

# Prevention Is Key to Avoiding Infections

## and Infectious Disease by Wastewater Utility Personnel



This operator is following the proper procedure by wearing disposal gloves while collecting wastewater samples. Hands should be thoroughly washed after removing gloves. Operators should also be careful if using a pen to complete sample submission forms while collecting samples. The pen should never be placed in the mouth.

**W**astewater operators are exposed to many different safety hazards on a daily basis. Such hazards include physical injuries (slips, trips and falls), entering confined spaces, dealing with environments that are oxygen deficient or contain toxic gases, electrical shock, noise and many others. Unfortunately, that is the environment of the job. In addition there is the real possibility of infections and/or contracting an infectious disease. Wastewater operators occasionally ask me what protection they should take against contracting disease from frequent contact with raw sewage and/or sludge. The intent of this article is to address that concern.

Frequent exposure to sewage increases the possibility of contact with pathogens. What are pathogens? Pathogens are any disease-causing agent. This includes viruses, bacteria or other microorganisms such as protozoa and parasitic worms. The list of infectious diseases that can be

transmitted by pathogens contained in sewage is rather lengthy. They include:

- ◆ Typhoid fever (Salmonella);
- ◆ Dysentery (Shigella);
- ◆ Cholera;
- ◆ Tetanus (Clostridium);
- ◆ Gastroenteritis (Escherichia coli);
- ◆ Hepatitis A virus;
- ◆ Polioviruses (cause Poliomyelitis);
- ◆ Echoviruses (cause Meningitis);
- ◆ Cryptosporidium (cause gastroenteritis);
- ◆ Roundworms, hookworm and tapeworm.

Anyone who has ever been to a sewage treatment plant or entered collection system components such as lift stations and manholes realizes that such facilities are not sanitary environments free from pathogens. And they never will be. The best way to prevent contracting disease is to use “work practice controls” and proper “personal protective equipment” when handling sewage. As the saying goes, “An ounce of prevention is worth a pound of cure.” And that is the case

when dealing with sewage and pathogens. Since pathogens are usually transmitted by either ingestion, inhalation or absorption, the following “work practice controls” should always be followed:

- ❖ Wash hands frequently with antibacterial soap and warm water. This is especially critical before eating, drinking and at the end of your shift. Proper hand washing means applying soap and rubbing vigorously for at least ten to fifteen seconds before rinsing;
- ❖ Carry and use waterless hand sanitizer when soap and water are not available;
- ❖ No eating, drinking, smoking or chewing tobacco in work areas where there is the likelihood of exposure to sewage;
- ❖ Avoid touching the face, mouth, eyes or nose unless hands have been washed recently;
- ❖ If wastewater is splashed into eyes, ears or nose, immediately flush with potable water or use eye wash station if available;

- ❖ If wearing disposal gloves when completing work tasks, do not submerge hands below top of gloves;
- ❖ Do not pick up sharp items or broken glass without projecting hands by wearing leather gloves.
- ❖ Change soiled clothing as soon as the job is completed;
- ❖ Leave work clothes, gloves and boots on site at treatment plant before going home. This will help prevent possible disease transmission to family or friends.

Using proper “personal protective equipment” also helps prevent disease transmission and should be provided by your employer. The most important consideration is the use of good common sense. Personal protective equipment should include the following:

- ❖ Disposable latex or synthetic gloves should be worn at all times when it is anticipated that hands will come in direct contact with sewage. Once task is completed and gloves removed, hands should be properly washed. This practice should be used whenever any sewage samples are collected;
- ❖ All scrapes, cuts and burns should be covered before contact with sewage;
- ❖ Wear masks, goggles or face shields for prolonged exposure to wastewater aerosols or mists.

Finally, I would like to comment on immunizations that are offered by some employers and that should be considered by all wastewater operators. Of course, most large wastewater systems often have a written safety policy that deals with immunizations. But, that does not mean operator safety and specifically immunizations are not an issue for all size systems. Based on my contacts with larger systems over the years, most offer the tetanus vaccine at the time of hire and

then periodic booster shots when needed, about every ten years. Usually the employer offers this vaccine at no cost to the employee. Obviously, the employee has the right to refuse the vaccination, but that is probably not a good idea. Most of the general public gets this vaccination for good reason.

The other vaccinations sometimes offered are for Hepatitis A and B. However, these vaccinations are not usually offered as frequently as tetanus shots. In general, hepatitis is a serious infection that affects the liver. Hepatitis A is found in the stool of individuals with the virus. Hepatitis A is usually spread by person-to-person contact. This can occur via the fecal-oral route when proper hand washing is not practiced. But, it can also be spread by eating food or drinking water containing the virus. Poor personal hygiene and poor sanitation practices can also contribute to transmission.

The Hepatitis B virus is easily spread through contact with the blood or other body fluids of an infected person. People can also be infected from contact with a contaminated object, where the virus can live for several days. Being stuck with a used needle can potentially transmit this infection also. Many individuals with chronic



**This hand washing station provides several features including antibacterial soap, a paper towel dispenser, an eye wash station and disposable gloves.**



**If sewage is ever accidentally splashed into your eyes or mouth, they should be thoroughly flushed with potable water. An eye wash station such as this can be used for such purpose.**

Hepatitis B do not exhibit symptoms and do not even know they are infected. Symptoms can take up to thirty years to develop. The Hepatitis B vaccine is given as a series of three shots over a period of six months in order to provide long-term protection. Booster doses are not currently recommended.

I suggest that wastewater operators consult with their personal physicians about what the job entails and what vaccinations might be needed. While most operators can avoid contracting any of the aforementioned diseases by taking preventative actions and using protective equipment, some physicians may recommend vaccinations to provide another protective barrier.

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