



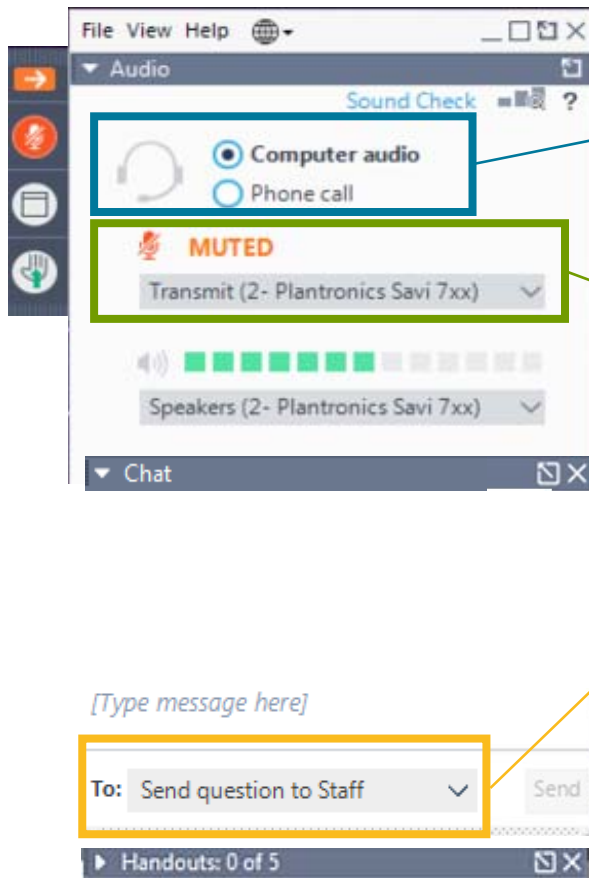
PPE SAFE PRACTICES

Equipment and practices operators should utilize to keep themselves, their coworkers, and their families safe.

Mike Jennings

May 7, 2020

Using GoToWebinar



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AGENDA

- New look for NEIWPPCC
- Virus Survivability in the environment
- CDC/OSHA COVID-19 information
- PPE considerations by task
- NEIWPPCC's upcoming distance learning opportunities

Information presented today originated from the Water Resource Foundation webcast on 4/16/2020 titled – Coronavirus Disease 2019 (COVID-19) Latest Research Forum

Risk-based determinations are best made at the local level, in consultation with experts

ABOUT NEIWPCC



ABOUT US

[NŪ-Ē-PĪK]

NEIW PCC is a regional commission that helps the states of the Northeast preserve and advance water quality.

We engage and convene water quality professionals and other interested parties from New England and New York to collaborate on water, wastewater, and environmental science challenges across shared regions, ecosystems, and areas of expertise.

ABOUT US

KEY AREAS OF WORK AND IMPACT

CONNECTIONS



We engage and convene water quality professionals and other stakeholders across the Northeast to collaborate on clean water and environmental science challenges across shared regions, ecosystems, and areas of expertise.

PROTECTION



We conduct research into water-related topics, monitor environmental factors, and fund such work by others. We also implement and fund environmental restoration and other on-the-ground projects.

TRAINING



We develop, coordinate, and conduct training courses that serve water quality professionals regionally and nationwide.

EDUCATION



We fund and/or staff programs that engage the public through events, exhibits, web and print publications, and other outreach activities.

ENGAGEMENT



We actively represent the interests of member states at meetings with federal and state officials and in regional and national water and wastewater associations.

ABOUT US

NEIWPCC

• MISSION •

To advance clean water in the Northeast through collaboration with, and service to, our member states.

• VISION •

Clean and sustainable water throughout the Northeast.

• VALUES •

Leadership • Collaboration • Education • Service • Science



THE
**Water
Research**
FOUNDATION

WRF Webcast

Coronavirus Disease 2019 (COVID-19)

Latest Research Update

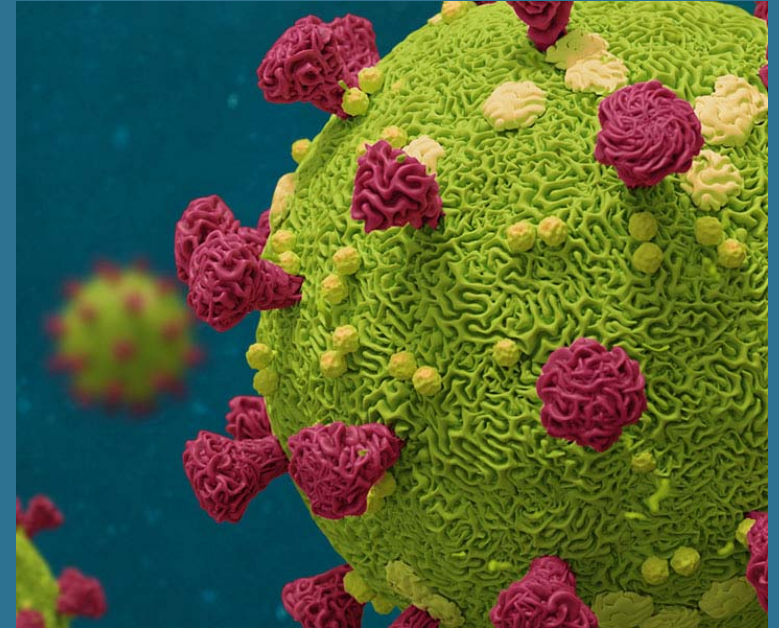
April 16, 2020

3:30 pm – 5:00 pm ET USA



PPE SAFE PRACTICES

COVID-19 refers to the disease



**SARS-CoV-2 and 2019-nCoV and COVID-19 virus
refer to the virus that
results in COVID-19**

VIRUS SURVIVABILITY IN WATER AND ON SURFACES

Survival of Coronaviruses in Air, Water and Wastewater



Walter Betancourt
Charles P. Gerba
Ian Pepper
Department of Environmental
Science

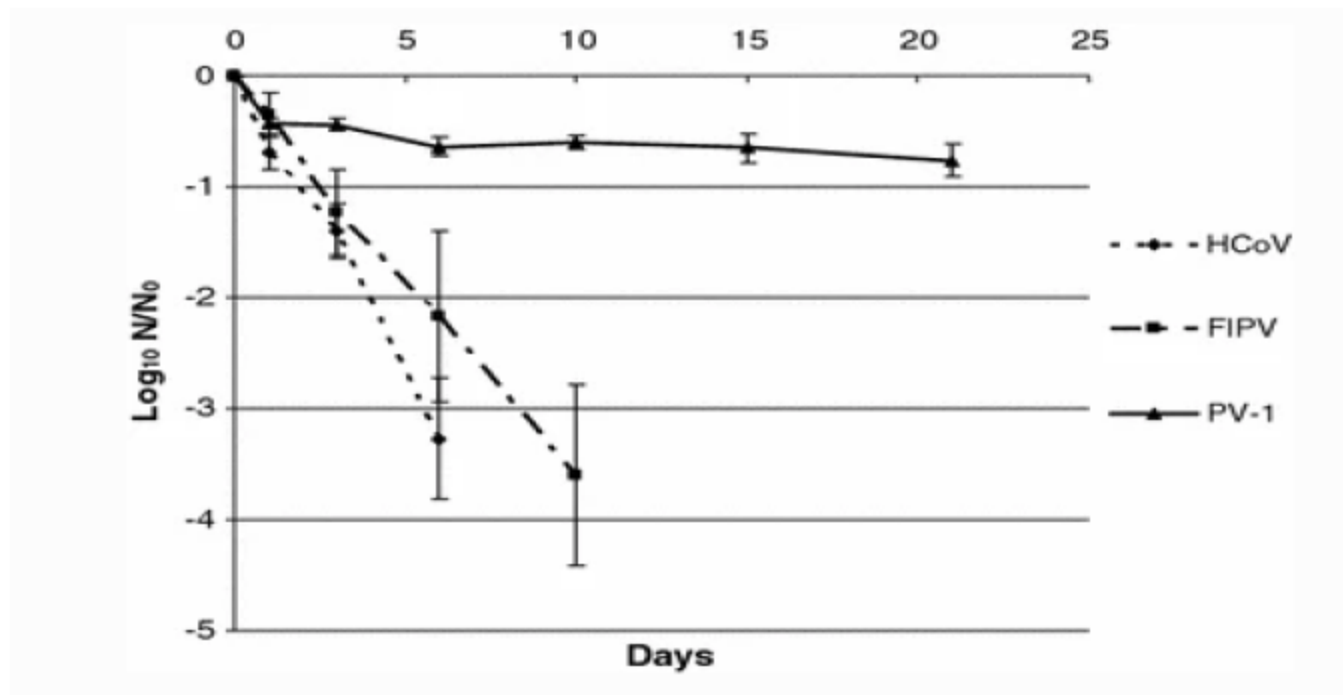


Human Coronaviruses

- HCoV- OC43 common cold
- HCoV-229E common cold
- SARS-CoV Severe Acute Respiratory Syndrome
- MERS-CoV Middle East Respiratory Syndrome
- SARS-CoV-2 HCoV-19

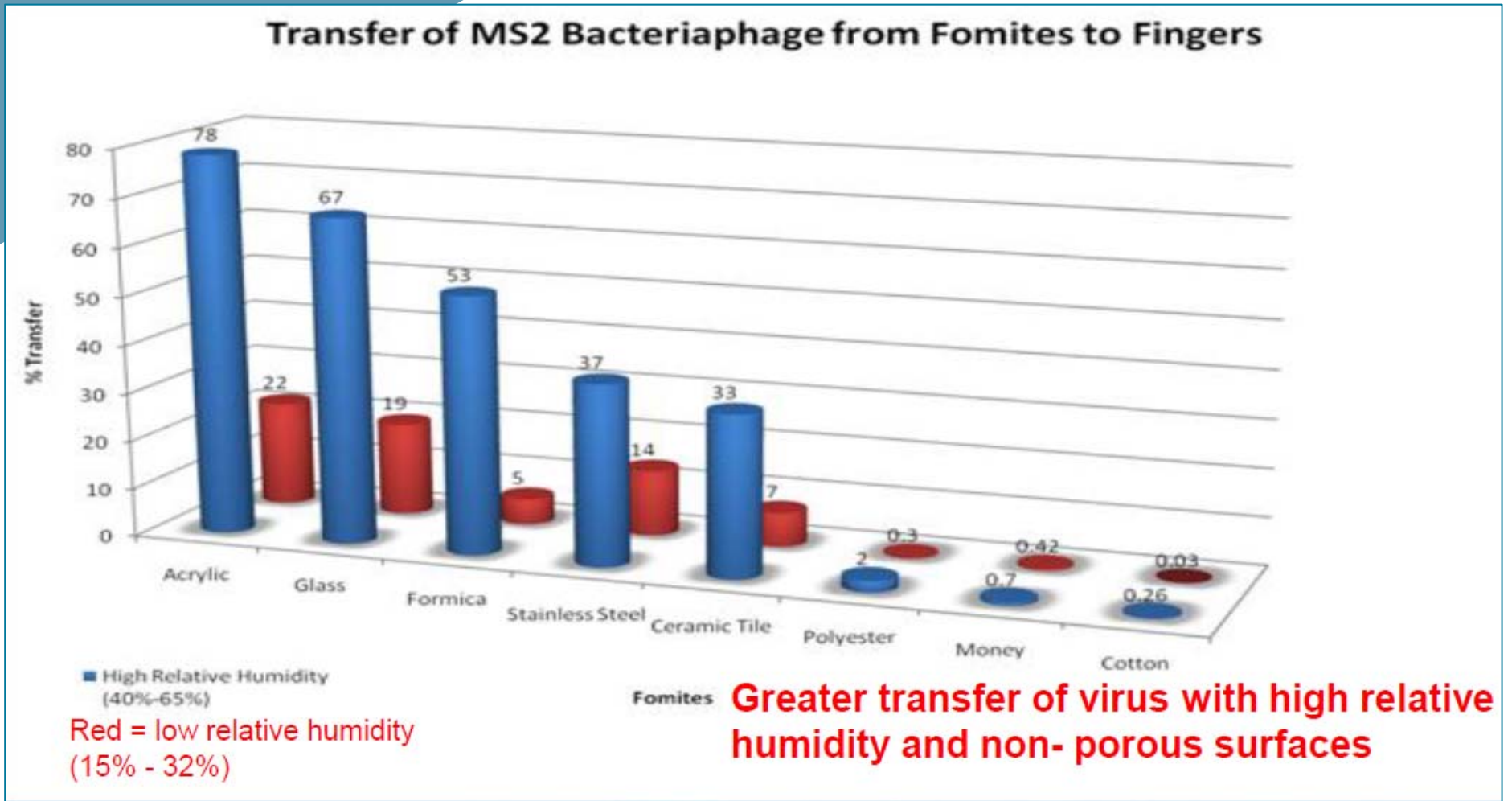
SURVIVABILITY IN WATER

Survival of human coronavirus 229E in tap water at 23 °C



HCoV = coronavirus 229E; FIPV = Feline coronavirus; PV-1 = poliovirus type 1

SURVIVABILITY ON SURFACES



HCoV-19

- Infectious virus detected in feces of patients up to five weeks after infection
- Survival (Relative humidity 40% R.H. - 23 ° C) (Morris et al 2020)
 - 2-3 days on plastic and stainless-steel surfaces
 - 4 hours on copper surface
 - 24 hours on cardboard
 - 3 hours in aerosols
- No evidence for transmission by feces or fomites or presence of infectious virus sewage

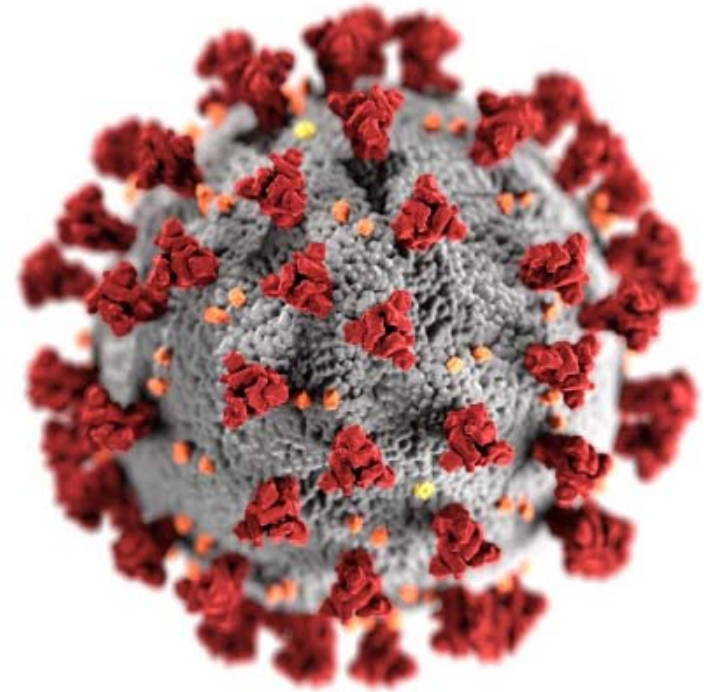
Still many uncertainties. More research needed.

LATEST COVID-19 INFORMATION AND GUIDANCE FROM CDC AND OSHA

Novel Coronavirus for Water Professionals

Matthew J Arduino, MS, DrPH, FSHEA, M(ASCP)

April 16, 2020



For more information: www.cdc.gov/COVID19

Use of Cloth Face Coverings to Help Slow the Spread of COVID-19

- Wear a cloth face covering to cover their nose and mouth in the community setting
- In situations where you may be near people
- Not a substitute for social distancing
- Not intended to protect the wearer, but it may prevent the spread of virus from the wearer to others



<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/diy-cloth-face-coverings.html>

COVID-19: Shedding

- Patients shed virus into their environment:
 - Primarily from respiratory tract
 - Stools have high PCR positivity (two reports from China have recovered culturable virus from small number of patients, but these have not been reproducible)
 - All healthcare contamination studies have been PCR based both air samples and surface samples. U Nebraska included culture in an attempt to recover infectious virus but has not been successful to date.
 - Recent report from the Netherlands of RNA detected in wastewater and the possibility of using PCR as a surveillance tool

PCR = Polymerase chain reaction

Polymerase chain reaction is a method widely used in molecular biology to rapidly make millions to billions of copies of a specific DNA sample

Fecal Shedding From Patients

- The combination of very high virus RNA concentrations and occasional detection of sgRNA-containing cells in stool indicate active replication in the gastrointestinal tract
- Our failure to isolate live SARS-CoV-2 from stool may be due to the mild courses of cases, with only one case showing intermittent diarrhea
- Further studies should therefore address whether SARS-CoV-2 shed in stool is rendered non-infectious through contact with the gut environment
- Initial results suggest that measures to contain viral spread should aim at droplet-, rather than fomite-based transmission.

Article

Virological assessment of hospitalized patients with COVID-2019

<https://doi.org/10.1038/s41586-020-2196-x>

Received: 1 March 2020

Accepted: 24 March 2020

Published online: 1 April 2020

Roman Wölfel^{1,2}, Victor M. Corman^{2,3}, Wolfgang Gugg
Sabine Zange¹, Marcel A. Müller², Daniela Niemeyer²,
Camilla Rothe², Michael Hoelscher², Tobias Bleicker²,
Rosina Ehmann¹, Katrin Zwirgmaier¹, Christian Droste

Coronavirus disease 2019 (COVID-19) is an acute respiratory illness that emerged in late 2019^{1,2}. Initial outbreaks in China involved 6.1% with critical courses³. This severe presentation is associated with the expression of the virus receptor that is expressed predominantly in the lower respiratory tract in patients with severe symptoms, this same receptor tropism is also associated with the control of severe (SARS) in 2003⁴. However, there are reports of COVID-19 respiratory tract symptoms, suggesting the potential for transmission⁵⁻⁸. There is an urgent need for information on the



Wölfel R, et al. Virological assessment of hospitalized patients with COVID-2019. Nature 2020 [Published on line 1 April 2020] <https://doi.org/10.1038/s41586-020-2196-x>

Is Feces Infectious?

- The risk of transmission of the virus that causes COVID-19 from the feces of an infected person is also unknown.
- The risk is expected to be low based on data from previous outbreaks of related coronaviruses, such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS).
- There has been no confirmed fecal-oral transmission of COVID-19 to date.

CDC GENERAL COVID-19 RESOURCES

Water and COVID-19 FAQ

- <https://www.cdc.gov/coronavirus/2019-ncov/php/water.html>

Strategies to Optimize the Supply of PPE and Equipment (healthcare)

- https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fhcp%2Fhealthcare-supply-ppe.html

Personal Protective Equipment: Questions and Answers (healthcare)

- <https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirator-use-faq.html>

CDC GENERAL COVID-19 RESOURCES

Implementing Safety Practices for Critical Infrastructure Workers Who May Have Had Exposure to a Person with Suspected or Confirmed COVID-19

- <https://www.cdc.gov/coronavirus/2019-ncov/community/critical-workers/implementing-safety-practices.html>

Reopening Guidance for Cleaning and Disinfecting Public Spaces, Workplaces, Businesses, Schools, and Homes

- <https://www.cdc.gov/coronavirus/2019-ncov/community/reopen-guidance.html>

OSHA GENERAL COVID-19 RESOURCES

General information – control & prevention

- <https://www.osha.gov/SLTC/covid-19/controlprevention.html#solidwaste>

Guidance on Preparing Workplaces for COVID-19

- <https://www.osha.gov/Publications/OSHA3990.pdf>

OSHA Standards & COVID-19 – reporting

- <https://www.osha.gov/SLTC/covid-19/standards.html>

PPE CONSIDERATIONS BY WORK TASK



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Overview of PPEs and the Current Implications and Applicability to COVID-19

Mark LeChevallier, PhD
Dr. Water Consulting, LLC

KNOWLEDGE OF VIRUSES IN WASTEWATER IS NOT NEW

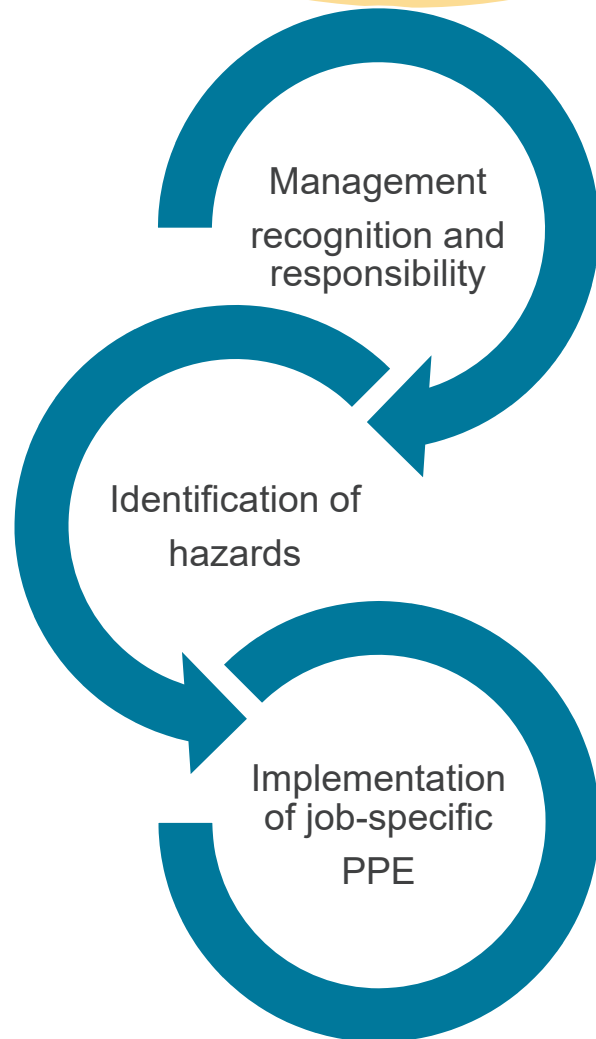
- Norovirus, Hepatitis, Rotavirus, Adenovirus
- Health studies have shown wastewater workers have increased prevalence of antibodies to various diseases.

Typical Grade 1 licensing exam question:

Which one of the following infectious diseases is not transmitted via wastewater:

- *Tetanus*
- *Tuberculosis*
- *Acquired immune deficiency syndrome (AIDS) disease*
- *Polio*

HAZARD IDENTIFICATION AND JOB SAFETY ANALYSIS



- What are the specific task of the job
- Rank potential hazards
- ID hazard control measures
 - Administrative controls
 - Engineering controls
 - Required PPE
 - Required training
 - Required permits



Protecting wastewater workers from disease risks: Personal protective equipment guidelines

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Additional Supporting Information may be found in the online version of this article.

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• Abstract

The 2013–2016 Ebola epidemic revived concerns about infection risks to wastewater workers. Prior research has shown that wastewater can contain a variety of known and emerging pathogens and that wastewater workers are at increased risk of infectious illnesses. However, guidelines on using personal protective equipment (PPE) to decrease these risks are lacking. We engaged 34 wastewater utility personnel and public health experts to conduct a job safety analysis identifying tasks in which workers could be exposed to pathogens and to develop a PPE selection matrix for preventing those exposures. We identified 43 relevant job tasks. Recommended PPE ranges from durable gloves (all tasks) to safety glasses (24 tasks), Tyvek suits or coveralls (4 tasks), and respiratory protection (N95 mask or face mask, depending on the activity, 10 tasks). The PPE selection matrix can serve as a guide for protecting the 120,000 wastewater workers in the United States from known and emerging pathogens. © 2019 Water Environment Federation

• Practitioner points

- Wastewater workers are at increased risk of infectious illnesses.
- Policies to protect wastewater workers from these illnesses are lacking.
- We developed guidelines for use of personal protective equipment by wastewater workers to prevent exposure to infectious agents.

• Key words

sewage; collection systems/sewers; microbial risk; PPE; safety; toxicology; wastewater treatment

INTRODUCTION

The 2014 Ebola epidemic highlighted a critical need to re-evaluate occupational safety practices for protecting wastewater and collection system workers from exposure to microbial pathogens. Several infected patients were transported to the United States for treatment. The Centers for Disease Control and Prevention (CDC), presuming that Ebola virus would not survive in wastewater, recommended that hospitals treating Ebola patients discharge the patients' liquid wastes directly into sanitary

22 October 2019

Wiley Online Library
wileyonlinelibrary.com

Fee required

**DEVELOPED BY EXPERT WORKSHOP AND BASED ON
OSHA GUIDANCE FOR AVOIDING EBOLA EXPOSURE**

OSHA PPE Selection Matrix for Occupational Exposure to Ebola Virus

| | |
|---|---|
| ✓ | Use at a minimum |
| ✦ | Use when higher-risk exposure(s) is present |

| Conducting normal work activities | Casual interaction (outside of a healthcare setting) | | Physical contact (outside of a healthcare setting) | | Providing medical and supportive care | | | | | | Conducting clinical laboratory work | Conducting research laboratory work | Handling dead bodies | Cleaning and disinfecting environments | | | Performing maintenance work | | Handling, transporting, treating, and disposing of waste | |
|---|--|--|--|--|--|---|--|---|---|--|---|---|--|---|---|--|--|---|--|---|
| | In settings where there is no reason to anticipate exposure to Ebola virus | In face-to-face conversation without physical contact with individuals with risk factors for Ebola but with no signs or symptoms | In face-to-face conversation without physical contact with individuals with signs or symptoms of Ebola | With individuals with risk factors for Ebola but with no signs or symptoms | With individuals with signs or symptoms of Ebola | To individuals with no signs, symptoms, or risk factors for Ebola | To individuals with risk factors for Ebola but with no signs or symptoms | During initial evaluation of individuals with suspected Ebola including those with some signs or symptoms but without obvious bleeding, vomiting, or diarrhea | During initial evaluation of individuals with suspected Ebola who have bleeding, vomiting, or diarrhea, or when these symptoms are likely to develop or during hospitalization of individuals with suspected or confirmed Ebola | To individuals with suspected or confirmed Ebola, which involves performing aerosol-generating procedures (AGPs) | While transporting sick individuals with risk factors for Ebola or who are suspected or confirmed to have Ebola | On samples from patients with suspected or confirmed Ebola, including testing which results in bio-aerosol generation | On samples or other material suspected of containing or known to contain Ebola | Of individuals suspected of being or known to have died of Ebola, such as during packaging of remains in an appropriate container bag or transferring of packaged remains to a casket | With suspected or confirmed Ebola virus contamination, but without significant, visible contamination from blood or other body fluids | With suspected or confirmed Ebola virus contamination that includes significant, visible contamination from blood or other body fluids | With suspected or confirmed Ebola virus contamination and using disinfectants which may pose a chemical hazard | In areas that have been appropriately decontaminated in a way that eliminates Ebola virus | In areas suspected or known to have Ebola virus contamination which have not been fully and appropriately decontaminated in a way that eliminates Ebola virus (e.g., in emergency) | Suspected or known to have Ebola virus contamination (considered Category A waste), and that has been appropriately packaged at its point of origin |
| Typical procedures/PPE for normal work tasks | ✓ | ✓ | ✓ | ✓ | ✓ | Standard precautions | Standard precautions | Standard precautions | Standard precautions | Standard precautions | Standard precautions | According to facility level | According to facility level | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dedicated clothing (uniforms/shirts, shoes) | | | ✓ | | | | | | | | | | | | ✓ | ✓ | | ✦ | ✓ | ✓ |
| Gloves, Single (initial) | | ✦ | ✓ | ✓ | | | | | | | | | | | | | | | ✓ | ✓ |
| Gloves, Double (initial) | | | | | | | | | | | | | | | | | | | ✓ | ✓ |
| Gloves, Double (initial + heavy duty) | | | | | | | | | | | | | | | | | | | ✓ | ✓ |
| Face mask (e.g., surgical mask) | | ✓ | ✓ | ✓ | | | | | | | | | | | ✓ | ✓ | | | ✦ | ✓ |
| Face and eye protection (e.g., shield/goggles) | | | ✓ | ✓ | | | | | | | | | | | | | | | ✓ | ✓ |
| Head/neck cover (e.g., surgical cap) | | | | | | | | | | | | | | | | | | | ✓ | ✓ |
| Fluid-resistant or impermeable gown | | | | ✦ | ✦ | | | | | | | | | | ✓ | ✦ | | | ✦ | ✦ |
| Fluid-resistant or impermeable coveralls | | | | ✦ | ✦ | | | | | | | | | | ✓ | ✦ | | | ✦ | ✦ |
| Fluid-resistant or impermeable apron | | | | ✦ | ✦ | | | | | | | | | | ✓ | ✦ | | | ✦ | ✦ |
| Street-level cover high enough to cover lower leg | | | | ✦ | ✦ | | | | | | | | | | ✓ | ✦ | | | ✦ | ✦ |
| Disposable N95 respirator | | | | ✦ | ✦ | | | | | | | | ✦ | ✓ | | | | | ✦ | ✦ |
| Garment: respirator + appropriate cartridge | | | | | | | | | | | | | | | | | | | ✓ | ✦ |
| Powered AirPurifying Respirator (PAPR) | | | | | | | | | | | | | | | | | | | ✓ | ✦ |
| Full-body, air-supplied positive pressure suit | | | | | | | | | | | | | ✦ | | | | | | ✓ | ✦ |
| Example of workers who may require this level of PPE | | | | | | | | | | | | | | | | | | | | |
| Most types of U.S. workers who do not fit into other categories on this matrix | | | | | | | | | | | | | | | | | | | | |
| Airline crews and other transportation workers (aircraft/border protection officers, transportation security screeners, other law enforcement personnel, public health workers) | | | | | | | | | | | | | | | | | | | | |
| Airline crews and other transportation workers (aircraft/border protection officers, transportation security screeners, other law enforcement personnel, public health workers) | | | | | | | | | | | | | | | | | | | | |
| Healthcare workers, including physicians, nurses, and others, and workers, laboratory and other transportation workers | | | | | | | | | | | | | | | | | | | | |
| Healthcare workers, including physicians, nurses, and others | | | | | | | | | | | | | | | | | | | | |
| Air medical transport workers, EMS workers | | | | | | | | | | | | | | | | | | | | |
| Clinical laboratory scientists and other laboratory personnel | | | | | | | | | | | | | | | | | | | | |
| Laboratory scientists and technicians | | | | | | | | | | | | | | | | | | | | |
| Morticians, medical examiners, forensic scientists | | | | | | | | | | | | | | | | | | | | |
| Governmental services workers in all settings including hospitals, clinics and other areas | | | | | | | | | | | | | | | | | | | | |
| Maintenance workers in all settings | | | | | | | | | | | | | | | | | | | | |
| Environmental services and waste collection workers in hospital and other settings, OSHA permitted waste disposal and collection company workers | | | | | | | | | | | | | | | | | | | | |

OSHA[®] FactSheet

PPE Selection Matrix for Occupational Exposure to Ebola Virus

Guidance for common exposure scenarios

Employers are responsible for ensuring that workers are protected from exposure to Ebola virus and that workers are not exposed to harmful levels of chemicals used for cleaning and disinfection. While most workers in the U.S. are unlikely to encounter Ebola virus or individuals with Ebola, workers whose jobs involve healthcare, mortuary/death care, airline and other transportation operations, cleaning and environmental services, law enforcement, and certain other tasks may be at higher risk for exposure.

<https://www.osha.gov/Publications/OSHA3761.pdf>

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- **Contact transfer PPE:** gloves, boots, and uniform/coveralls
- **Splash hazards PPE:** protection of the eyes/face through safety glasses, face shield or goggles
- **Whole body contact hazards PPE:** Tyvek suits or coveralls
- **Abrasion, cut, or puncture hazards PPE:** durable gloves designed for protection from cuts or punctures
- **Respiratory hazards (sprays, mists, or dust) PPE:** N95 respirator or dust mask

MARK LECHEVALLIER, WRF WEBCAST

| AREA / LOCATION | ACTIVITY | Contact Transfer | Splash - Eye/Face | Whole Body Contact | Abrasion, Cut, Puncture | Respiratory |
|-------------------|---|------------------|-------------------|--------------------|-------------------------|-------------|
| Collection System | Lift Station Inspection | X | | | | |
| | Vac/Jetter Truck Operation | X | X | | | C |
| | Netting Facility/Storm Drain Pretreatment O&M | X | X | | X | |
| | CCTV or Line Cleaning | X | X | | X | |
| | Field Wastewater Sampling | X | | | | |
| | Sewer Entry (Live) | X | X | X | X | X |
| | Sewer Entry (By-pass) | X | X | | X | |
| | Man-hole Maintenance | X | | | X | |
| | Sewer Pipe Repair Work (Live) | X | X | X | X | X |
| | Sewer Pipe Repair Work (By-pass) | X | X | | X | |
| | Spill Response/SSO/CSO | X | X | | X | |
| Key: | X = recommended, C = conditional depending on specifics of the task | | | | | |

MARK LECHEVALLIER, WRF WEBCAST

| AREA / LOCATION | ACTIVITY | Contact Transfer | Splash - Eye/Face | Whole Body Contact | Abrasion, Cut, Puncture | Respiratory |
|----------------------------------|---|------------------|-------------------|--------------------|-------------------------|-------------|
| Routine WWTP Operator Activities | Visual Process/Plant Inspections | X | | | | |
| | Pushbutton Equipment Operation | X | | | | |
| | Manual Valve Operation | X | | | X | |
| | WW Sample Collection (auto) | X | | | | |
| | WW Sample Collection (grab) | X | | | | |
| | Field Instrument Calibration (DO) | X | X | | | |
| | Sludge Judge | X | X | | | |
| | General housekeeping (hose down) | X | X | | | C |
| | Dry Sweeping, high pressure power wash | X | X | | | C |
| | Lab Activities | X | X | | X | |
| | Hand Held DO | X | X | | | |
| Key: | X = recommended, C = conditional depending on specifics of the task | | | | | |

MARK LECHEVALLIER, WRF WEBCAST

| AREA / LOCATION | ACTIVITY | Contact Transfer | Splash - Eye/Face | Whole Body Contact | Abrasion, Cut, Puncture | Respiratory |
|-----------------------|---|------------------|-------------------|--------------------|-------------------------|-------------|
| Maintenance | Facility maintenance/ Daily Rounds | X | | | | |
| | Active Pump and Line Maintenance | X | X | X | X | C |
| | Process and Equipment Maintenance with Sewage Contact | X | X | | | |
| | Tank Entry (Empty Tank) - Maintenance Activities | X | X | X | | C |
| Preliminary Equipment | Cleaning Bar Screens | X | X | | C | C |
| | Screenings Handling | X | C | | C | |
| | Grit Handling | X | C | | | |
| UV Disinfection | Routine Inspection | X | | | | |
| | Routine Maintenance | X | | | | |
| | Bulb Replacement | X | X | | X | |
| | Ballast Replacement | X | X | | | |
| Key: | X = recommended, C = conditional depending on specifics of the task | | | | | |

MARK LECHEVALLIER, WRF WEBCAST

| AREA / LOCATION | ACTIVITY | Contact Transfer | Splash - Eye/Face | Whole Body Contact | Abrasion, Cut, Puncture | Respiratory |
|------------------------------|---|------------------|-------------------|--------------------|-------------------------|-------------|
| Biosolids Handling Processes | Gravity Thickening Operation | X | | | | |
| | Other Thickening (DAF, GBT, Drum) Op | X | X | | | |
| | Open Dewatering Eqpt Operation | X | X | | | |
| | Enclosed Dewatering Eqpt Operation | X | | | | |
| | Liquid & Cake Sampling | X | | | | |
| | Septage/Waste Receiving | X | X | | | C |
| | Compost Handling | X | | | | C |
| | Dewatered Class B Biosolids Handling | X | | | | C |
| | Dewatered Class A Biosolids Handling | X | | | | |
| | Thermally Dried Biosolids/Ash Handling | X | | | | |
| Key: | X = recommended, C = conditional depending on specifics of the task | | | | | |

PRE-COVID-19 PPE GUIDANCE

CDC - GUIDANCE FOR REDUCING HEALTH RISKS TO WORKERS HANDLING HUMAN WASTE OR SEWAGE

[HTTPS://WWW.CDC.GOV/HEALTHYWATER/GLOBAL/SANITATION/WORKERS_HANDLINGWASTE.HTML](https://www.cdc.gov/healthywater/global/sanitation/workers_handlingwaste.html)

Workers who handle human waste or sewage may be at increased risk of becoming ill from waterborne diseases. To reduce this risk and protect against illness, such as diarrhea, the following guidance should be followed by workers and employers.¹

Guidelines

| | | |
|---|----|---|
| Basic Hygiene Practices for Workers | | + |
| Personal Protective Equipment (PPE) | | + |
| Training for Workers | | + |
| Vaccination Recommendations for Workers | 37 | + |

PRE-COVID-19 PPE GUIDANCE

Basic Hygiene Practices for Workers

- Wash hands with soap and water immediately after handling human waste or sewage.
- Avoid touching face, mouth, eyes, nose, or open sores and cuts while handling human waste or sewage.
- After handling human waste or sewage, wash your hands with soap and water *before* eating or drinking.
- After handling human waste or sewage, wash your hands with soap and water *before* and *after* using the toilet.
- Before eating, removed soiled work clothes and eat in designated areas away from human waste and sewage-handling activities.
- Do **not** smoke or chew tobacco or gum while handling human waste or sewage.
- Keep open sores, cuts, and wounds covered with clean, dry bandages.
- Gently flush eyes with safe water if human waste or sewage contacts eyes.
- Use waterproof gloves to prevent cuts and contact with human waste or sewage.
- Wear rubber boots at the worksite and during transport of human waste or sewage.
- Remove rubber boots and work clothes before leaving worksite.
- Clean contaminated work clothing daily with 0.05% chlorine solution (1 part household bleach to 100 parts water).

PRE-COVID-19 PPE GUIDANCE

Personal Protective Equipment (PPE)

Workers handling human waste or sewage should be provided proper PPE, training on how to use it, and hand washing facilities. Workers should wash hands with soap and water *immediately after* removing PPE. The following PPE is recommended for workers handling human waste or sewage:

- **Goggles:** to protect eyes from splashes of human waste or sewage.
- **Protective face mask or splash-proof face shield:** to protect nose and mouth from splashes of human waste or sewage.
- **Liquid-repellent coveralls:** to keep human waste or sewage off clothing.
- **Waterproof gloves:** to prevent exposure to human waste or sewage.
- **Rubber boots:** to prevent exposure to human waste or sewage.

PRE-COVID-19 PPE GUIDANCE

Training for Workers

All workers who handle human waste or sewage should receive training on disease prevention. The training should include information on basic hygiene practices; use and disposal of personal protective equipment; and proper handling of human waste or sewage. Workers must also be urged to promptly seek medical attention if displaying any signs or symptoms of diarrhea, such as vomiting, stomach cramps and watery diarrhea.

PRE-COVID-19 PPE GUIDANCE

Vaccination Recommendations for Workers

Vaccination recommendations for workers exposed to sewage or human waste should be developed in consultation with local health authorities. Tetanus vaccinations should be up to date, with consideration also given to the need for polio, typhoid fever, Hepatitis A and Hepatitis B vaccinations.

The recommendations made in this document are based on best practices and procedures. Worker health and safety risks are likely to vary among specific locations and a trained health and safety professional should be consulted to create site specific worker health and safety plans.

NIOSH – CLASS B BIOSOLIDS GUIDANCE

[HTTPS://WWW.CDC.GOV/NIOSH/DOCS/2002-149/PDFS/2002-149.PDF](https://www.cdc.gov/niosh/docs/2002-149/pdfs/2002-149.pdf)

Provide basic hygiene recommendations for workers.

Basic hygiene precautions are important for workers handling biosolids. The following list, originally developed by EPA, provides a good set of hygiene recommendations.

1. Wash hands thoroughly with soap and water after contact with biosolids.
2. Avoid touching face, mouth, eyes, nose, genitalia, or open sores and cuts while working with biosolids.
3. Wash your hands *before* you eat, drink, or smoke and before and after using the bathroom.
4. Eat in designated areas away from biosolids-handling activities.
5. Do not smoke or chew tobacco or gum while working with biosolids.
6. Use barriers between skin and surfaces exposed to biosolids.
7. Remove excess biosolids from footwear prior to entering a vehicle or a building.
8. Keep wounds covered with clean, dry bandages.
9. Thoroughly but gently flush eyes with water if biosolids contact eyes.
10. Change into clean work clothing on a daily basis and reserve footwear for use at worksite or during biosolids transport.
11. Do not wear work clothes home or outside the work environment.
12. Use gloves to prevent skin abrasion.

NIOSH – CLASS B BIOSOLIDS GUIDANCE

[HTTPS://WWW.CDC.GOV/NIOSH/DOCS/2002-149/PDFS/2002-149.PDF](https://www.cdc.gov/niosh/docs/2002-149/pdfs/2002-149.pdf)

Training.—Periodic training on standard hygiene practices for biosolids workers should be conducted by qualified safety and health professionals to cover issues such as the following:

- Frequent and routine hand washing (the most valuable safeguard in preventing infection by agents present in biosolids), especially before eating or smoking
- The proper use of appropriate PPE, such as coveralls, boots, gloves, goggles, respirators, and face shields
- The removal of contaminated PPE and the use of available on-site showers, lockers, and laundry services
- Proper storage, cleaning, or disposal of contaminated PPE
- Instructions that work clothes and boots should not be worn home or outside the immediate work environment
- Prohibition of eating, drinking, or smoking while working in or around biosolids
- Procedures for controlling exposures to chemical agents that may be in biosolids




NEIWPCC DISTANCE LEARNING STRATEGY



NEIWPCC DISTANCE LEARNING STRATEGY

- Utilizing an online software to deliver pre-scheduled, live, facilitated training in 3-hour blocks.
- Registration, payment, participation verification and certificate generation will all be handled through software.
- Credit card only



MAY CLASS OFFERINGS

9:00 – 12:00

- May 14: Massachusetts operator rules & regs
- May 19: Intro to industrial wastewater treatment
- May 20: Pumps 101
- May 21: Intro to municipal wastewater treatment
- May 26: Ind. wastewater characteristics/chemistry
- May 27: Introduction to collection systems
- May 28: Municipal preliminary
& primary treatment



**THANK YOU
AND
BE SAFE**

SURVEY TO FOLLOW



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