially highly efficient transmission of the virus may occur before clinical symptoms or in conjunction with the very first mild symptoms.
   - More testing of people for COVID-19 will bring more confirmed cases but that does not mean the virus is spreading more rapidly.
   - More needs to be learned about how long it take the virus to go from one person to the next.
3. ***The virus that causes COVID-19 appears to move more rapidly than influenza or the SARS viruses.***
   - Scientists estimate that each person who gets sick with COVID-19 could potentially it spread it to two or three additional people.
     - How easily a virus spreads from person-to-person varies.
   - People with the flu tend to infect one or slightly more than one additional persons on average.
   - The faster public health officials can find people who are infected and isolate them from other people, the more successful they will be in controlling COVID-19.
   - The faster public health officials can find people who have been in contact with infected individuals, the more successful they will be in controlling COVID-19.
   - Even if the virus that causes COVID-19 spreads slowly, prevention and control will be difficult if COVID-19 can be easily transmitted to other people.

505. How long will concerns about COVID-19 last?

Key Messages/Shorter Answer (Soundbite):

1. *Concerns will linger until there is more scientific data about the behavior of COVID-19 and its impacts.*
2. *Concerns will linger because it is likely that the virus that causes COVID-19 will continue to circulate.*
3. *Concerns about COVID-19 will likely persist as long as the virus continues to spread rapidly.*

Longer Answer:

1. ***Concerns will linger until there is more scientific data about the behavior of COVID-19 and its impacts.***
   - Viruses are often highly unpredictable in terms of when, where, and why they spread.
   - Viruses are unpredictable in terms of who will be exposed, who will become infected, and the severity of illness that people who are infected will experience.
   - The ability of viruses to spread depends on many things, including the time of year, humidity, and indoor and outdoor temperatures.
2. ***Concerns will linger because it is likely that the virus that causes COVID-19 will continue to circulate.***
   - The coronaviruses that are continually in circulation cause about 10% to 30% of mild and severe colds that happen each year.
   - The new influenza virus that caused the 2009-2010 pandemic is still in circulation.
   - Public health departments and experts will be working with communities and healthcare providers to limit the spread of COVID-19.
   - Like influenza pandemics, this new virus will likely become one of the chronically circulating coronaviruses circulating in human populations and cause cold-like symptoms in future years.
3. ***Concerns about COVID-19 will likely persist as long as the virus continues to spread rapidly.***
   - Concerns will linger depending upon rate of global spread.
   - Concerns will linger depending upon time to develop safe and effective medicines and vaccines.
   - The impact of COVID-19 on economies, businesses, workers, and everyday life will extend beyond the illnesses that it causes.
   - Hospitals, healthcare organizations, and communities need to be prepared to handle a surge of COVID-19 cases and local outbreaks.
   - Hospitals, healthcare facilities, nursing home, and places with older patients and people with chronic disease will have to take steps to protect the people who are most vulnerable to severe COVID-19 illness.

600 Series: Response Questions

601. How long will it take to develop a vaccine for COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *A massive effort is underway to develop a vaccine for COVID-19.*
2. *It can take one or two years to develop a fully tested vaccine.*
3. *Initial supplies of a COVID-19 vaccine would be for those at highest risk.*

Longer Answer:

1. A massive effort is underway to develop a vaccine for COVID-19.

- Many countries, including the U.S. and China, have announced projects to create a safe and effective vaccine to prevent COVID-19.
- Since this is a newly discovered coronavirus, it is not yet known whether – or how long – it will take to develop a safe and effective COVID-19 vaccine.
- There are many uncertainties and challenges involved in developing new vaccines, including determining how best to provide protection.
- Availability and decisions on how to use the first available COVID-19 vaccines would likely vary by country.

2. It can take one or two years to develop a fully tested vaccine.

- Before being licensed for wide use, new vaccines have to first be tested to see if they are safe and effective.
- In the U.S., a vaccine can be used before it is licensed but this requires an Emergency Use Authorization and an informed consent process.

3. Initial supplies of a COVID-19 vaccine would be for those at highest risk.

- Indications for vaccine use will likely be prioritized for those at highest risk of complications from disease and those who have the highest risk of exposure.
- Guidance for vaccine use will be provided by the the U.S. Department of Health and Human Services (HHS)/Centers for Disease Control and Prevention (CDC).
- People at highest risk of infection include doctors, nurses, and others who would be caring for infected patients.
- Until a vaccine is licensed for use, only limited amounts of the vaccine will be available.

602. What is the medical treatment for people affected by COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *There is no specific medicine to prevent or treat COVID-19.*
2. *If you believe you have been exposed to COVID-19, contact your health care provider immediately.*
3. *The best way to prevent illness is avoiding exposure to COVID-19.*

Longer Answer:

1. ***There is no specific medicine to prevent or treat COVID-19.***
   - People infected with COVID-19 receive supportive care to help relieve symptoms.
   - People infected with COVID-19 are given medicines and treatment for pain, fever, and coughs.
   - For severe cases of COVID-19, treatment includes support for vital organ functions.
   - Additional treatments for COVID-19 are being investigated and tested.
2. ***If you believe you have been exposed to COVID-19, contact your health care provider immediately.***
   - Common symptoms of COVID-19 include fever, cough, and shortness of breath.
   - Call your health care provider if you have common cold symptoms and have been in an area where COVID-19 has been identified.
   - Call your health care provider if you have common cold symptoms and have been in contact with someone confirmed or being evaluated for COVID-19.
   - Call ahead before you go to a health care provider office or emergency room and tell them about your recent travels, contacts, and symptoms.
   - Health care providers will evaluate whether you have COVID-19.
3. ***The best way to prevent illness is avoiding exposure to the virus.***
   - Avoid close contact with people who are sick with COVID-19.
   - Wash your hands often with soap and water for at least 20 seconds.
   - Cover your mouth and nose with a tissue or your sleeve (not your hands) when coughing or sneezing.
   - Avoid touching your eyes, nose, and mouth with unwashed hands.

603. Will hospitals be able to handle a major outbreak of COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Hospitals have systems in place for the early detection and mitigation of COVID-19.*
2. *Hospital staff are trained to quickly isolate people with COVID-19.*
3. *Hospitals have extensive training and experience controlling disease outbreaks.*

Longer Answer:

1. ***Hospitals have systems in place for the early detection and mitigation of COVID-19.***
   - Hospital early detection and containment systems are based on lessons learned from previous disease outbreaks.
   - Hospitals are providing additional training for staff on COVID-19 prevention, containment, and mitigation.
   - Hospitals are expanding their COVID-19 treatment and isolation facilities.
2. ***Hospital staff are trained to quickly isolate people with COVID-19.***
   - Hospital workers are trained to quickly Identify potential COVID-19 cases.
   - Hospital workers are trained to take travel histories that may indicate COVID-19 infection.
   - Hospital workers train and practice how to put on and take off protective gear, draw blood safely, and dispose of bio-hazardous materials.
   - Identifying and isolating COVID-19 cases quickly can significantly reduce transmission.
     - Health care workers are trained to be on the watch for patients with symptoms that in the early stages of illness may seem like the flu.
     - Health care workers are trained to take travel histories that may indicate contact with COVID-19.
     - Health care workers can test for COVID-19 in suspected individuals.
3. ***Hospitals have extensive training and experience controlling disease outbreaks.***
   - Working with federal, state, and local health departments, hospitals have successfully controlled outbreaks of SARS, Ebola, Zika, measles, pandemic influenza, seasonal influenza, and food-borne diseases.
   - Hospitals train, equip, and practice in simulated emergencies for situations like coronavirus.
   - CDC has developed a highly specific Hospital Preparedness Assessment Tool for COVID-19.[95]

[95] Hospital Preparedness Assessment Tool available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/hcp-hospital-checklist.html

700 Series: Control Questions

701. What are public health departments doing to prevent the spread of COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *The U.S. healthcare system has strategies for early detection and mitigation of COVID-19.*
2. *The U.S. healthcare system can quickly identify COVID-19 cases, isolate sick people, and trace contacts.*
3. *Health departments and hospitals have training and experience controlling disease outbreaks.*

Longer Answer:

1. The U.S. healthcare system has strategies for early detection and mitigation of COVID-19.

- Health departments are strengthening their early detection, containment, and mitigation systems.
  - Healthcare workers train on prevention, containment, and mitigation of COVID-19.
  - Health departments are providing additional training for healthcare workers.
  - Health departments are expanding COVID-19 quarantine and treatment facilities.

2. The U.S. healthcare system can quickly identify COVID-19 cases, isolate sick people, and trace contacts.

- Identifying COVID-19 cases quickly can significantly reduce transmission.
  - Health care workers are trained to be on the watch for patients with COVID symptoms.
  - Health care workers are trained to take travel histories that may indicate COVID-19.
- Isolating people sick with COVID-19 quickly can significantly reduce transmission.[96]
  - People are thought to be highly contagious when they are most symptomatic (the sickest)
  - Early and potentially highly efficient transmission of the virus may occur before clinical symptoms or in conjunction with the very first mild symptoms.
  - Health care workers train and practice how to put on and take off protective gear, draw blood safely, and dispose of bio-hazardous materials.
- Tracing contacts of COVID-19 patients quickly can significantly reduce transmission.
  - People who have been in contact with an COVID-19 patient are monitored for temperature and symptoms, and may be quarantined.

3. Health departments and hospitals have training and experience controlling disease outbreaks.

- Federal, state and local health departments have experience monitoring travelers to prevent disease outbreaks.
- Health departments and hospitals have successfully controlled outbreaks of SARS, Ebola, Zika, measles, pandemic influenza, seasonal influenza, and food-borne diseases.
- Health departments and hospitals have highly trained and experienced workforces with years of preparing and practicing for situations like COVID-19.
- State and local health departments are helping lead their communities for potential impacts from the spread of COVID-19.
- Health professionals and departments are helping educate communities regarding the risks of COVID-19 transmission and how to best prevent and respond to the spread of COVID-19.

[96] Available at: https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html

702. What happens when a case of COVID-19 is identified?

Key Messages/Shorter Answer (Soundbite):

1. *Health care workers identify COVID-19 cases quickly to reduce transmission.*
2. *Health care workers isolate COVID-19 cases quickly to reduce transmission.*
3. *Health care workers trace contacts of COVID-19 cases quickly to reduce transmission.*

Longer Answer:

1. ***Health care workers identify COVID-19 cases quickly to reduce transmission.***
   - Heath care workers are trained to identify patients with COVID-19 symptoms.
   - Health care workers are trained to take travel histories indicating contact with COVID-19.
   - Health care workers are trained and practiced in handling COVID-19 cases.
2. ***Health care workers isolate COVID-19 cases quickly to reduce transmission.***[97]
   - People are thought to be highly contagious when they are most symptomatic (the sickest).
     - Early and potentially highly efficient transmission of the virus may occur before clinical symptoms or in conjunction with the very first mild symptoms.
   - Health care workers are trained and practiced in how to isolate a patient.
   - Health care systems are highly experienced and effective in caring for patients with highly infectious and deadly infections and do it every day.
3. ***Health care workers trace contacts of COVID-19 cases quickly to reduce transmission.***
   - People who have been in contact with an COVID-19 patient are monitored for temperature and symptoms.
   - People who have been in contact with an COVID-19 patient may be quarantined.
   - Health care workers follow CDC's detailed guidelines on contact tracing.

[97] https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html

703. What can communities do to prepare for COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Communities working together is critical to the effectiveness of the COVID-19 response effort.*
2. *In preparation for a COVID-19 outbreak, communities need to plan for social distancing measures.*
3. *Communities should help prevent discrimination and stigma.*

Longer Answer:

1. ***Communities working together is critical to the effectiveness of the COVID-19 response effort.***[98]
   - Community hospitals and other healthcare organizations are strengthening their ability to detect and track suspected cases of COVID-19.
   - Businesses should plan for extended absences of employees due to illness or taking care of family members.
   - Communities should work with their health departments and local organizations to improve outreach to the elderly, non-English speaking communities, and those without access to care.
   - As trusted sources, community- and faith-based organizations can reinforce the importance of everyday preventive action steps to members of the community to help stop the spread of germs.
   - Communities can promote the value of people staying healthy to reduce chances of becoming sick with COVID-19.
2. ***In preparation for a COVID-19 outbreak, communities should plan for social distancing measures.***
   - If COVID-19 becomes widespread, health officials may recommend social distancing actions that reduce face-to-face contact to limit exposure and illness.
   - Social distancing measures may include canceling large public gatherings and closing schools.
   - Schools should communicate with parents about the decision-making process for potential school closures.
   - The decisions to close schools will be made carefully given how disruptive this can be.
     - Initial data indicates that few children are being affected by COVID-19.
   - Many communities around the world have already implemented social distancing measures in response to COVID-19.
3. ***Communities can help prevent discrimination or stigma.***[99]
   - Viruses are a threat to all people, regardless of race, ethnicity, or the country one lives in.
   - Viruses do not target people from specific populations, ethnicities, or racial backgrounds.
   - Viruses do not respect borders and do not discriminate among different types of people.
   - People can help prevent discrimination and stigmatization by staying informed through trusted sources and sharing accurate information.

[98] Please see Preventing COVID-19 Spread in Communities (CDC)

[99] Please see Stigma Related to COVID-19 (CDC)

704. What are emergency medical service (EMS) providers doing about COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *EMS staff are trained to handle persons with possible COVID-19.*
2. *EMS clinicians and first responders need to modify their practices for COVID-19.*
3. *The EMS system works closely with many health partners.*

Longer Answer:

1. EMS staff are trained to handle persons with possible COVID-19.

- EMS Emergency Medical Service (EMS) response begins with close coordination and effective communication among the Public Safety Answering Points (PSAPs) or "911 call centers," the EMS system, healthcare facilities, and the public health system.
- PSAPs or Emergency Medical Dispatch (EMD) centers should question callers about signs, symptoms, and risk factors for COVID-19.
    - If COVID-19 is suspected, prehospital care providers and healthcare facilities should be notified in advance that they may be transporting, caring for, and/or receiving a patient who may have COVID-19.
- EMS staff includes all first responders, including law enforcement, fire services, emergency medical services, and emergency management officials.
- Care and transports by EMS present unique challenges because of the nature of the setting, enclosed space during transport, frequent need for rapid medical decision-making, interventions with limited information, and a varying range of patient acuity and jurisdictional healthcare resources.

2. EMS clinicians and first responders need to modify their practices for COVID-19.[100]

- CDC has extensive guidance for EMS providers on modifying their practices for COVID-19.
- The CDC recommended modifications of EMS practices with respect to COVID-19 include:
    - Patient assessment and precautions for aerosol generating procedures
    - Transport of a suspect or confirmed COVID-19 patient to a healthcare facility
    - Documentation and cleaning of transport vehicles
    - Follow-up or reporting measures.

3. The EMS system works closely with many health partners.

- EMS personnel include first responders, including law enforcement, fire services, emergency medical services, and emergency management officials.
- EMS personnel work closely with 911 Public Safety Answering Points (PSAPs, or call centers), the wider EMS system, healthcare facilities, the public health system, city and county health departments, state health departments, and CDC.

[100]Interim Guidance for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19 https://www.cdc.gov/coronavirus/COVID-19/hcp/guidance-for-ems.html

705. What is isolation and quarantine? What's involved?

Key Messages/Shorter Answer (Soundbite):

1. *Isolation and quarantine can help limit the spread of contagious disease.*
2. *Isolation separates infected people from others.*
3. *Quarantine separates individuals believed to be exposed who are not yet ill.*

Longer Answer:

1. ***Isolation and quarantine can help limit the spread of contagious disease.***
   - Quick action by health officials is needed to stop person-to-person spread of a contagious disease.
   - Both isolation and quarantine have been used successfully to prevent the spread of communicable disease.
   - People who have been exposed to a communicable disease might not know it
   - Isolation separates infected people from others; quarantine separates individuals believed to be exposed who are not yet ill.
2. ***Isolation separates infected people from others.***
   - Isolation is a way to limit the spread of disease.
   - Isolation is a standard public health practice for disease control.
   - Isolation is a medical decision that can be legally enforced.
   - Isolation typically involves putting an infected person in a separate room or special area, for example, of a hospital.
   - Isolation protects healthy people and caregivers from disease.
   - Isolation protects infected people from getting other diseases.
   - Isolation protects family and friends of infected people from getting sick.
   - Isolation allows for the delivery of specialized care to infected persons.
   - Hospitals have plans that describe how to isolate patients.
3. ***Quarantine separates individuals believed to be exposed who are not yet ill.***
   - Quarantine separates and restricts the movement of people.
   - Quarantine is an action taken for an individual with a believed exposure who is not yet ill (not presenting signs/symptoms).
   - To implement quarantine, a person is asked to remain separate from other people to avoid spreading infection if they become ill.
   - Quarantine has been successfully used to prevent the spread of communicable disease.
   - Quarantine may be voluntary or involuntary based on medical evaluation.
   - The CDC has published guidelines on monitoring symptoms and controlling movement of persons that relate to quarantine.

706. Where will sick people be placed in the state if they are under isolation or quarantine orders?

Key Messages/Shorter Answer (Soundbite):

1. *Quarantine can be done at homes as well as at special facilities.*
2. *Special facilities may be needed if large numbers of people are involved.*
3. *Many communities have plans for quarantine procedures during a disease outbreak.*

Longer Answer:

1. ***Quarantine can be done at homes as well as at special facilities.***
   - Quarantine sites are determined in part by the number of cases.
   - Based on medical evaluation, quarantine may be done at a private residence or specialized facility.
2. ***Special facilities may be needed if large numbers of people are involved.***
   - Facilities may be needed to quarantine many people in many locations, particularly individuals who become ill when they are not near their home.
   - Local and state emergency plans identify facilities that can be used for quarantine.
   - The federal government is working with states and cities to identify additional facilities for quarantine.
3. ***Many communities have plans for quarantine procedures during a disease outbreak.***
   - Disease control plans describe the equipment needed to implement quarantine.
   - Disease control plans describe the supplies needed for quarantine.
   - Disease control plans describe the medicines needed for quarantine.

707. Can quarantined (or isolated) people stay at home, or will they be forced to go to hospitals or some secure location?

Key Messages/Shorter Answer (Soundbite):

1. *In most cases, individuals are asked to voluntarily quarantine at home.*
2. *People in isolation may be cared for in their homes, in hospitals, or in designated healthcare facilities.*
3. *Quarantine and isolation measures require the trust and participation of the public.*

Longer Answer:

1. ***In most cases, individuals are asked to voluntarily quarantine at home.***[101] [102] [103]
   - Quarantine is a public health measure used to separate or restrict the movement of people who may have been exposed to a contagious illness.
   - Quarantined individuals do not have symptoms and may not be sick or contagious.
   - Quarantine may involve a variety of control strategies including short-term, voluntary home confinement; restrictions on travel for those who may have been exposed; or restrictions on passage into and out of an area.
2. ***People in isolation may be cared for in their homes, in hospitals, or in designated healthcare facilities.***[104] [105]
   - Isolation is a public health measure that separates sick people with a contagious disease from people who are not sick.
   - The decision of where to isolate a person is based on multiple factors including severity of illness, need for testing, and appropriateness of a home environment for isolation purposes.
   - Seriously ill patients may be cared for in hospitals, while individuals with mild illness may be cared for at home.
   - Patients who aren't hospitalized should stay at home, except for getting medical care, and avoid contact with others until they are no longer contagious.
   - The decision to end home isolation should be made with your doctor.
3. ***Quarantine and isolation measures require the trust and participation of the public.***[102] [103]
   - In most cases, quarantine and isolation are done voluntarily and participation of the public is necessary to stop the spread of contagious diseases.
   - Federal, state, and local health officials have the authority to enforce quarantine and isolation if necessary.

[101] Please see Quarantine and Isolation (CDC)

[102] Please see Isolation and Quarantine – Info for Public (Michigan Dept of Comm Health)

[103] Please see Travelers from China Arriving in the US (CDC)

[104] Please see What to do if you are sick with 2019-nCoV (CDC)

[105] Please see New Coronavirus – What You Need to Know (CA Dept of Public Health)

708. Why isn't the U.S. government placing travel and other restrictions on people from any country that has COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *The U.S. has set travel and other restrictions on countries experiencing significant COVID-19 outbreaks.*
2. *In setting travel restrictions and other restrictions, experts balance risks, costs, and benefits.*
3. *CDC has established risk-based criteria for setting travel and other restrictions for COVID-19.*

Longer Answer:

1. ***The U.S. has set travel and other restrictions on countries experiencing significant COVID-19 outbreaks.***
   - U.S. border patrol agents are asking travelers about their recent travel history and distributing educational materials.
     - CDC has deployed additional staff to screen travelers at entry points.
   - CDC has asked healthcare providers to be alert for travelers from countries with significant COVID-19 outbreaks.
   - CDC provides a daily update of destinations to be avoided.[106]
2. ***In setting travel restrictions and other restrictions, experts balance risks, costs, and benefits.***
   - Excessive travel restrictions may encourage evasion, deliberate self-concealment of illness, and illegal border crossings to avoid scrutiny and possible detection.
   - Excessive travel restrictions can limit and restrict the movement of needed goods and services.
   - Excessive travel restrictions may result in stigmatizing populations and impinging on civil liberties.
   - U.S. travel restrictions may change as greater clarity is gained about COVID-19.
3. ***CDC has established risk-based criteria for setting travel and other restrictions for COVID-19.***
   - CDC's risk assessment levels for travel restriction criteria are:
     - Widespread sustained (ongoing) transmission and restrictions on entry by foreign nationals to the United States;
     - Widespread sustained (ongoing) transmission;
     - Sustained (ongoing) community transmission; and
     - Limited community transmission.
   - For up-to-date information, travelers should consult the CDC travel information web page[106] or U.S. State Department travel advisory web page[107]
   - If the spread of COVID-19 increases in other countries, travel notices or public health precautions such as quarantine procedures may be implemented as needed.

[106] Available at: https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html

[107] Available at: https://travel.state.gov/content/travel/en/traveladvisories/ea/novel-coronavirus-hubei-province--china.html

709. What actually happens in quarantine?

Key Messages/Shorter Answer (Soundbite):

1. *Quarantine is a public health measure used to limit the spread of contagious disease.*
2. *In most cases, individuals are asked to voluntarily quarantine at home.*
3. *Health departments can assist individuals with the quarantine process.*

Longer Answer:

1. Quarantine is a public health measure used to limit the spread of contagious disease.[108]

- Quarantine separates or restricts the movement of people who may have been exposed to a contagious illness.
- Quarantined individuals do not have symptoms and may not be sick or contagious.
- Quarantine is different from isolation, another common public health measure.
- Isolation separates sick people with a contagious disease from people who are not sick.

2. In most cases, individuals are asked to voluntarily quarantine at home. [109]

- Public health officials regularly ask people who may have been exposed to a communicable disease to stay at home and avoid contact with other people.
- Representatives from the health department will monitor these individuals and will provide further instructions as needed.
- Implementing quarantine measures requires the trust and participation of the public to help stop the spread of contagious diseases.

3. Health departments can assist individuals with the quarantine process.[110]

- Health departments have plans in place to assist individuals with the quarantine process and often work with community organizations to provide key services.
- Health departments can assist individuals under quarantine with services that will allow them to stay home and limit their contact with others, including the delivery of food, prescriptions, and other basic necessities.
- Other services, including mental health resources or assistance talking with an employer may also be available.
- If you have specific questions or are having difficulty remaining at home during your quarantine, contact your health department for assistance.

[108] Please see Quarantine and Isolation (CDC)

[109] Please see Federal Quarantine Guidance for Novel Coronavirus (Washington St DOH)

[110] Please see Isolation and Quarantine Response Plan (Seattle & King County Pub Health)

710. How can individuals prepare for COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Plan for the possibility of social distancing strategies being implemented in your community.*
2. *Create a household plan of action.*
3. *Everyday basic hygiene is important to prevent infection.*

Longer Answer:

1. ***Plan for the possibility of social distancing strategies being implemented in your community.***[111]
   - If COVID-19 becomes widespread, health officials may recommend social distancing actions that reduce face-to-face contact to limit exposure and illness.
   - Social distancing measures may include canceling large public gatherings and closing schools.
   - Parents should consider reaching out to their child's school to learn how plans for early dismissals or online instruction would be implemented.
   - Understand the plan for continuing education and social services (such as student meal programs) during school dismissals.
   - Make arrangements for back-up care for children or elderly relatives in case their regular caregiver is sick or their school is closed.
2. ***Create a household plan of action.***[112]
   - Meet with members of your household, relatives, friends, and neighbors to discuss what to do if a COVID-19 outbreak occurs in your community and what the needs of each person will be.
   - Plan ways to care for those who might be at greater risk for serious complications, including the elderly and people with chronic health conditions.
   - If your child attends a college or university, encourage them to learn about the school's plan for a COVID-19 outbreak.
3. ***Everyday basic hygiene is important to prevent infection.***[113]
   - Wash your hands often with soap and water for at least 20 seconds.
     - Wash your hands especially after going to the toilet, before eating, and after coughing, sneezing, or blowing your nose.
     - Use a hand sanitizer if soap and water are unavailable.
   - Avoid touching your eyes, nose, and mouth with unwashed hands.
   - Cover your coughs and sneezes with a sleeve or tissue.
   - Clean frequently touched surfaces around the house with regular household cleaners.

[111] Please see What to expect from COVID-19 (Philadelphia Department of Public Health)

[112] Please see Get Your Household Ready for COVID-19 (CDC)

[113] Please see COVID-19: What the public should do (CDC)

711. Who is most at risk and how can individuals prepare for COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Older adults and people with predisposing illnesses are especially vulnerable to COVID-19.*
2. *Practicing everyday preventative measures is very important.*
3. *If you know someone who is at increased risk, help them stay healthy.*

Longer Answer:

1. ***Older adults and people with predisposing illnesses are especially vulnerable to COVID-19.***[114] [115]
   - Older adults, and people who have a predisposing condition making them more susceptible to COVID-19, are at higher risk for getting seriously ill or dying from COVID-19.
   - The vast majority of people with COVID-19 do not require hospital care.
   - A smaller percentage of people with COVID-19 get severely ill with respiratory problems like pneumonia.
2. ***Practicing everyday preventative measures is very important.***[116]
   - Wash your hands often with soap and water for at least 20 seconds.
     - Wash your hands especially after going to the toilet, before eating, and after coughing, sneezing, or blowing your nose.
   - Avoid touching your eyes, nose, and mouth with unwashed hands.
   - Use a hand sanitizer if soap and water are unavailable.
   - Cover your coughs and sneezes with a sleeve or tissue.
   - Clean frequently touched surfaces around the house with regular household cleaners.
3. ***If you know someone who is at increased risk, help them stay healthy.***[117]
   - If you live with a person at increased risk, make sure to wash your hands every time you come in from outside.
   - Consider running errands, such as picking up groceries, for people at risk of COVID-19 so they do not have to go out.
   - Persons who have symptoms of COVID-19 should not visit the elderly in their homes or in nursing homes.

[114] Please see What you Should Know About the First COVID-19 Cases (Seattle PH)

[115] Please see Who is Getting Sick, and How Sick? (STAT)

[116] Please see Get Your Household Ready for COVID-19 (CDC)

[117] Please see How to Prepare for the Coronavirus (NYT)

712. What can businesses do to prepare for COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Businesses should plan for extended absences of employees due to illness.*
2. *Businesses should apply infection control measures in the office.*
3. *Businesses should stay informed and clearly communicate updates to employees.*

Longer Answer:

1. Businesses should plan for extended absences of employees due to illness.[118]

- Businesses can cross-train employees to carry out key functions so the workplace can operate when essential staff are out sick.
- Businesses should actively encourage sick employees to stay home.
- Businesses should consider expanding telework and ensure employees have what they need to work from home.
- Businesses should ensure that sick leave policies are flexible and consistent with public health guidance, and that employees are aware of these policies.

2. Businesses should apply infection control measures in the office.[119] [120]

- Businesses should promote regular and thorough hand-washing by employees, contractors, and customers.
- Businesses should put hand sanitizer dispensers in prominent places around the workplace.
- Surfaces (desks and tables) and objects (telephones and keyboards) in offices should be wiped with disinfectant regularly.
- Employees who report having a fever or respiratory illness upon arrival to work or who become sick during the work day should be separated from others and immediately sent home.
- Businesses should designate a separate area at work where sick employees can temporarily be isolated.

3. Businesses should stay informed and clearly communicate updates to employees.[121]

- Businesses should determine how to get updated information from credible sources and relay information about the outbreak to employees and business partners.
- Businesses should ensure employees are aware of U.S. State Department[122] and CDC travel advisories[123]
- Businesses should reinforce key preventive measures for employees to include frequent hand washing and staying home while sick.

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[118] Please see Planning for a Coronavirus Pandemic (Seattle & King County PH)

[119] Please see COVID-19: Control and Prevention (OSHA)

[120] Please see Getting Your Workplace Ready for COVID-19 (WHO)

[121] Please see COVID-19: Interim Guidance for Businesses (CDC)

[122] https://travel.state.gov/content/travel/en/traveladvisories/ea/novel-coronavirus-hubei-province--china.html

[123] https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html

800 Series: Media Questions

801. What is expected from the news media regarding COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *News media are vital for getting information about COVID-19 to interested and affected populations.*
2. *News media will be a valuable ally during a major COVID-19 outbreak.*
3. *Through effective media communication, public health officials can engage the public and help them to make informed and better decisions.*

Longer Answer:

1. ***News media are vital for getting information about COVID-19 to interested and affected populations.***
   - News media play a critical role in keeping the public informed about COVID-19.
   - News media serve as an important source of information for the public about changes in the COVID-19 situation.
   - News media provide key information about public concerns to public health officials.
   - News media help inform the public about COVID-19 guidance, recommendations, and available services.
2. ***News media will be a valuable ally during a major COVID-19 outbreak.***
   - News media can quickly provide urgent information during a major COVID-19 outbreak.
   - New media can reach large numbers of people during a major COVID-19 outbreak.
   - News media can help public health officials reach major target audiences during a major COVID-19 outbreak.
   - News media can assist public health officials in countering rumors and misinformation.
   - News media can assist public health officials in encouraging appropriate behaviors during a major COVID-19 outbreak.
3. ***Through effective media communication, public health officials can engage the public and help them to make informed and better decisions.***
   - News media can enhance public confidence in the ability of public health officials to deal with COVID-19.
   - News media can raise awareness of actual or potential risks.
   - News media can direct readers and viewers to federal, state, and local public health websites and other trusted sources of information about COVID-19.

802. Has the news media over-reacted and sensationalized COVID-19?

Key Messages/Shorter Answer (Soundbite):

1. *Characteristics of COVID-19 generate intense media interest.*
2. *COVID-19 creates many opportunities for news media sensationalism.*
3. *News media sensationalism can be tempered by effective risk communication.*

Longer Answer:

1. ***Characteristics of COVID-19 generate intense media interest.***
   - The American public is unfamiliar with COVID-19
   - There is no vaccine or specific medicine for COVID-19.
   - Invisible, deadly risk agents such as COVID-19 generate high levels of public fear and anxiety.
   - The global COVID-19 outbreak has many scientific uncertainties.
2. ***COVID-19 creates many opportunities for news media sensationalism.***
   - Missteps, mistakes, and disagreements are likely to be sensationalized by parts of the news media.
   - COVID-19 presents the news media with many dramatic photographic and video opportunities.
3. ***News media sensationalism can be tempered by effective risk communication.***
   - Public health officials can temper media sensationalism by providing timely, accurate, and credible information.
   - Public health officials can temper media sensationalism by being transparent.
   - Public health officials can temper media sensationalism by acknowledging uncertainties.
   - Public health officials can temper media sensationalism by being willing to admit mistakes.
   - Public health can temper media sensationalism by expressing authentic care and acknowledging emotions.

Appendices

Appendix A: COVID-19 Resources

Webpages:

CDC

- CDC's COVID-19 homepage – including latest updates and overview: https://www.cdc.gov/coronavirus/2019-ncov/index.html
- Resources for State, Local, Territorial and Tribal Health Departments: https://www.cdc.gov/coronavirus/2019-ncov/php/index.html
- Cases in the U.S.: https://www.cdc.gov/coronavirus/2019-ncov/cases-in-us.html
- Coronavirus Travel Information: https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html
- Coronavirus Information for Healthcare Professionals: https://www.cdc.gov/coronavirus/2019-nCoV/hcp/index.html
- Laboratories and Diagnostic Testing of Specimens: https://www.cdc.gov/coronavirus/2019-nCoV/lab/index.html
- Preventing Spread of COVID-19 in Communities: https://www.cdc.gov/coronavirus/2019-ncov/community/index.html
- Coronavirus Communication Resources: https://www.cdc.gov/coronavirus/2019-ncov/communication/index.html
- Fact Sheets on Coronavirus Disease (COVID-19)(PDF): https://www.cdc.gov/coronavirus/2019-ncov/communication/factsheets.html
- CDC Transcripts and Press Releases on Coronavirus and COVID-19: https://www.cdc.gov/media/dpk/diseases-and-conditions/coronavirus/coronavirus-2020.html

WHO

- Pneumonia of unknown cause – China. WHO Disease Outbreak News. January 5, 2020. https://www.who.int/csr/don/05-january-2020-pneumonia-of-unkown-cause-china/en/
- Technical guidance by topic and by date. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance
- Risk communication and community engagement (RCCE) readiness and response to the 2019 novel coronavirus (2019-nCoV). Interim guidance, v2. January 26, 2020.

  https://www.who.int/publications-detail/risk-communication-and-community-engagement-readiness-and-initial-response-for-novel-coronaviruses-(-ncov)
- Coronavirus disease (COVID-2019) press briefings and press conferences, including transcripts. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/media-resources/press-briefings
- Coronavirus disease (COVID-2019) situation reports. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/

Continued – Appendix A: COVID-19 Resources

- Disease Outbreak News (DON). https://www.who.int/csr/don/archive/disease/novel_coronavirus/en/

Background Research – Articles & White Papers:

- Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19) https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf
- Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Prof. Nanshen Chen, January 30, 2020. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30211-7/fulltext
- A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster, Jasper Fuk-Woo Chan et al. February 24, 2020. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30154-9/fulltext
- Convalescent plasma as a potential therapy for COVID-19, Long Chen et al. February 27, 2020. https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30141-9/fulltext
- Clinical Characteristics of Coronavirus Disease 2019 in China, Wei-jie Guan et al. February 29, 2020. https://www.nejm.org/doi/full/10.1056/NEJMoa2002032
- Data sharing and outbreaks: best practice exemplified, David L. Heymann. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30184-7/fulltext
- A detailed guide to the coronavirus drugs and vaccines in development, Damian Garde, March 2, 2020. https://www.statnews.com/2020/03/02/coronavirus-drugs-and-vaccines-in-development/
- Covid-19 — Navigating the Uncharted, Anthony S. Fauci, H. Clifford Lane, Robert Redfield. February 28, 2020. https://www.nejm.org/doi/full/10.1056/NEJMe2002387?query=recirc_curatedRelated_article
- Li Q, Guan X, Wu P, et al. Early transmission dynamics in Wuhan, China, of novel coronavirus–infected pneumonia, Li Q et al. January 29, 2020. https://www.nejm.org/doi/full/10.1056/NEJMoa2001316

Other Resources:

- Map/dashboard: WHO Novel Coronavirus (COVID-19) Situation. https://experience.arcgis.com/experience/685d0ace521648f8a5beeeee1b9125cd
- Map/dashboard: Coronavirus COVID-19 Global Cases by Johns Hopkins CSSE. https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6

Appendix B: Message Mapping

I. Overview

"Message maps" are risk communication tools used to help organize complex information and make it easier to express current knowledge. The development process distils information into easily understood messages written at an approximately 6th to 8th grade reading level.

Messages are presented initially in no more than 3-5 short sentences that convey 3-5 key messages, in as few words as possible. The approach is based on surveys showing that lead or front-page media and broadcast stories usually convey only 3 key messages usually in less than 9 seconds for broadcast media or 27 words for print.

Each key message has 3-5 supporting messages. These can be used when and where appropriate to provide context for the issue being mapped.

II. SAMPLE MESSAGE MAP – SMALLPOX (WITH KEYWORDS IN ITALICS)

Stakeholder: Public
Question or Concern: How contagious is smallpox?

a. Bullet format message map

Shorter Answer:

- Smallpox *spreads slowly* compared to other diseases.
- The slow spread of smallpox allows time *to find those infected*.
- People infected with smallpox *can be vaccinated* to prevent illness.

Longer Answer:

- Smallpox *spreads slowly* compared to other diseases.
  - People are only infectious when the rash appears.
  - Smallpox typically requires hours of face-to-face contact.
  - There are no smallpox carriers without symptoms.

- The slow spread of smallpox *allows time to find those infected*.
  - The time period before smallpox symptoms appear is 10–14 days
  - Resources are available for finding people who may have become infected with smallpox.
  - Finding people who have been exposed to smallpox and vaccinating them has proven successful in the past.

- People infected with smallpox *can be vaccinated* to prevent illness.
  - People who have never been vaccinated are the most important to vaccinate.
  - Adults who were vaccinated for smallpox as children may still have some immunity.
  - Adequate smallpox vaccine is on hand.

Continued – Appendix B: Message Mapping

b. Box Format Message Map

Stakeholder: Public ***Question or Concern: How contagious is smallpox?***		
Key Message 1	**Key Message 2**	**Key Message 3**
Smallpox *spreads slowly* compared to other diseases.	**The slow spread of smallpox allows *time to find* those infected.**	**People infected with smallpox *can be vaccinated* to prevent illness.**
Supporting Information 1-1	**Supporting Information 2-1**	**Supporting Information 3-1**
People are only infectious when the rash appears.	The time period before smallpox symptoms appear is 10–14 days	People who have never been vaccinated are the most important to vaccinate.
Supporting Information 1-2	**Supporting Information 2-2**	**Supporting Information 3-2**
Smallpox typically requires hours of face-to-face contact.	Resources are available for finding people who may have become infected with smallpox.	Adults who were vaccinated as children may still have some immunity.
Supporting Information 1-3	**Supporting Information 2-3**	**Supporting Information 3-3**
There are no smallpox carriers without symptoms.	Finding people who have been exposed to smallpox and vaccinating them has proven successful in the past.	Adequate vaccine is on hand.

Continued – Appendix B: Message Mapping

III. Nine Principles of Message Mapping

1) Limiting the number of key messages to a maximum of 3-5 using as few words as possible, ideally no more than 9 seconds or 27 words to express the necessary information.
2) Constructing messages that can be easily understood by an adult with a 6th to 8th grade education. This can be tested using the "readability" utility in word-processing programs.
3) Adhering to the "primacy/recency" or "first/last" principle. This principle states that the most important messages should occupy the first and last position in a list.
4) Citing third parties or sources that would be perceived as credible by the receiving audience.
5) Providing a preamble to the message map that indicates genuine empathy, listening, caring and compassion – crucial factors in establishing trust in high-concern, high-stress situations.
6) Developing graphics, visual aids, analogies and narratives (such as personal stories), which can increase an individual's ability to hear, understand and recall a message by more than 50%.
7) Constructing messages while recognizing the dominant role of negative thinking in high-concern situations. Examples include: avoiding unnecessary, indefensible or non-productive uses of absolutes, and of the words "no", "not", "never", "nothing" and "none"; balancing or countering a negative key message with positive, constructive or solution-oriented key messages; and providing three or more positive points to counter a single negative point or bad news.
8) Presenting the full message map using the repetitive structure found in the "Tell me, Tell me more, Tell me again model" (the "Triple T Model"): telling people the information in summary form (i.e., the three key messages; telling people more (i.e., the supporting information); and telling people again what was told in summary form (i.e., repeat the three key messages).
9) Developing key messages and supporting information that address important risk perception, outrage and fear factors such as trust, benefits, control, voluntariness, dread, fairness, reversibility, catastrophic potential, effects on children, morality, origin and familiarity.

Appendix C: Media Interviews: Tips and Pitfalls

Authors:

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1. Overview

In general, the media is interested in the following:

- Human interest stories
- Bad news more than good news
- People's perspectives
- Yes or no/safe or unsafe answers
- Front-page news stories.

2. Preparing for the Media Interview

- The media will be seeking information on: Who? What? When? Where? Why? How?
- To maximize your impact, prepare and practice delivering your key message.
- For broadcast media: 27 words or 9-second "sound bite."
- For print media: 1 to 3 key messages.

Continued – Appendix C: Media Interviews: Tips and Pitfalls

3. Before, During, and After a Media Interview

a. Before the Media Interview

Do:

- Ask who will be conducting the interview.
- Ask which subjects they want to cover.
- Caution them when you are not the correct person to interview because there are topics you cannot discuss (because lack of knowledge, etc.).
- Inquire about the format and duration.
- Ask who else will be interviewed.
- Prepare the key take away messages you want the media to report.
- Practice.

Don't:

- Tell the news organization which reporter you prefer.
- Ask for all the questions in advance.
- Insist they do not ask about certain subjects.
- Demand your remarks not be edited.
- Insist an adversary not be interviewed.
- Think that keeping a lid on the story will prevent the media from finding out.
- Assume it will be easy.

b. During the Media Interview

Do:

- Express caring, concern, or empathy.
- Acknowledge the legitimacy of people's emotions and concerns.
- Be honest and accurate.
- Stick to your key message(s).
- State your conclusions first, then provide supporting data.
- Offer to get information you don't have.
- Stress the facts.
- Give a reason if you can't discuss a subject.
- Correct mistakes by stating you would like an opportunity to clarify.

Continued – Appendix C: Media Interviews: Tips and Pitfalls

Don't:

- Lie or try to cloud the truth.
- Improvise or dwell on negative allegations.
- Raise issues you don't want to see in the story.
- Fail to think it through ahead of time.
- Guess.
- Use jargon or assume the facts speak for themselves.
- Speculate or discuss hypothetical situations.
- Lose your composure.
- Say, "No comment."
- Demand an answer not be used.

c. After the Media Interview

Do:

- Remember you are still on the record.
- Be helpful. Volunteer to get information. Make yourself available.
- Respect deadlines.
- Watch for and read the resulting report.
- Call the reporter to politely point out inaccuracies, if any.

Don't:

- Assume the interview is over or the equipment is off.
- Refuse to talk further.
- Ask, "How did I do?"
- Ask to review the story before publication or broadcast.
- Complain to the reporter's boss first.

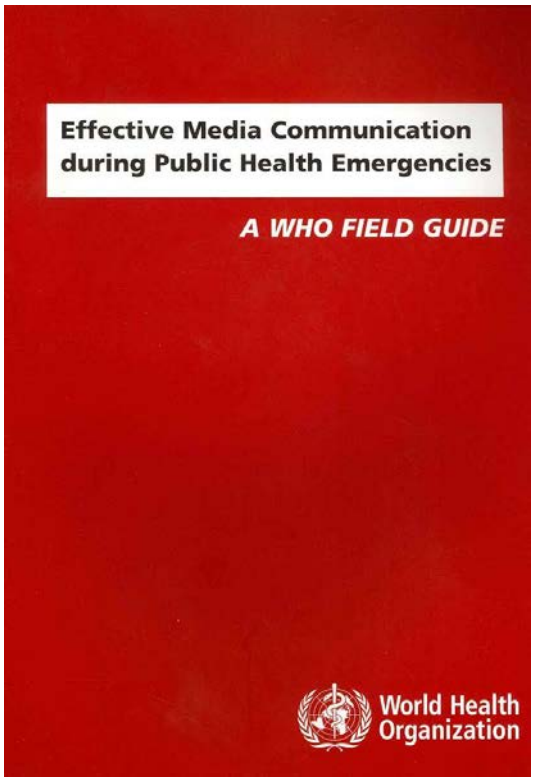
Appendix D: Periodic Table for High Concern Communication

Appendix E: WHO Guidebooks on "Effective Media Communication during Public Health Emergencies"

Handbook

The handbook describes a seven-step process to assist officials and others to communicate effectively through the media during emergencies.

- Handbook (pdf, 448 kb)



Field Guide

The Field Guide is a shortened version of the Handbook. It highlights the practical aspects of the seven-step approach.

- Field Guide (pdf, 218 kb)

Wall Chart

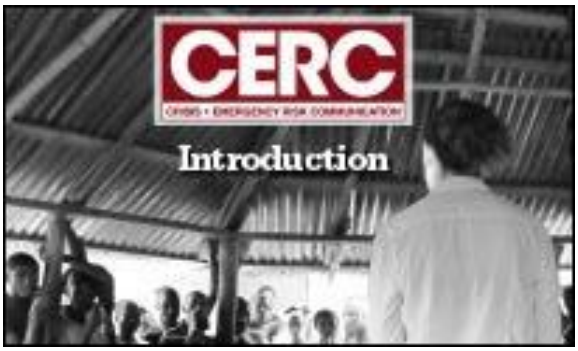
The chart shows the seven-step approach and provides easily recalled key information and advice.

- Wall Chart (pdf, 218 kb)

Appendix F: CDC's Crisis and Emergency Risk Communication (CERC) Toolkit

Manual

The CERC Manual describes the principles of crisis and emergency risk communication and how to address different challenges while communicating during a crisis or emergency. It provides guidance for all stages of an emergency and can be applied to any public health emergency.



- Online Handbook:

  https://emergency.cdc.gov/cerc/manual/index.asp

Appendix G: Required Information for Effective Infectious Disease Outbreak Response, SARS-CoV-2 (COVID-19)

Updated 3/4/2020 (Contact PANTHR@HQ.DHS.GOV)

REQUIRED INFORMATION FOR EFFECTIVE INFECTIOUS DISEASE OUTBREAK RESPONSE SARS-CoV-2 (COVID-19) Updated 3/4/2020

SARS-CoV-2 (COVID-19)	Infectious dose – how much agent will make a normal individual ill?	Transmissibility – How does it spread from one host to another? How easily is it spread?	Host range – how many species does it infect? Can it transfer from species to species?	Incubation period – how long after infection do symptoms appear? Are people infectious during this time?
What do we know?	• The human infectious dose for novel Wuhan coronavirus (SARS-CoV-2), which causes coronavirus disease 19 (COVID-19) is currently unknown via all exposure routes. Severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) coronaviruses (CoV) are used as surrogates. • The infectious dose for SARS in mice is estimated to be between 67-540 PFU (average 240 PFU, intranasal route).[50-51] • Genetically modified mice exposed intranasally to doses of MERS virus between 100 and 500,000 PFU show signs of infection. Infection with higher doses result in severe syndromes.[5, 41, 73, 129] • Initial experiments suggest that SARS-CoV-2 can infect genetically modified mice containing the human ACE2 cell entry receptor. Infection via the intranasal route (dose: 10^6 $TCID_{50}$) causes light infection, however no virus was isolated from infected animals, and PCR primers used in the study do not align well with SARS-CoV-2, casting doubt on this study.[11]	• The WHO has declared SARS-CoV-2 a Public Health Emergency of International Concern[135] with 95,124 cases and 3,254 deaths[66] in 75 countries (as of 3/4/2020).[22, 96, 114] • High-quality estimates of human transmissibility (R_0) range from 2.2 to 3.1[80, 86, 91, 120, 128] • Large outbreaks are occurring in Japan, Italy, Iran, South Korea, Germany France, and Spain.[110] • There are 153 SARS-CoV-2 cases across 15 US states, with 11 deaths. (as of 3/4/2020).[68] • Sustained transmission may have been occurring in the US (Seattle) for up to 5 or 6 weeks.[16] • SARS-CoV-2 transmission has occurred in hospitals inside[108] and outside of China,[58] including the US.[17] • Pre-symptomatic[130] or asymptomatic[10] patients in China can transmit SARS-CoV-2; the degree of asymptomatic transmission is still unknown. • SARS-CoV-2 is believed to spread through close contact and droplet transmission.[30] • Viable SARS-CoV-2 has been isolated from human feces; fecal-oral transmission is possible.[83, 124, 127] • Transmission via fomites has not been confirmed for SARS-CoV-2, but occurred in prior SARS[40, 121] and MERS[70] outbreaks • SARS-CoV-2 is consistently present in infected patient saliva[106] • Infants have been diagnosed with COVID-19, but no evidence exists for vertical transmission via intrauterine infection or through breastmilk.[38, 109] • China reports no evidence of super-spreading events (SSEs) within hospital patients or staff.[101]	• Early genomic analysis indicates similarity to SARS,[132] with a suggested bat origin.[5, 42, 132] • Analysis of SARS-CoV-2 genomes suggests that a non-bat intermediate species is responsible for the beginning of the outbreak.[92] Although the identity of the intermediate species remains unconfirmed, pangolins may be a natural host of related viruses possibly including SARS-CoV-2.[76-77] • Positive samples from the South China Seafood Market strongly suggests a wildlife source,[32] though it is possible that the virus was circulating in humans before the disease was associated with the seafood market.[15, 43, 122, 126] • Experiments suggest that SARS-CoV-2 Spike (S) receptor-binding domain binds the human cell receptor (ACE2) stronger than SARS,[119] potentially explaining its high transmissibility; the same work suggests that differences between SARS-CoV-2 and SARS-CoV Spike proteins may limit the therapeutic ability of SARS antibody treatments.[119] • Modeling between SARS-CoV-2 Spike and ACE2 proteins suggests that SARS-CoV-2 can bind and infect human, bat, civet, monkey and swine cells.[107]	• A study of 1,099 COVID-19 patients found a median incubation period of 3 days, with a range from 0 to 24 days.[67] • Earlier estimates of the incubation period from confirmed cases were higher; 5.8 days with a range from 1.3 to 11.3 days,[9] and 5.2 days with an upper bound of 9.2-18 days.[75] • CDC estimates that the incubation period is between 2 and 14 days.[27, 31] • Asymptomatic infection has been documented, where individuals do not present with clinical symptoms but are found positive via diagnostic assay.[30, 34, 57, 101, 130] • Individuals can be infectious while asymptomatic,[30, 93, 101, 130] and asymptomatic individuals have about the same amount of virus in their nose and throat as symptomatic individuals.[133] • Infectious period is unknown, but possibly up to 10-14 days.[4, 96] • On average, there are 7.5 days between symptom onset in successive cases of a single transmission chain (i.e., the serial interval).[75] • The average time for individuals to first seek medical care decreased from 5.8 days after symptom onset to 4.6 days before and after January 1st, 2020, respectively, indicating an increase in seeking care behavior.[75] • China recommends 14 quarantine for *recovered* patients due to positive genetic tests days after leaving the hospital, raising the possibility of continued transmission after symptoms subside.[64]

Continued – Appendix G: Required Information for Effective Infectious Disease Outbreak Response, SARS-CoV-2 (COVID-19)

REQUIRED INFORMATION FOR EFFECTIVE INFECTIOUS DISEASE OUTBREAK RESPONSE SARS-CoV-2 (COVID-19) Updated 3/4/2020

SARS-CoV-2 (COVID-19)	Infectious dose – how much agent will make a normal individual ill?	Transmissibility – How does it spread from one host to another? How easily is it spread?	Host range – how many species does it infect? Can it transfer from species to species?	Incubation period – how long after infection do symptoms appear? Are people infectious during this time?
What do we need to know?	• Human infectious dose by aerosol route • Human infectious dose by surface contact (fomite) • Human infectious dose by fecal-oral route • Where does SARS-CoV-2 replicate in the respiratory tract?	• Capability of SARS-CoV-2 to be transmitted by contact with fomites (doorknobs, surfaces, clothing, etc.) – see also Experimental Stability • Superspreading capacity needs to be refined • Updated person to person transmission rates (e.g., R_0) as control measures take effect • Tendency for ill individuals to seek medical care due to symptoms • What is the underreporting rate?[67] • Can individuals become re-infected with SARS-CoV-2? • What is the difference in transmissibility among countries? • Is the R0 estimate higher in health care or long-term care facilities? • How effective are social distancing measures at reducing spread?	• What is the intermediate host(s)? • What are the mutations in SARS-CoV-2 that allowed human infection and transmission? • What animals can SARS-CoV-2 infect (e.g., pet dogs, potential wildlife reservoirs)?	• How early does asymptomatic transmission begin? • What is the average infectious period during which individuals can transmit the disease? • How long do patients continue to shed infectious virus after physical recovery? • Can individuals become re-infected after recovery? If so, how long after?
Who is doing experiments/has capabilities in this area?	*Capable of performing work* - DHS National Biodefense Analysis and Countermeasures Center (NBACC)	*Performing work:* - Christian Althaus (Bern) - Neil Ferguson (MRC) - Gabriel Leung, Joseph Wu (University of Hong Kong) - Sara Del Valle (Los Alamos) - Maimuna Majumder (Boston Children's Hospital) - Trevor Bedford (Fred Hutchinson Cancer Center) - Sang Woo Park (Princeton)	*Capable of performing work:* - Vincent Munster (Rocky Mountain National Laboratory) - Matthew Frieman (University of Maryland Baltimore) - Ralph Baric (University of North Carolina) - Stanley Perlman (University of Iowa) - Susan Baker (Loyola University Chicago) - Mark Denison (Vanderbilt University) - Vineet Menachery (University of Texas Medical Branch) - Jason McLellan, Daniel Wrapp, Nianshuang Wang (University of Texas) - David O'Conner (U. Wisconsin, Madison)	*Performing work:* - Chaolin Huang (Jin Yin-tan Hospital, Wuhan, China) - The Novel Coronavirus Pneumonia Emergency Response Epidemiology Team

Continued – Appendix G: Required Information for Effective Infectious Disease Outbreak Response, SARS-CoV-2 (COVID-19)

REQUIRED INFORMATION FOR EFFECTIVE INFECTIOUS DISEASE OUTBREAK RESPONSE SARS-CoV-2 (COVID-19) Updated 3/4/2020

SARS-CoV-2 (COVID-19)	Clinical presentation – what are the signs and symptoms of an infected person?	Clinical diagnosis – are there tools to diagnose infected individuals? When during infection are they effective?	Medical treatment – are there effective treatments? Vaccines?	Environmental stability – how long does the agent live in the environment?
What do we know?	• The majority of COVID-19 cases are mild (81%, N = 44,000 cases)[101] • Initial COVID-19 symptoms include fever (87.9% overall, but only 43.8% present with fever initially[37]), cough (67.7%[37]), fatigue, shortness of breath, headache, reduction in lymphocyte count.[31,37,63] Headache[26] and diarrhea are uncommon[63, 74] • Complications include acute respiratory distress (ARDS) observed in 17-29% of hospitalized patients,[29, 62] which leads to death in 4-15% of cases.[29, 65, 108] • Other complications include pneumonia (characteristic ground glass opacities[84]), acute cardiac injury, secondary infection, kidney failure, arrhythmia, and shock.[29,62,108] • Approximately 15% of hospitalized patients were classified as severe,[37, 101] and severe cases were older and more likely to have underlying disorders[37, 108]; approximately 5% of patients were admitted to the ICU.[37, 101] • Between 23-32% of cases that include pneumonia required intensive respiratory support.[63, 108] • Overactive immune cells may contribute to symptom severity.[123] • Approximately 1% of hospitalizations occur in children < 19 years old.[37, 101] • The case fatality rate (CFR) depends on patient comorbidities; no comorbidities = 0.9%, cardiovascular disease = 10.5%, diabetes = 7.3%, chronic respiratory disease = 6.3%, hypertension = 6.0%, cancer = 5.6%.[101] • The CFR is age-dependent; ≥80 years old = 14.8%, 70-79 = 8.0%, 60-69 = 3.6%, 50-59 = 1.3%, 40-49 = 0.4%, 10-39 = 0.2%, 0-9 = 0%.[101] • 63.8% of confirmed fatalities have been male.[101]	• Updated tests from the US CDC are available to states.[21, 30] • The FDA released an Emergency Use Authorization describing an accelerated policy enabling laboratories to develop and use tests in-house for patient diagnosis.[76] • The US has relaxed criteria for testing patients, no longer requires travel history or close contact with known case.[15] • US CDC has expanded patient testing criteria to include symptomatic patients at Clinician discretion.[12] CDC recommends that testing decisions should be based on local transmission, travel history, patient clinical course, close contact with infected patients, and occupational risk (e.g., Health Care Workers).[24] • SARS-CoV-2 is consistently present in infected patient saliva, suggesting that saliva may be an effective diagnostic specimen.[104] • Several RT-PCR assays have been developed to detect SARS-CoV-2 in humans.[1,46, 113, 115] • PCR protocols and primers have been widely shared among international researchers.[21,47,73,99, 111, 115] • Several rapid or real-time test kits have been produced by universities and industry, including the Wuhan Institute of Virology,[49] BGI,[16] and Cepheid.[106] • RT-PCR tests are able to identify asymptomatic cases; SARS-CoV-2 infection was identified in 2/114 individuals previously cleared by clinical assessment.[61]	• Treatment for COVID-19 is primarily supportive care including oxygen and mechanical ventilation,[29] though China has released a treatment plan[8]; over 80 clinical trials are set to run on various treatments in China.[82] • Efficacy antivirals (lopinavir, ritonavir, ribavirin, oseltamivir) is unknown[8]; however several therapeutics [Remdesivir[83] and chloroquine] inhibit SARS-CoV-2 infection in human cells *in vitro*[33] and are undergoing clinical trials in China[80] and the US.[2-3, 83] • Multiple entities are working to produce a SARS-CoV-2 vaccine, including NIH/NIAID,[39, 72] Moderna Therapeutics and Gilead Sciences,[2-3, 83] and Sanofi with HHS.[12] • The hospitalized case-fatality rate in China has decreased from 14.4% to 0.8% as of between December, 2019 and February, 2020,[101] suggesting improved treatment or increased capacity • Approximately 38% of COVID-19 patients in China received oxygen therapy, 6.1% received mechanical ventilation, 57.5% received IV antibiotics, and 35.8% received the antiviral oseltamivir.[37] • A clinical report (one patient) suggested that corticosteroids should be considered for severe patients to prevent ARDS.[123] However, US CDC recommends avoiding steroid use due to an increase in viral replication in MERS patients.[23] • Similarity in the spike proteins of SARS-CoV-2 and SARS-CoV might offer target for therapeutics,[44, 52, 71, 119, 132] as vaccines derived from spike proteins are effective at inhibiting MERS symptoms in mice.[41]	• No information yet exists regarding the environmental stability of SARS-CoV-2; SARS and MERS coronaviruses are used as surrogates instead. • Studies suggest that coronavirus can survive on non-porous surfaces up to 9-10 days (MHV, SARS-CoV)[20, 35], and porous surfaces for up to 3-5 days (SARS-CoV)[34] in air conditioned environments (20-25°C, 40-50% RH) • Coronavirus survival tends to be higher at lower temperatures and lower relative humidity (RH),[20,35,89, 105] though infectious virus can persist on surfaces for several days in typical office or hospital conditions[103] • SARS can persist with trace infectivity for up to 28 days at refrigerated temperatures (4°C) on surfaces.[20] • Beta-coronaviruses (e.g., SARS-CoV) may be more stable than alpha-coronaviruses (HCoV-229E).[89] • No strong evidence for reduction in transmission with seasonal increase in temperature and humidity.[79] • Survival of SARS-CoV-2 specifically is unknown, and surrogate coronavirus data need to be used at this time. • One hour after aerosolization approximately 63% of airborne MERS virus remained viable in a simulated office environment (25°C, 75% RH)[87] • The aerosol survival of related human coronavirus (229E) was relatively high, (half-life of ~67 hours at 20°C and 50% RH), indicating ~20% of infectious virus remained after 6 days.[66] Both higher and lower RH reduced HCoV-229E survival; lower temperatures improved survival.[66]

Continued – Appendix G: Required Information for Effective Infectious Disease Outbreak Response, SARS-CoV-2 (COVID-19)

REQUIRED INFORMATION FOR EFFECTIVE INFECTIOUS DISEASE OUTBREAK RESPONSE SARS-CoV-2 (COVID-19) Updated 3/4/2020

SARS-CoV-2 (COVID-19)	Clinical presentation – what are the signs and symptoms of an infected person?	Clinical diagnosis – are there tools to diagnose infected individuals? When during infection are they effective?	Medical treatment – are there effective treatments? Vaccines?	Environmental stability – how long does the agent live in the environment?
What do we need to know?	• How long does it take for infected individuals to recover outside of a healthcare setting? • How does the CFR vary between countries? • Is the reduction in CFR through time an indication of better treatment, less overcrowding, or both?	• False positive/negative rates for tests • Eclipse phase of infection (time between infection and detectable disease) in an individual	• Is GS-5734 (remdesivir) effective in vivo (already used in clinical trials under Emergency Use Authorization)?[87] • Is the GLS-5000 MERS vaccine[123] cross-reactive against SARS-CoV-2? • Efficacy of antibody treatments developed for SARS[48, 100] and MERS[33] • What is the efficacy of various MERS and SARS Phase I/II vaccines and other therapeutics? • Are viral replicase inhibitors such as beta-D-N4-hydroxycytidine effective against SARS-CoV-2?[32]	• Stability of SARS-CoV-2 in aerosol, droplets, and other matrices (mucus/sputum, feces) • "Hang time" of the virus in air (Aerosol decay rate) • Particle size distribution (e.g., droplet, large droplet and true aerosol distribution) • Duration of SARS-CoV-2 infectivity via fomites and surface (contact hazard)? • Stability of SARS-CoV-2 on PPE (e.g., Tyvek, nitrile, etc.)
Who is doing experiments/has capabilities in this area?	- Jin Yin-tan Hospital, Wuhan, China - China-Japan Friendship Hospital, Beijing, China - Peking Union Medical College, Beijing, China - Capital Medical University, Beijing, China - Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing, China - Huazhong University of Science and Technology, Wuhan, China - The Central Hospital of Wuhan, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China - Tsinghua University School of Medicine, Beijing, China - Zhongnan Hospital of Wuhan University, Wuhan, China - Peking University First Hospital, Beijing, China - Peking University People's Hospital, Beijing, China - Tsinghua University-Peking University Joint Center for Life Sciences, Beijing, China - The Fifth Medical Center of PLA General Hospital, Beijing, China	*Performing work:* - CDC - Wuhan Institute of Virology - Public Health Agency of Canada - Doherty Institute of Australia - Cepheid - BGI	*Performing work:* - Peter Doherty Institute for Infection and Immunity - Academy of Military Medical Sciences, Beijing, China - Tim Sheahan (University of North Carolina) *Capable of performing work:* - Ralph Baric (University of North Carolina) - Matthew Frieman (University of Maryland Baltimore) - Sanofi, with BARDA - Janssen Pharma and BARDA[60] *Funded work:* CEPI ($12 million to three groups): - Moderna and NIAID for mRNA platform vaccine - Inovio preparing DNA vaccine (for MERS) - University of Queensland, Australia NIAID/NIH: - Moderna and Kaiser Permanente for mRNA vaccine Phase I trial.[3] - University of Nebraska Medical Center Trial (multiple therapeutics including Gilead's Remdesivir).[2]	*Capable of performing work:* - Mark Sobsey (University of North Carolina) - DHS National Biodefense Analysis and Countermeasures Center (NBACC) - Defence Science and Technology Laboratory (Dstl) - Public Health Agency of Canada - CDC - EPA - NIH

Continued – Appendix G: Required Information for Effective Infectious Disease Outbreak Response, SARS-CoV-2 (COVID-19)

REQUIRED INFORMATION FOR EFFECTIVE INFECTIOUS DISEASE OUTBREAK RESPONSE SARS-CoV-2 (COVID-19) Updated 3/4/2020

SARS-CoV-2 (COVID-19)	Decontamination – what are effective methods to kill the agent in the environment?	PPE – what PPE is effective, and who should be using it?	Forensics – natural vs intentional use? Tests to be used for attribution.	Genomics – how does the disease agent compare to previous strains?
What do we know?	• No decontamination data for SARS-CoV-2 have been identified. SARS-CoV provides a plausible surrogate, as it is a close genetic relative of SARS-CoV-2 in the beta-coronavirus clade. • Chlorine-based[113] and ethanol-based[45] solutions recommended, and the European CDC has released disinfectant guidelines for non-healthcare facilities.[33] • "The virus [SARS-CoV-2] has relatively weak viability *in vitro* and can be inactivated at 56 ° C for 30 minutes. Chlorine-containing disinfectants and 75% ethanol can effectively inactivate the virus."[121] • Heat treatment at 56°C is sufficient to kill coronaviruses,[29, 121] though effectiveness depends in part on amount of protein in contaminated media[29] • 70% ethanol, 50% isopropanol, sodium hypochlorite [bleach, 200 ppm], and UV radiation are effective at inactivating several coronaviruses (MHV and CCV)[94] • Ethanol-based biocides (including ethanol-containing gels) are effective disinfectants against coronaviruses dried on surfaces, including ethanol containing gels similar to hand sanitizer.[63, 117] • Surface spray disinfectants such as Mikrobac, Dismozon, and Korsolex are effective at reducing infectivity of the closely related SARS-CoV after 30 minutes of contact.[33] • Coronaviruses may be resistant to thermal inactivation for up to 7 days when stabilized in stool.[102-103] • Additionally, coronaviruses are more stable in matrixes such as respiratory sputum.[33]	• PPE effectiveness for SARS-CoV-2 is currently unknown; SARS is used as a surrogate. • US CDC does not recommend the use of face masks for healthy people. Face masks should be used by people showing symptoms to reduce the risk of others getting infected. The use of face masks is crucial for health workers and people in close contact with infected patients (at home or in a health care facility).[23] • "Health care personnel entering the room [of SARS-CoV-2 patients] should use standard precautions, contact precautions, airborne precautions, and use eye protection (e.g., goggles or a face shield)"[28] • WHO indicates healthcare workers should wear clean, non-sterile, long-sleeve gowns as well as gloves.[112] • Respirators (NIOSH-certified N95, EUFFP2 or equivalent) are recommended for those dealing with possible aerosols[112] • Additional protection, such as a Powered Air Purifying Respirator (PAPR) with a full hood, should be considered for high-risk procedures (i.e., intubation, ventilation)[19] • Healthcare worker illnesses (over 1,000[101]) demonstrates human-to-human transmission despite isolation, PPE, and infection control.[33] • Porous hospital materials, including paper and cotton cloth, maintain infectious SARS-CoV for a shorter time than non-porous material.[69] • CDC recommends face masks for individuals attempting to prevent spread of SARS-CoV-2 in the home.[26]	• Genomic analysis places SARS-CoV-2 into the beta-coronavirus clade, with close relationship to bat viruses. The SARS-CoV-2 virus is distinct from SARS and MERS viruses.[32] • Genomic analysis suggest that SARS-CoV-2 is a natural variant, and is therefore unlikely to be human-derived or otherwise created by "recombination" with other circulating strains of coronavirus.[6, 132] • Some genomic evidence indicates a close relationship with pangolin coronaviruses[132]; data suggests that pangolins may be a natural host for beta-coronaviruses[76-77]. Additional research is needed. • Genomic data support at least two plausible origins of SARS-CoV-2: "(i) natural selection in a non-human animal host prior to zoonotic transfer, and (ii) natural selection in humans following zoonotic transfer."[6] Either scenario is consistent the observed genetic changes found in all known SARS-CoV-2 isolates. • Additionally, "[…] SARS-CoV-2 is not derived from any previously used virus backbone," reducing the likelihood of laboratory origination,[6] and "[…] genomic evidence does not support the idea that SARS-CoV-2 is a laboratory construct, [though] it is currently impossible to prove or disprove the other theories of its origin."[6]	• There have been no documented cases of SARS-CoV-2 prior to December 2019 • Preliminary genomic analyses, however, suggest that the first human cases of SARS-CoV-2 emerged between 10/19/2019 – 12/17/2019.[7, 13 90] • The mutation rate of SARS-CoV-2 is estimated to be similar to other RNA viruses (e.g., SARS, Ebola, Zika), and is currently calculated to be between 3.29×10^{-4} – 2.03×10^{-3} substitutions per site per year (median 1.07×10^{-3}),[7] though this estimate may change as more genomes are sequenced. • Preliminary phylogenetic analysis identified a very close genetic similarity between SARS-CoV-2 and a Bat coronavirus (RaTG13) isolated from Yunnan Province, China; suggesting that SARS-CoV-2 originated from bats.[83] • Pangolin coronaviruses are closely related to both SARS-CoV-2 and the closely related Bat coronavirus (RaTG13); phylogenetic analysis suggested that SARS-CoV-2 is of bat origin, but is closely related to pangolin coronavirus.[76-77] • The Spike protein of SARS-CoV-2, which mediates entry into host cells and is the major determinant of host range, is very similar to the Spike protein of SARS-CoV.[78] The rest of the genome is more closely related to two separate bat[78] and pangolin[77] coronavirus. • Protein modeling and preliminary laboratory studies suggest that SARS-CoV-2 binds to the human ACE2 receptor,[107, 119] the same cellular entry receptor used by SARS and other beta-coronaviruses.

Continued – Appendix G: Required Information for Effective Infectious Disease Outbreak Response, SARS-CoV-2 (COVID-19)

REQUIRED INFORMATION FOR EFFECTIVE INFECTIOUS DISEASE OUTBREAK RESPONSE SARS-CoV-2 (COVID-19) Updated 3/4/2020

SARS-CoV-2 (COVID-19)	Decontamination – what are effective methods to kill the agent in the environment?	PPE – what PPE is effective, and who should be using it?	Forensics – natural vs intentional use? Tests to be used for attribution.	Genomics – how does the disease agent compare to previous strains?
What do we need to know?	• What is the minimal contact time for disinfectants? • Are antiseptic wipes effective for cleaning hard, non-porous surfaces? • Does contamination with human fluids/waste alter disinfectant efficacy profiles? • How effective is air filtration at reducing transmission in healthcare, airplanes and public spaces?	• Mode of aerosol transmission? Effective distance of spread via droplet or aerosol? • Is virus detectable in aerosol samples from patient rooms? • How effective are barriers such as N95 respirators or surgical masks? • What is the appropriate PPE for first responders? • What are the proper procedures for reducing spread in medical facilities / transmission rate in medical settings?	• What tests for attribution exist for coronavirus emergence? • What is the identity of the intermediate species? • Are there closely related circulating coronaviruses in bats or other animals with the novel PRRA cleavage site found in SARS-CoV-2?	• Are there similar genomic differences in the progression of coronavirus strains from bat to intermediate species to human? • Are there different strains or clades of circulating virus? If so, do they differ in virulence?
Who is doing experiments/has capabilities in this area?	*Capable of performing work:* - DHS National Biodefense Analysis and Countermeasures Center (NBACC)	*Generating recommendations:* - WHO - CDC - Pan-American Health Organization	*Performing genomic investigations:* - Kristian Andersen, Andrew Rambaut, Ian Lipkin, Edward Holmes, Robert Garry (Scripps, University of Edinburgh, Columbia University, University of Sydney, Tulane, Zalgen Labs [Germantown, MD]) *Capable of performing work:* - Pacific Northwest National Laboratory - DHS National Biodefense Analysis and Countermeasures Center (NBACC)	*Performing work:* - Trevor Bedford (Fred Hutchinson Cancer Research Center) - Ralph Baric, UNC - National Institute for Viral Disease Control and Prevention, Chinese Center for Disease Control and Prevention - Shandong First Medical University and Shandong Academy of Medical Sciences - Hubei Provincial Center for Disease Control and Prevention - Chinese Academy of Sciences - BGI PathoGenesis Pharmaceutical Technology, Shenzhen, China - People's Liberation Army General Hospital, Wuhan, China - Wenzhou Medical University, Wenzhou, China - University of Sydney, Sydney, NSW, Australia - The First Affiliated Hospital of Shandong First Medical University (Shandong Provincial Qianfoshan Hospital), Jinan, China

Continued – Appendix G: Required Information for Effective Infectious Disease Outbreak Response, SARS-CoV-2 (COVID-19)

Table 1. Definitions of commonly-used acronyms

Acronym/Term	Definition	Description
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2	Official name for the virus previously known as 2019-nCoV.
COVID-19	Coronavirus disease 19	Official name for the disease caused by the SARS-CoV-2 virus.
CFR	Case Fatality Rate	Number of deaths divided by confirmed patients
PFU	Plaque forming unit	Measurement of the number of infectious virus particles as determined by plaque forming assay. A measurement of sample infectivity.
$TCID_{50}$	50% Tissue Culture Infectious Dose	The number of infectious units which will infect 50% of tissue culture monolayers. A measurement of sample infectivity.
HCW	Healthcare worker	Doctors, nurses, technicians dealing with patients or samples
SARS	Severe Acute Respiratory Syndrome	Coronavirus with over 8,000 cases in global 2002-2003 outbreak
MERS	Middle-East Respiratory Syndrome	Coronavirus with over 2,000 cases in regional outbreak since 2012
CoV	Coronavirus	Virus typified by crown-like structures when viewed under electron microscope
R_0	Basic reproduction number	A measure of transmissibility. Specifically, the average number of new infections caused by a typical infectious individual in a wholly susceptible population.
MHV	Mouse hepatitis virus	Coronavirus surrogate
CCV	Canine coronavirus	Canine coronavirus
Fomite	Inanimate vector of disease	Surfaces such as hospital beds, doorknobs, healthcare worker gowns, faucets, etc.

Continued – Appendix G: Required Information for Effective Infectious Disease Outbreak Response, SARS-CoV-2 (COVID-19)

REQUIRED INFORMATION FOR EFFECTIVE INFECTIOUS DISEASE OUTBREAK RESPONSE SARS-CoV-2 (COVID-19) Updated 3/4/2020

Droplet transmission	Sneezing, coughing	Transmission via droplets requires relatively close contact (e.g., within 6 feet)
Airborne transmission	Aerosolization of infectious particles	Aerosolized particles can spread for long distances (e.g., between hospital rooms via HVAC systems)
Transgenic	Genetically modified	In this case, animal models modified to be more susceptible to MERS and/or SARS by adding proteins or receptors necessary for infection
Intranasal	Agent deposited into external nares of subject	Simulates inhalation exposure by depositing liquid solution of pathogen/virus into the nose of a test animal, where it is then taken up by the respiratory system.
Incubation period	Time between infection and symptom onset	Time between infection and onset of symptoms typically establishes guidelines for isolating patients before transmission is possible
Infectious period	Length of time an individual can transmit infection to others	Reducing the infectious period is a key method of reducing overall transmission; hospitalization, isolation, and quarantine are all effective methods
Serial interval	Length of time between symptom onset of successive cases in a transmission chain	The serial interval can be used to estimate R_0, and is useful for estimating the rate of outbreak spread
Superspreading	One individual responsible for an abnormally large number of secondary infections	Superspreading can be caused by high variance in the distribution of secondary cases caused by a single individual; most individuals infect very few people, while some infect a large number, even with the same average number of secondary infections
Nosocomial	Healthcare- or hospital-associated infections	Characteristic of SARS and MERS outbreaks, lead to refinement of infection control procedures
ACE2	Angiotensin-converting enzyme 2	Acts as a receptor for SARS-CoV, allowing entry into human cells

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ARDS	Acute respiratory distress syndrome	Leakage of fluid into the lungs which inhibits respiration and leads to death
PPE	Personal protective equipment	Gowns, masks, gloves, and any other measures used to prevent spread between individuals

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