

# **Pandemic Plan for the Church**

## **Ministering to the Community in a Time of Crisis**

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### **Infection Control**

If a pandemic were to occur such as the 1918 Influenza pandemic, it would mean that the virus would be highly lethal. Encouraging Christians to visit the sick without knowledge and training on proper precautions would be foolhardy knowing the dangers of such a deadly pathogen. Even taking the proper precautions to prevent getting the disease, there is still no guarantee that you too will not become ill. This section presents information on infection control and personal protection to help protect against acquiring the disease while caring for the sick. Again, there is no assurance that you will not acquire the virus; however, this section will equip you for the battle.

Infection control is the discipline concerned with preventing the spread of infection. It is essential to practice this discipline without exception. Successful infection control for a pandemic virus uses the same strategies as for any infectious agent. Practicing infection control will help minimize the spread of infection and help protect both those delivering and receiving care. The discipline of infection control should be considered standard operating procedures and should never be compromised.

Before we discuss the proper usage of personal protection equipment (PPE), let's consider some lessons learned from previous outbreaks to emphasize the importance of PPE.

### **Lessons Learned from SARS, MERS, and Ebola, and COVID-19**

Lessons learned from SARS, MERS, Ebola, and COVID-19 prove that non-compliance and not adhering to strict infection control guidelines and using proper precautions can cause further transmission of a pathogen and even an outbreak.

The 2003 outbreak of the corona virus causing severe acute respiratory syndrome (SARS) infected 8,096 people from 29 countries and territories resulted in at least 774 deaths worldwide<sup>i</sup>. SARS first emerged in Southern China in November 2002 and developed into a global outbreak. During this epidemic, observations of healthcare workers caring for SARS patients displayed numerous violations in infection control, especially in the use of PPE. This led to the lack of containment and the spread of SARS across continents.<sup>ii</sup>

The spread of Middle East Respiratory Syndrome (MERS), a corona virus in Saudi Arabia and South Korea was first reported in 2012. It has approximately a 35% death rate. There is recent reporting on May 12, 2025, of nine new laboratory confirmed cases in Saudi Arabia. Much of the spread occurred mostly in the hospital settings. It is believed the source of this is the healthcare workers are non-compliant in regard to practicing strict infection control.<sup>iii</sup>

In addition to healthcare workers not donning their PPE properly, employers bear responsibility as well for either not providing the PPE or delivering adequate training on its use. During

the 2013 H7N9 bird flu outbreak, it was a healthcare worker in China who tweeted out in fear that people were dying, and no one was telling workers what was happening.<sup>iv</sup>

Another lesson learned is that of the Intensive Care Unit nurse, Nina Pham, in Texas who cared for the first patient to present with Ebola in the United States. She was not given proper instructions or PPE to care appropriately protect herself while caring for the patient. Fortunately, although she acquired the disease, she recovered.<sup>v</sup>

## Lessons Learned from COVID-19

The COVID-19 pandemic emphasized the importance of using PPE in safeguarding both healthcare workers and the public from transmitting the disease. Not only was there a global demand for PPE supplies for healthcare workers, but for the general public as well. The sudden spike in demand, as well as supply chain challenges led to shortages worldwide. Some of the lessons learned are:

1. **Stockpiling is Crucial:** One of the first lessons was the importance of maintaining adequate reserves of PPE. Governments and healthcare institutions struggled with depleted stocks, highlighting the need for better inventory management and strategic stockpiling.
2. **Quality Matters:** The pandemic also highlighted the difference in PPE quality. High-quality PPE proved more effective in providing protection against the virus, emphasizing the need for stringent quality checks and certification.
3. **Public Education is Essential:** Educating the public on the correct use of PPE can significantly enhance its effectiveness. Misuse and improper handling of PPE during pandemic often negate its benefits.<sup>vi</sup>

Both healthcare employers and workers, and the public must be compliant in PPE. The employer must be informed of the current PPE that meets the requirements necessary to protect the caregivers; and the workers must be compliant and practice strict discipline in donning PPE. How much more must those who voluntarily visit the sick be strictly compliant with these guidelines and precautions.

## Everyday Practice

There are common everyday habits to incorporate in your daily routine to help in infection control. These include:

- Avoid touching your face.
- Cover your nose and mouth with a tissue when you cough or sneeze, then throw the tissue away in a waste basket.
- If a tissue is not available, cough or sneeze into the sleeve of your bent elbow.
- Instruct others to use good sneeze and cough etiquette.

- Practice good hand hygiene – wash your hands often with soap and water, especially after you sneeze or cough.
- Use disposable paper towels for hand washing, or designate cloth towels to family members.
- Use an alcohol-based hand rub if soap is not available.
- Avoid being close-up and face to face with someone who is sick. Try to keep a six-foot distance between you and the patient.
- Place the chin of a small child on your shoulder in case they sneeze or cough.
- Wear a face mask or respirator.
- Place a face mask on the patient as well.
- Contact your healthcare provider about taking antiviral medication for both the patient and yourself if symptoms appear.

## **Ways Infection Can Spread and Proper Protection**

The mode of transmission of the pathogen will determine the PPE used. There are three types of transmission-based precautions: *contact*, *droplet*, and *airborne*. Some diseases require more than one type of transmission-based precaution (e.g. SARS, COVID-19, which requires contact and airborne precautions as well as eye protection with all patient contact). Let it also be noted that in autopsies performed on victims of the H5N1, the virus was not only found in the lungs, but also cerebrospinal fluid and feces. These findings should reinforce the need to use the proper PPE when handling patients, any body fluids, and laundry.

### **Contact Transmission**

Having direct contact with an ill person can facilitate contact transmission. This can occur by skin-to-skin contact or indirect contact. Indirect contact transmission takes place by touching a contaminated surface or object then touching the mucous membranes of the eyes, nose, and mouth. Contaminated surfaces can include tops of furniture, kitchen and bathroom counter tops, thermometers, bed, linens, doorknobs, etc.

Depending on the type of material, the porosity of the surface, and environmental conditions like temperature, humidity, and sunlight, pathogens such as influenza and the SARS-COV-2 virus which causes COVID-19, can last on surfaces anywhere from hours to several days. Studies indicate that a seasonal flu virus can survive on hard surfaces like plastic or stainless steel for 24-48 hours. On porous materials such as tissues and fabric, they last for less than 12 hours. They can remain infectious on surfaces for several hours, with high touch items like phones and doorknobs acting as common points of transmission. Influenza lasts less than two hours on the skin, however COVID-19 virus can remain viable on human skin for approximately nine hours.<sup>vii</sup> The H5N1 avian virus is highly stable and can survive on surfaces for 1-2 days at room temperature, but it can persist for weeks in cold, moist conditions. It lasts roughly 26 hours on plastic and 4 ½ hours on human skin.<sup>viii</sup>

Pathogens may be carried in:

- Draining wounds
- Secretions
- Pressure ulcers
- Tubes such as ostomy or feeding tubes
- Bags draining body fluids including Foley bags
- Feces
- Generalized rash /skin lesions

In addition to standard precautions, contact precautions include:

- Wear gloves and gown when in contact with the individual, surfaces, objects within the patient's environment.
- Wearing a gown if substantial contact with the patient or their environment is anticipated.
- Putting on PPE (such as a gown) prior to entering a patient room and taking off PPE prior to leaving the room.
- Performing hand hygiene after removal of PPE.
- Cleaning and disinfecting the room accordingly.
- Dedicating equipment to the patient, not to be shared with other individuals.
- Discarding disposable items in a waste basket in the room.
- Limiting patient movement.
- Placing the patient in a private room or with others who are also infected with the same disease.

### **Droplet Transmission**

Droplet transmission occurs when pathogens are carried in large droplets within three feet or more of the infected person. This can occur with coughing, sneezing, and talking.

Some examples of pathogens that are carried in this fashion are:

- Bordetella pertussis (whooping cough)
- Viral infections e.g. influenza virus, corona virus, rhinovirus
- Neisseria meningitidis (meningitis)
- Mycoplasma pneumonia

Place the patient in a room with a closed door as soon as possible. The patient should wear a face mask and remain separate from others.

In addition to standard precautions, droplet precautions include:

- Wearing a facemask, such as a procedure or surgical mask, for close contact with the patient; the facemask should be donned upon entering the exam room.
- Donning gloves, a gown, and goggles (or face shield in place of goggles), if substantial spraying of respiratory fluids is anticipated.
- When leaving the room, the patient should wear a face mask to avoid contact with others, in addition to spreading the pathogen to surrounding surfaces. The patient should practice respiratory etiquette and hand hygiene.
- Perform hand hygiene before and after touching the patient and after contact with respiratory secretions and contaminated objects/materials.
- Clean and disinfect the room accordingly.

### **Airborne Transmission**

Airborne transmission occurs when the pathogen is contained in very small, fine particles of evaporated droplets or dust. Because these particles are smaller and lighter, they can remain in the air for a longer length of time and can travel along currents farther than droplets. These tiny respiratory particles are as small as 100 µm (micrometers) in diameter or less and when suspended in the air are called aerosol particles. These can be carried on air currents over long distances, and can be directly inhaled, known as airborne transmission. Larger particles (greater than 100 µm fall quickly to the ground, usually within six feet from the infected person. However, the smaller aerosol particles can stay aloft for hours and travel beyond six feet.<sup>ix</sup>

Examples of pathogens carried in airborne transmission are:

- COVID-19/SARS/MERS
- H5N1, H7N9 avian influenza viruses
- Tuberculosis
- Measles
- Chickenpox

Airborne precautions are practiced reducing the risk of airborne transmission of infectious pathogens. In addition to standard precautions, airborne precautions are used for patients known or suspected of having serious illnesses. Current clinical guidelines recommend that airborne precautions be used for such illnesses as H5N1 and H7N9 avian influenzas, SARS, MERS, measles, varicella, and tuberculosis.

In addition to standard precautions, airborne precautions include:

- Wearing a fit-tested NIOSH-approved N95 or higher-level respirator before entering the room or patient contact.
- Placing the patient in a negative pressure room (airborne infection isolation room) or area, if available.

- Placing a surgical mask on the patient to contain secretions when necessary.
- Placing the patient in a single room if a negative pressure room is not available or cannot be created with mechanical manipulation of the air.
- Keeping doors closed to any room or area that patients are resting when not being used for entry or egress.
- If possible, designating bathroom facilities.
- Limiting people entering the isolation room to those necessary for patient care and support.

## **Standard Precautions**

Disease is spread by the transmission of pathogens. A pathogen is a virus, bacteria or any other microorganism that has the ability to cause illness. Pathogens spread differently depending on their method of transmission from person-to-person. Methods of transmission are contact, air-borne, or droplet. Regardless of the method of transmission, standard precautions are the basic, minimum precautions to take for all patient contact to reduce the risk of spreading diseases. This basic level of infection control should be practiced in the care of ALL patients.

Standard precautions reduce the risk of the spread of pathogens from exposure to blood and other body fluids or secretions; this is considered contact transmission. This involves direct physical contact between a caregiver and an infected person such as shaking hands, kissing, or contact with blood or bodily fluids. Indirect contact occurs when a person touches an intermediate contaminated object such as clothing or environmental surfaces like bedrails, doorknobs, countertops, etc., that have been contaminated by the infected person.

These would include face masks, goggles, and gowns. Transmission-based precautions should be used when standard precautions alone do not fully protect the caregiver from the disease to which they are exposed. Again, standard precautions are to be used regardless of the diagnosed pathogen.

## **Proper Hand Hygiene**

Touching a contaminated surface, then touching your eyes, nose, and mouth is a way in which the virus can enter your body. Proper hand hygiene is the best defense in controlling infection in daily practice or during a pandemic.

Proper hand hygiene requires good hand washing, below are tips to practice good hand hygiene:

- The total amount of time should take about 40-60 seconds. Some even suggest washing for the duration of singing the tune “Happy Birthday”.
- Remove hand and arm jewelry. Jewelry is very hard to clean, and bacteria and viruses can hide beneath and in the crevices of rings and bracelets, even with good hand washing.

- Wet hands with warm water.
- Apply liquid or foam soap. Do not use a bar of soap because it may hold bacteria that can then be spread to other users.
- Vigorously lather all surfaces of hands for a minimum of 15 – 30 seconds rubbing to remove dirt and bacteria.
- Pay particular attention to fingertips, between fingers, backs of hands and base of the thumbs. These are the most commonly missed areas.
- Using a rubbing motion, thoroughly rinse soap from hands.
- Dry hands by blotting hands gently with a paper towel.
- Turn off taps with a paper towel, to avoid recontamination of your hands.
- If you use a hand dryer, do not use your clean hands to press the buttons to turn it on.

Hand hygiene should be performed before and after patient contact, and after removing gloves or other PPE. In addition to the care giver using standard precautions, all those having contact with the patient should also exercise the same practices, including the patient.

### **Alcohol-Based Hand Rub**

Good hand hygiene should also include the use of an alcohol-based hand rub. Alcohol sanitizer is the preferred method for decontaminating hands. Health officials state that using an alcohol-based hand rub is better than washing hands (even with an antibacterial soap) when hands are not visibly soiled. However, hand washing with soap and running water should be performed when hands are visibly soiled. If running water is not available, use moistened towelettes to remove the visible soil, followed by an alcohol-based hand rub.

### **Indications for Hand Hygiene**

Below is a list of recommendations when to practice hand hygiene:

- Before and after any direct patient contact and between patients, whether or not gloves are worn.
- Immediately after gloves are removed.
- After touching blood, body fluids, secretions, excretions, non-intact skin, and contaminated items, even if gloves are worn.
- During patient care, when moving from a contaminated to a clean body site of the patient.
- After handling any objects in the immediate vicinity of the patient.
- After personal bodily functions, such as using the toilet or blowing one's nose.
- Before preparing, handling, serving or eating food.

## **Hand Hygiene and Personal Protective Equipment**

In addition to good hand hygiene, dependent on the risk of exposure to bodily fluids, protective equipment such as non-sterile gloves should be worn when coming into direct contact with a patient. Standard precautions should also be practiced when handling soiled clothes, linens, or any equipment used in caring for the patient such as a thermometer.

## **Respiratory Hygiene and Cough Etiquette**

Instruct people with respiratory symptoms to cover their coughs and sneezes by doing so into the bend of their elbow, not into their bare hands. Even better, they should cover their coughs and sneezes with a tissue or a mask. Then these should be properly disposed. Hand hygiene after contact with respiratory secretions should be performed.

Respiratory etiquette should be practiced by all people, not just the patient. Masks and tissues should be in abundant supply when caring for a sick person. Providing ample space between individuals, especially anyone with these symptoms accompanied by a fever should be separated from others.

## **Personal Protective Equipment (PPE)**



If attending to a person exhibiting respiratory symptoms such as a cough or sneezing, standard precautions should include appropriate facial, eyes, nose, and mouth protection. Respiratory PPE includes:

- Clean, non-sterile gloves
- Face mask

- Eye protection (goggles or a face shield)
- Clean, non-sterile fluid resistant gown (disposable is recommended since viruses can live on fabric for long periods of time)
- If wearing a washable gown, please see the section on “Laundry” in the document titled “Disinfecting Surfaces”.

In addition, it has been determined that necessary PPE is to be worn to minimize exposure to a variety of hazards that include blood, body fluids, excretions, and secretions. **ASSESS THE RISK** of exposure to body substances or contaminated surfaces then take the proper precautions **BEFORE** any patient care takes place. Make this a routine!

### **Who should use Personal Protective Equipment?**

- All individuals who provide direct patient care.
- All family members coming into contact with the patient.
- All visitors coming into contact with the patient.
- Anyone handling linens, utensils, equipment, and trash that comes from the patient’s area.

### **Selection of Personal Protection Equipment**

Determining the type of PPE to don is based on the type of care that will be provided. This section describes the different pieces of equipment, and when to use them.

### **Disposable Gloves**



Health officials recommend the use of gloves made of latex, vinyl, nitrile, or other synthetic materials as appropriate, when there is contact with blood and other bodily fluids, secretions, excretions, mucous membranes, including respiratory secretions. Recommendations for the use of disposable gloves are the following:

- Change between tasks and procedures on the same patient after contact with potentially infectious material.
- Remove after using and discard, before touching non-contaminated items and surfaces, and before going to another patient.
- When gloves are torn, cut, or punctured they should be removed and replaced.
- Gloves do not eliminate the need for hand washing. Perform hand hygiene immediately after removal.
- There is no need to double-glove.
- Disposable gloves should not be washed or reused.

### **Rubber Gloves**



If during an influenza pandemic, the supply of gloves becomes limited, it may be necessary to reuse gloves. In addition, when using cleaning supplies, thick rubber gloves can be used in place of disposable gloves. Rubber gloves must be cleaned properly to ensure sterility:

- Designate a bucket to collect contaminated rubber gloves
- Place bucket in laundry area
- Wear PPE
- Carefully move soiled gloves to a bucket with fresh soapy water
- Gently rub the gloves to remove any visible soil and cover in a 1:100 bleach solution
- Soak gloves overnight
- Rinse the gloves in clean water.
- Check for holes:
  - Fill each glove with rinse water. If any water squirts out, there is a hole in the glove
  - Discard any gloves with holes
- Air-dry the remaining gloves
- If available, put talcum powder or corn starch in dry gloves
- Return clean gloves to the treatment area

If glove supplies are reduced, other barriers such as disposable paper towels should be used when there is limited contact with respiratory secretions, such as handling used facial tissues. Hand hygiene should be practiced consistently in this situation.

### **Face Masks**



In cases where there may be blood or fluid splatter, you should wear a face mask, also known as a surgical mask. Surgical masks are disposable, loose-fitting face coverings that create a physical barrier to protect the wearer's nose and mouth from large droplets, sprays, and fluids. Wearing a surgical mask can help lower the risk of respiratory virus transmission by capturing larger droplets. However, they are not designed to filter out viruses the size of 20 – 400 nanometers. The masks are designed to catch droplets from the wearer and generally do not protect the wearer from inhaling airborne particles.

When caring for a person who may have a contagious viral disease, it is recommended that you wear a proper mask such as an N95 described below. Also place a surgical face mask on the patient in order to catch larger droplets when coughing or sneezing.

### **NIOSH N95 Respirator**



The department of Health and Human Services and CDC recommend the use of a particulate respirator that is at least as protective as a National Institute for Occupational Safety and Health (NIOSH)- certified N95. These respirators are high-filtration masks designed to filter at

least 95% of airborne particles, including dust, smoke, and viruses for medical and industrial use. They use head straps, not ear loops, for a secure tight-fitting seal.

The effective use of these face masks requires fit testing to ensure a proper fit. Contact your local health department, occupational medical provider, urgent care, or fire department to inquire about fit testing for you or your church.

A NIOSH-certified fit-tested N-95 respirator should be donned just before entering into the patient's room. Remove and discard the respirator just after exiting area. Place the respirator in a plastic zip-lock bag, seal and then discard into the trash. A powered air-purifying respirator (PAPR) may also be used.

If available, portable high efficiency particulate air (HEPA) filtration units may be operated in the area where the infected individual is located to filter out infectious particles. Use of such a unit does NOT eliminate the need to wear respiratory protection.

Consider keeping all the supplies placed strategically outside but close to the entrance of the patient's room. Purchasing a plastic closet shoe organizer to hang over the outside of the door is a way to store items in a neat way at the point of entrance.

### **N95 vs KN95**



With such similar sounding names, it can be confusing to understand the difference between an N95 and a KN95 face mask. In short, N95 masks are made to the US standards for respirator masks, and Kn95 masks are made to Chinese standards.

Both are made of several layers of synthetic material, usually a plastic polymer, the distinction between the two is their certification. Both ratings require masks to be tested for filtration efficiency at capturing salt particles (NaCl).

N95 masks have slightly stricter requirements for pressure drop when inhaling and exhaling. Meaning they are slightly more breathable than KN95 masks. N95 masks have head straps which provide a tighter fit around the head, while KN95 masks have ear loop, allowing more outside air to enter.

During the COVID-19 pandemic there was a shortage of N95 masks, and KN95 masks were more available. The reason is that KN95 masks do not meet the NIOSH standards for face masks, so hospitals and healthcare facilities can only use N95 masks. This left a larger supply of KN95 masks available to the public.

### **Goggles and Face Shields**



The mucous membranes surrounding the eyes can absorb fluids. Protective eyewear should be worn to prevent splashing, splattering, or spraying fluids to enter the eyes. Any caregiver within three feet of an infected patient is likely to encounter sprays of infectious material. Eye and face protection should be used in this situation.

- Wear goggles/face shield to protect mucous membranes of the eyes during activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions. Eyeglasses worn daily are not as effective as goggles; goggles protect eyes from the front and the sides.
- For additional information about eye protection for infection control, visit the National Institute for Occupational Safety and Health's website at <http://www.cdc.gov/niosh/topics/eye/eyeinfectious.html>.

### **Gowns**



Caregivers should wear an isolation gown when it is anticipated that soiling of clothes with blood or other bodily fluids, including respiratory secretions, may occur. At the time of this writing, according to CDC, most routine pandemic influenza patient encounters do not

necessitate the use of gowns. Examples of when a gown may be needed are if you expect to be exposed to copious amounts of secretions or holding a patient closely. Recommendations for the use of gowns are as follows:

- Isolation gowns can be disposable and made of synthetic material or reusable and made of washable cloth.
- Gowns should be the appropriate size to fully cover the areas requiring protection.
- Any situation that requires a gown would also require gloves, a mask and goggles.
- Remove soiled gown as soon as possible, and place in a laundry receptacle or waste container, designated for soiled gowns and mixed with other laundry.
- When removing a gown, do so using extreme care so not to shake, rub, or splash and bodily fluids onto yourself.
- Hand hygiene should follow.

### **Accidental Contact with Body Fluids**

If there is an area on your person that is not protected, accidental contact can occur. Body secretions, coughs, phlegm, or spray from a sneeze may come in contact with a mucous membrane. Treat any accidental contact immediately in the following way:

- Leave the patient's room and remove any PPE.
- Flush the area in the most appropriate manner with soap and clean water. If a splash occurs in the eye, flush it with clean water.
- If necessary, take a shower.
- If working in an alternative care facility, report the exposure to your team supervisor. Complete the necessary forms.

### **Follow Up Care of Accidental Contact**

- Monitor the condition of all people providing any assistance in the alternative care facility.
- Obtain a temperature two times per day.
  - If a fever occurs – temperature is 101°F or higher – the worker should not perform patient care activities.
- Treat as a suspected case if the signs and symptoms match those of the virus that is causing the illness.

## **Transmission of HPAI H5N1**

The highly pathogenic H5N1 has currently proven to be poor when transmitting from human-to-human. The only human-to-human cases that have been reported involved mothers caring for their sick children, and family members who lived in close quarters.

The H5N1 virus lives in a much warmer environment, in the lower respiratory tracts, and thus is found more readily in the pharyngeal samples and not in the nasal swabs. This is a good indication that it is not shedding through an infected person's sneezes and is not readily airborne. However, recent mutations are showing the virus' favorability changing to upper respiratory receptors. If it were to mutate and move to the upper respiratory environment, this could change its mode of transmission.

The H5N1 virus has been found in the lungs, blood, cerebrospinal fluid, and feces patients. This raises the concern that it may be transmissible by contact with blood, body fluids and feces in addition to respiratory secretions. Given that the exact transmission pattern or patterns of a pandemic virus will not be known until after the virus emerges, control strategies may have to be modified to include additional practices.

## **Respiratory Protection for Pandemic Viruses**

While droplet transmission is likely to be the major route of exposure for pandemic influenza, as is the case with seasonal influenza, it may not be the only route. Given the potential for illness and death associated with pandemic influenza, a preparedness plan should also address airborne transmission as well. If virus particles are carried in the air, such as COVID-19, normal face masks will not be effective against such small particles. Occupational Safety and Health Administration (OSHA) specifies the use of NIOSH 95 Particulate Filtering Respirators. An N95 respirator filters at least 95% of airborne particles.

The effective use of these face masks requires fit testing to ensure a proper fit. Fit testing is usually performed by employers whose employees are at risk of exposure to pathogens or offensive particles. Contact your local health department, occupational medical provider, urgent care, or your local fire department to inquire about fit testing for you or your church.

There will continue to be uncertainty about the modes of transmission until the actual pandemic virus strain emerges. It is expected that there will be a worldwide shortage of respirators if and when a pandemic occurs. N95 respirators should be purchased in advance and stock-piled; manufacturers may only supply healthcare facilities that already have a respiratory protection program in place, essential personnel, and not to the general population.

More information on the elements of a comprehensive respiratory protection program and the use of respirators can be found at:

<http://www.osha.gov/SLTC/respiratoryprotection/index.html>.

For some types of airborne infectious agents (such as SARS), care givers are not only at risk for illness but may become a potential source of infection to patients and others. Selection of

appropriate respiratory PPE requires an understanding of the airborne infectious agents and their properties. There are many different types of respiratory PPE available. If you decide to implement a Pandemic Preparedness Plan, contact your local health department for more information.

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<sup>i</sup> “COVID-19 Versus SARS: A Comparative Review” Ahmed S. Keshta, Saad L Mallah, Dhaled Al Zubaidi, April 24, 2021, National Library of Medicine, <https://pmc.ncbi.nlm.nih.gov/articles/PMC8064890/>, accessed February 12, 2026

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<sup>iii</sup> Recurrent MERS-CoV Transmission in Saudi Arabia-Renewed Lessons in Healthcare Preparedness and Surveillance,” Jaffar A. Al-Tawfiq, Ziad A. Memish, June 2, 2025, National Library of Medicine, J Epidemiol Glob Health 15(1):77. doi: 10.1007/s44197-025-00426-6, <https://pmc.ncbi.nlm.nih.gov/articles/PMC12130356/>, accessed February 11, 2026

<sup>iv</sup> “A Hospital Employee Broke the H7N9 Bird Flu News Over China’s Twitter,” Jennifer Welsh, Business Insider, April 24, 2013, <https://www.businessinsider.com/news-of-the-new-h7n9-bird-flu-weibo-2013-4>, Accessed February 11, 2026

<sup>v</sup> “Nurse Who Caught Ebola Settle Suit Against Dallas Hospital,” NBC New, October 24, 2016, <https://www.nbcnews.com/storyline/ebola-virus-outbreak/nurse-who-caught-ebola-settles-suit-against-dallas-hospital-n672081>, Accessed February 11, 2026

<sup>vi</sup> John Picco, “PPE and Pandemic Preparedness: Lessons Learned from COVID-19,” “PPE Online”, October 2024, [https://www.ppeonline.ca/blogs/ppe-online-blog/ppe-and-pandemic-preparedness-lessons-learned-from-covid-19?srsId=AfmBOop-RbSA0\\_his9bqy5n2G3g8110vsn2tya7sig0N7HTwhmtUvxcY](https://www.ppeonline.ca/blogs/ppe-online-blog/ppe-and-pandemic-preparedness-lessons-learned-from-covid-19?srsId=AfmBOop-RbSA0_his9bqy5n2G3g8110vsn2tya7sig0N7HTwhmtUvxcY), accessed February 11, 2026

<sup>vii</sup> “Coronavirus Can Survive on Skin for 9 Hours” Rachael Rettner, Live Science, October 7, 2020, <https://www.livescience.com/coronavirus-survives-9-hours-on-skin.html>, accessed February 12, 2026

<sup>viii</sup> “Higher Viral Stability and Ethanol Resistance of Avian Influenza A (H5N1) Virus on Human Skin,” Risa Bandou, Ryohei Hirose, Takaaki Nakaya, et al, March 28, 2022, Emerging Infection Diseases, National Library of Medicine, <https://pmc.ncbi.nlm.nih.gov/articles/PMC8888214/>, accessed February 12, 2026

<sup>ix</sup> “31 Lessons from COVID-19 & Necessary Actions for Future Pandemic Resilience for Safe Work, Safe School, & Save Travel,” Marissa V. Rainbolt, Emily Jones, Linsey C. Marr, et al., Final Report, The Lancet COVID-19 Commission Task Force on Safe School, Safe Work, & Safe Travel, January 20, 2020, [https://healthybuildings.hsph.harvard.edu/wp-content/uploads/2024/09/LANCET-COVID19-Commission.31-Lessons-from-COVID-19\\_Safe-Work-Safe-School-Safe-Travel\\_01-20-2022-1.pdf](https://healthybuildings.hsph.harvard.edu/wp-content/uploads/2024/09/LANCET-COVID19-Commission.31-Lessons-from-COVID-19_Safe-Work-Safe-School-Safe-Travel_01-20-2022-1.pdf), accessed February 11, 2026