

Pigs and people – and a flu pandemic . . .

The daily news reports continue to report on the status of the H1N1 flu that is currently causing a degree of concern across our country. As I prepare this article in mid-May, the number of cases seems to continue to be on the increase. There is no way of knowing just what the status might be by the time you read this. The good news is that as it stands right now this is in no way what can be considered a pandemic. What is known for sure is that the potential does exist for the H1N1 flu virus to become much more widespread. One expert has suggested that it may stabilize through the summer months, only to become much more active and widespread this fall or winter.

The concerns for a flu pandemic are certainly well founded. A flu that is sufficiently aggressive could cause

havoc all across the country by affecting all aspects of life. The public water and wastewater utilities, as important as they are now, will become even more critical as the needs for sanitation will be emphasized should the flu become widespread. At this time of increased need for the services of water and wastewater utilities, the human resources of the utilities may become strained as staff and their families also become affected by the flu.

It is important that we be prepared for the challenges that might confront us during such a scenario.

Cities and rural water districts and other public water systems must take their responsibilities seriously. Failing to be prepared could have serious implications. The public that you serve is counting on you to deliver safe water.

More about H1N1

I gleaned the Internet and found a variety of information sources concerning the H1N1 (swine flu) virus. Here are some talking points that I gathered from the Centers for Disease Control and Prevention (CDC) Web site.

What is H1N1 (swine flu)?

H1N1 (referred to as “swine flu” early on) is a new influenza virus causing illness in people. This new virus was first detected in people in the United States in April 2009. Other countries, including Mexico and Canada, have reported people sick with this new virus. This virus is spreading from person-to-person, probably in much the same way that regular seasonal influenza viruses spread.

Why is this new H1N1 virus sometimes called “swine flu”?

This virus was originally referred to as “swine flu” because laboratory testing showed that many of the genes in this new virus were very similar to influenza viruses that normally occur in pigs in North America. But further study has shown that this new virus is very different from what normally circulates in North American pigs. It has two genes from flu viruses that normally circulate in pigs in Europe and Asia and avian genes and human genes. Scientists call this a “quadruple reassortant” virus.

Is this new H1N1 virus contagious?

The CDC has determined that this new H1N1 virus is contagious and is spreading from human to human. However, at this time, it is not known how easily the virus spreads between people.

K-State plans research

Kansas State University, home to a biosecurity research institute that studies plant and animals diseases, recently announced plans to obtain a sample of the new swine flu virus and do research on it by injecting it into pigs. According to an article in *The Topeka Capital-Journal*, Juergen Richt, professor of diagnostic medicine and pathology, disclosed the plans during a panel discussion about the virus. Kansas State researchers are working with the U.S. Centers for Disease Control and Prevention in Atlanta.

The flu virus has killed more than 150 people in Mexico and sickened dozens of people in the United States, including a married couple in Dickinson County.

Meanwhile, in late April, the Geneva-based World Health Organization raised its alert level for the fast-spreading swine flu to its next-to-highest notch, signaling a global pandemic could be imminent.

Kansas has 300,000 courses of the drugs Tamiflu and Relenza in its own stockpile and has received an additional 100,000 courses from the federal stockpile.

So far, U.S. cases appear to involve people who have traveled to Mexico and had contact with sick people there. In the Dickinson County cases, the man traveled to Mexico for a business trip, returned home ill, and passed the virus to his wife.

The Kansas researchers are worried the virus could start passing from humans to swine, making it more complicated to address. But officials have stated that the virus hasn't been found in any swine in the U.S.

Kansas State researchers said the flu affects the animals' respiratory systems, much as it does in humans, but doesn't pose any danger if the meat is consumed.

What are the signs and symptoms of this virus in people?

The symptoms of this new H1N1 flu virus in people are similar to the symptoms of seasonal flu and include fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills and fatigue. A significant number of people who have been infected with this virus also have reported diarrhea and vomiting. Also, like seasonal flu, severe illnesses and death have occurred as a result of illness associated with this virus.

How severe is illness associated with this new H1N1 virus?

It's not known at this time how severe this virus will be in the general population. CDC is studying the medical histories of people who have been infected with this virus to determine whether some people may be at greater risk from infection, serious illness or hospitalization from the virus.

How does this new H1N1 virus spread?

Spread of this H1N1 virus is thought to be happening in the same way that seasonal flu spreads. Flu viruses are spread mainly from person to person through coughing or sneezing by people with influenza. Sometimes people may become infected by touching something with flu viruses on it and then touching their mouth or nose.

How long can an infected person spread this virus to others?

The CDC believes that this virus has the same properties in terms of spread as seasonal flu viruses. With seasonal flu, studies have shown that people may be contagious from one day before they develop symptoms to up to seven days after they get sick. Children, especially younger children, might potentially be contagious for longer periods. CDC is studying the virus and its capabilities to try to learn more and will provide more information as it becomes available.

Can I get infected with this new H1N1 virus from eating or preparing pork?

No. H1N1 viruses are not spread by food. You cannot get this new H1N1 virus from eating pork or pork products. Eating properly handled and cooked pork products is safe.

Is there a risk from drinking water?

Tap water that has been treated by conventional disinfection processes does not likely pose a risk for transmission of influenza viruses. Current drinking water treatment regulations provide a high degree of protection from viruses.

Can the new H1N1 flu virus be spread through water in swimming pools, spas, water parks, interactive fountains, and other treated recreational water venues?

Influenza viruses infect the human upper respiratory tract. There has never been a documented case of influenza virus infection associated with water exposure. Recreational water that has been treated at CDC recommended disinfectant levels does not likely pose a risk for transmission of influenza viruses.

Can H1N1 influenza virus be spread at recreational water venues outside of the water?

Yes, recreational water venues are no different than any other group setting. The spread of this novel H1N1 flu is thought to be happening in the same way that seasonal flu spreads. Flu viruses are spread mainly from person to person through coughing or sneezing of people with influenza.

What can I do to protect myself from getting sick?

There is no vaccine available right now to protect against this new H1N1 virus. There are everyday actions that can help prevent the spread of germs that cause respiratory illnesses like influenza.

Take these everyday steps to protect your health:

- Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it.



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Wash your hands often with soap, especially after you cough or sneeze.

- Wash your hands often with soap and water, especially after you cough or sneeze. Alcohol-based hand cleaners are also effective.
- Avoid touching your eyes, nose or mouth. Germs spread this way.
- Try to avoid close contact with sick people.
- Stay home if you are sick for 7 days after your symptoms begin or until you have been symptom-free for 24 hours, whichever is longer. This is to keep from infecting others and spreading the virus further.

Other important actions that you can take are:

- Follow public health advice regarding school closures, avoiding crowds and other social distancing measures.

- Be prepared in case you get sick and need to stay home for a week or so; a supply of over-the-counter medicines, alcohol-based hand rubs, tissues and other related items might be useful and help avoid the need to make trips out in public while you are sick and contagious.

What should I do if I get sick?

If you live in areas where people have been identified with new H1N1 flu and become ill with influenza-like symptoms, including fever, body aches, runny or stuffy nose, sore throat, nausea, or vomiting or diarrhea, you should stay home and avoid contact with other people, except to seek medical care.

In children, emergency warning signs that need urgent medical attention include:

- Fast breathing or trouble breathing
- Bluish or gray skin color
- Not drinking enough fluids
- Severe or persistent vomiting
- Not waking up or not interacting

- Being so irritable that the child does not want to be held
- Flu-like symptoms improve but then return with fever and worse cough

In adults, emergency warning signs that need urgent medical attention include:

- Difficulty breathing or shortness of breath
- Pain or pressure in the chest or abdomen
- Sudden dizziness
- Confusion
- Severe or persistent vomiting
- Flu-like symptoms improve but then return with fever and worse cough

What kills influenza virus?

Influenza virus is destroyed by heat (167-212°F [75-100°C]). In addition, several chemical germicides, including chlorine, hydrogen peroxide, detergents (soap), iodophors (iodine-based antiseptics), and alcohols are effective against human influenza viruses if used in proper concentration for a sufficient length of time. For example, wipes or gels with alcohol in them can be used to clean hands. The gels should be rubbed into hands until they are dry.

What surfaces are most likely to be sources of contamination?

Germs can be spread when a person touches something that is contaminated with germs and then touches his or her eyes, nose, or mouth. Droplets from a cough or sneeze of an infected person move through the air. Germs can be spread when a person touches respiratory droplets from another person on a surface like a desk, for example, and then touches their own eyes, mouth or nose before washing their hands.

How should waste disposal be handled to prevent the spread of influenza virus?

To prevent the spread of influenza virus, it is recommended that tissues

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and other disposable items used by an infected person be thrown in the trash. Additionally, persons should wash their hands with soap and water after touching used tissues and similar waste.

What household cleaning should be done to prevent the spread of influenza virus?

To prevent the spread of influenza virus it is important to keep surfaces (especially bedside tables, surfaces in the bathroom, kitchen counters and toys for children) clean by wiping them down with a household disinfectant according to directions on the product label.

Dennis Schwartz is the current President of KRWA and is a member of the Kansas Water Authority. He has been General Manager of Shawnee RWD 8 since 1976. Dennis has also been a director for National Rural Water since 1992, a member of the Water Industry Coordinating Council from 1996-2002 and EPA's National Drinking Water Advisory Council from 1999-2005.



I encourage readers to use this "Pandemic Checklist" as a preparatory measure for utility staff to be prepared in case of a widespread outbreak of swine flu. The original design of this template is by National Rural Water Association.

Small System Pandemic Influenza Checklist*			
Not Started	In Progress	Completed	Recommendations
			Identify Critical Needs and Employees
			Identify employees and key customers (especially hospitals) with special needs. For example, if chlorine is being depleted water systems should the ability to valve off the rest of the water system and continue service to hospitals.
			Identify essential employees and other critical inputs (e.g. chlorine, treatment chemicals, backup power supplies, or other essential services or products) required to maintain the ability to provide safe water or the ability to treat wastewater.
			Train and prepare ancillary workforce (e.g. contractors, employees in other job titles/descriptions retirees) to operate utilities.
			Communicate, Educate, and Protect Employees
			Ensure field staff are aware of signs and symptoms of influenza outbreaks, personal and family protection and response strategies (e.g. hand hygiene, coughing/sneezing etiquette, contingency plans).
			Anticipate employee fear and anxiety, rumors and misinformation and plan communications accordingly.
			Communicate with CDC, local health care providers, and local emergency responders about the necessity of drinking water operators and Rural Water field staff being a high priority for receiving vaccines and antivirals.
			Prevent influenza spread at the worksite (e.g. promoting respiratory hygiene/cough etiquette, and prompt exclusion of people with influenza systems).
			Employees who have been exposed to pandemic influenza, are suspected to be ill, or become ill at the worksite should be on immediate mandatory sick leave.
			Restrict travel to affected geographic areas, evacuate employees working in or near an affected area when an outbreak begins, and follow CDC guidance for employees returning from affected areas.
			Be prepared to modify the frequency and type of face-to-face contact (e.g. handshaking, seating in meetings, office layout, shared workstations) among employees and between employees and customers.
			Provide sufficient and accessible infection control supplies (e.g. hand-hygiene products, tissues and receptacles for their disposal) in all business locations.
			Enhance communications and information technology infrastructures as needed to support employee telecommuting and remote customer access.
			Ensure availability of medical consultation and advice for emergency response.

* Courtesy of National Rural Water Association