SARS-CoV-2 and the Workplace

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COVID-19 Basics

• COVID-19 is a respiratory disease.

• Symptoms: fever, cough, and trouble breathing.

• Average incubation period for SARS-CoV-1 is about 5.2 days, with 95% of individuals exhibiting symptoms within 12.5 days.

• Studies indicate that there are people who get COVID-19, but do not require hospitalization for respiratory distress. Even those people do not require hospitalization, they report being very sick.

• We are also learning that a person may become infected with SARS-CoV-2, yet not experience being sick.
**Medications**

- Currently, there are no proven medications to treat COVID-19. However, several medications are undergoing trials to see if they are safe to use and they work to kill SARS-CoV-2.

- For example, studies to evaluate the safety and efficacy of *Remdesivir* in adults diagnosed with COVID-19 are ongoing.

- Existing medications like chloroquine are also being studied as mentioned by the President during his news conferences, but there is no evidence that the drug works for COVID-19.

**Vaccine**

- Currently in development

- 3 phases:
  - Safety trial
  - Efficacy trial
  - Large population trial

- Timeline—12 to 18 months
  - No guarantee initial vaccines will have high efficacy
Transmission

• **Droplets**
  – Transmission from person to person occurs primarily between people in close contact with each other (about 6 feet). Respiratory droplets carrying the virus transmit infection when they travel directly *from* the respiratory tract of the infected individual to the mucosal surfaces—the eyes, nose and mouth of the uninfected person. Droplets are produced when infected person coughs or sneezes.

• **Contact**
  – Contact between an uninfected person and surface or object, which has been recently (within hours) contaminated with SARS-CoV-2, can occur. When a person touches a contaminated surface or object with their hands, and then touches their hands to their mouth, nose, or eyes, contact transmission occurs.

Viral Longevity on Surfaces & Objects?

• Limited studies of environmental persistence
  – Doremalen et al. (2020)
  • COVID-19 viral RNA could be detected:
    – Up to 3 hours in aerosols
    – Up to 4 hours on copper
    – Up to 24 hours on cardboard
    – Up to 2-3 days on plastic
    – Up to 2-3 days on stainless steel
Environmental Persistence of COVID-19

- Limited studies have led to concerns about the persistence of COVID-19 on environmental surfaces.

- While nucleic acid amplification (PCR) detection of viral RNA may indicate that viral shedding occurred at some point in the past, equating detection of viral genetic material with viable virus—virus which can cause infection—can be misleading and is the primary concern NIOSH has with most of the environmental studies being published.

Decontamination of Surfaces & Objects

- The good news is that exposures can be minimized without the use of environmental sampling.

- Environmental contamination can be minimized with routine cleaning and disinfection practices with readily available and affordable products.

- There are currently 287 available products registered with the EPA that can be used for COVID-19 as of 03/19/2020.

- For example, contaminated surfaces and objects can be disinfected using 70% ethanol-containing products; 50% isopropanol-containing products; or 0.5% sodium hypochlorite-containing products. Contact time with the surface or object should not be brief—one minute at least.
Decontamination of Respirators

• Forthcoming:

• “Decontamination and Reuse of Filtering Facepiece Respirators using Contingency and Crisis Capacity Strategies”
  – Ultraviolet Germicidal Irradiation (UVGI)
  – Moist heat
  – Vaporous Hydrogen Peroxide (VHP)

• Check at https://www.cdc.gov/coronavirus/2019-nCoV/index.html

Transmission by Aerosols

• Transmission by small particles—called aerosols—which remain airborne for a longer time and over a longer distance than droplets—may occur. Airborne spread can occur especially in a relatively closed environment, involving high concentrations of aerosols over a prolonged period, and where the uninfected person is close to the source. This is especially true in healthcare settings.
Mitigation

- Interrupting the spread of COVID-19 is based on a simple principle—keep infected individuals separated from uninfected individuals.

- Everything we are doing now is based on this simple principle.

Physical Distancing

- The best way to keep people separated is to practice “physical distancing.” After completing a national 15-day stay-at-home period of physical distancing, we are now in a 30-day period of physical distancing. We may yet see the current 30-day period of such distancing extended further.

- The national physical distancing requires us to maintain a *minimum* 6-foot separation between people while conducting our daily lives—when working, food shopping and other essential activities.
Diagnostic Testing

- Diagnostic testing has gotten more complicated lately. There are now two types of tests:
  - The more common test you hear about is a nucleic acid amplification test for SARS-CoV-2 RNA. It measures current infection with SARS-CoV-2; and
  - The other test which you are beginning to hear more about is called the antibody detection test.

Tests for SARS-CoV-2/COVID-19 and Potential Uses

<table>
<thead>
<tr>
<th>Type of Test</th>
<th>Measure</th>
<th>Value</th>
<th>Beneficiary</th>
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</thead>
<tbody>
<tr>
<td>Nucleic acid amplification</td>
<td>Current infection with</td>
<td>- Inform individual of infection status so they can anticipate course</td>
<td>Individual</td>
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<tr>
<td>test for viral RNA</td>
<td>SARS-CoV-2</td>
<td>and take action to prevent transmission</td>
<td>Healthcare or long-term care facility</td>
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<td></td>
<td></td>
<td>- Inform patient management and actions needed to prevent transmission</td>
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<td></td>
<td></td>
<td>- Inform actions needed to prevent transmission</td>
<td>Public health</td>
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<tr>
<td>Antibody detection</td>
<td>Past exposure to SARS-CoV-2</td>
<td>- Detect susceptible individuals (antibody negative) and those</td>
<td>Identify those potentially immune to</td>
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<tr>
<td></td>
<td></td>
<td>previously infected</td>
<td>SARS-CoV-2 (if tests can detect protective immunity, individuals could be returned to work)</td>
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<tr>
<td></td>
<td></td>
<td>- Identify individuals with neutralizing antibodies</td>
<td>Healthcare facilities: Experimental therapy</td>
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<td></td>
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<td>- Facilitate contact tracing and surveillance</td>
<td>Public health</td>
</tr>
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Hygiene

- Physical distancing and testing strategies are augmented also by personal hygiene practices such as staying home when sick, covering your sneezes and coughs, and washing your hands frequently.

Ways to Defeat the Virus

- **Soap and water** break the virus membrane.
- **Ultraviolet light** disrupts the genetic material.
- **Heat** breaks the structure of spike.

Identifies true value of soap!
Construction—Pre-Shift

- Stay at home if you are feeling sick!

- Job forepersons:
  - Ask workers to self-identify symptoms of fever, coughing, or shortness of breath each day. Those exhibiting symptoms should be sent home.
  - Ask workers if they have had known close contact with a COVID-19 positive or person sick with COVID-19
  - Ask workers if they have been asked to self-isolate by their doctor.
  - Screen all visitors to the jobsite.

- Temperature Checks
  - Temperature screening when working in close contact (confined space or inside an unventilated, closed building envelope) when physical distancing is not possible. There should be ‘no touch’ or ‘no contact’ thermometers.

- Crew meetings/toolbox talks should be done with 6-foot separation between workers.

- Designate a site-specific COVID-19 officer at every job site.

Construction—During Shift—Physical Distancing

- Maintain minimum 6-foot separation while working.

- Identify choke points such as hallways, hoists and elevators, break areas, and buses, and control them so physical distancing can be maintained.

- Minimize interactions when picking up or delivering equipment or materials.

- Modify work schedules to stagger work, provide alternating workdays or extra shifts to reduce the total number of employees on a job site at any given time.

- Restrict access to enclosed and confined spaces. Confined and enclosed spaces (e.g., trailers) should be identified and access should be restricted to essential personnel only. Enclosed spaces (e.g., toilets, break areas) are potential transmission areas and treated accordingly. Time spent in these areas should be minimized.
Construction—PPE

- Gloves should always be worn while on-site. The type of glove worn should be appropriate to the task. If gloves are not typically required for the task, then any type of glove is acceptable, including latex gloves. Employees should avoid sharing gloves.

- Eye protection should always be worn while on-site.

- If physical distancing cannot be used, workers in close contact with each other or working confined areas should appropriate PPE and augment ventilation.

Construction—Hygiene

- Avoid touching face—eyes, nose and mouth

- Cover coughs and sneezes with arm or tissue (then throw tissue away and wash hands)

- Do not share water bottles

- Entering a machine on-site, wipe it down with disinfectant
Construction—Decontamination

- Wash hands often during the day and at end of the shift with soap and water for at least 20 seconds

- At sites where access to running water is not available, use hand sanitizers with at least 60-70% alcohol.

- Each job site should develop cleaning and decontamination procedures covering tools, trailers, gates, equipment, vehicles, door handles, handrails, porta-potty stations at least once a day or more often if feasible

References


