

# **Preparing for a Pandemic Influenza Outbreak**

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## ***The Self-Imposed Reverse Quarantine (SIRQ) Plan***

Dane J. Dickson, MD  
Chair: Infection Control Committee  
Madison Memorial Hospital  
Rexburg, Idaho  
[ddickson@tetononcology.com](mailto:ddickson@tetononcology.com)

Terry Conrad, RN  
Chief Compliance Officer  
Madison Memorial Hospital  
Rexburg, Idaho  
[tconrad@mmhnet.org](mailto:tconrad@mmhnet.org)

Holly Forbush, RN  
Infection Control Officer  
Madison Memorial  
Rexburg, Idaho  
[hforbush@mmhnet.org](mailto:hforbush@mmhnet.org)

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# Preparing for a Pandemic Influenza Outbreak

## The Self Imposed Reverse Isolation (SIRQ) Plan

### Viral Influenza

#### Background

Influenza is a class of hundreds of different viruses that are usually species specific. For example, there are human, bird, horse, ferret, monkey, etc. Human Influenza is a viral infection that circulates the globe each year. Although it is a virus that causes the disease, the sub-type of influenza changes from year to year. Each virus is distinct and has differing characteristics, including how easily it is transmitted and how sick a person will get once infected. The overall severity of what is commonly called the flu season is determined by at least two characteristics: 1) The ability of a specific virus to cause disease once it has infected a person (virulence). 2) The degree of immunity that exists in the population.

#### Pandemic

In years when there is a particularly aggressive virus circulating and the general population has very little if any immunity to the virus, the disease can spread rapidly throughout the globe causing severe infections, complications and deaths. Often the virus will not only cause deaths in high risk groups but also in the general population. The term "pandemic" is used to describe this catastrophe. The global impact of such a virus can be profound.

### The 1918 "Spanish Flu" Pandemic

One of the most severe influenza outbreaks (pandemic) in the recent past was in 1918. A strain of influenza spread like wildfire throughout the world. The virus was a type that hadn't been seen by the human population, therefore immunity was very low. In addition, the virus caused severe infections and often death. Usually influenza only causes complications and demise in the elderly and the very young. The 1918 virus was unique in that it caused severe illness and death in even healthy individuals. Many times the deaths were due to a rapidly fatal pneumonia. The disease spread across the nation in only a few weeks. (See graphic).

One physician wrote a colleague about the aggressive nature of this outbreak among military recruits:

"These men start with what appears to be an attack of la grippe or influenza, and when brought to the hospital they very rapidly develop the most viscous type of pneumonia that has ever been seen. Two hours after admission they have the mahogany spots over the cheek bones, and a few hours later you can begin to see the cyanosis extending from their ears and spreading all over the face, until it is hard to distinguish the coloured men from the white. It is only a matter of a few hours then until death comes, and it is simply a struggle for air until they suffocate. It is horrible. One can stand it to see one, two or twenty men die, but to see these poor devils dropping like flies sort of gets on your nerves. We have been averaging about 100 deaths per day, and still keeping it up."

Physician Letter: Camp Devens, Massachusetts in 1918. (<http://www.pbs.org/wgbh/amex/influenza/sfeature/devens.html>).

#### Approximate Starting Date of Influenza by Location In 1918

(<http://www.pbs.org/wgbh/amex/influenza/maps/index.html>)

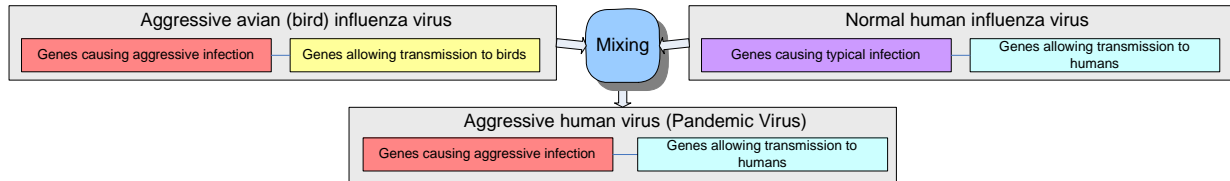


#### Summary of the 1918 Pandemic

- 20-50 million people died worldwide (700,000 in the United States alone)
- Even the healthiest individuals, usually young adults, were not spared
- Death could come suddenly (within 12 hours usually from pneumonia)
- Spread very quickly throughout both cities and rural communities (over approximately 3-4 weeks)

### **How did the 1918 Pandemic Start?**

In 1918 the origins and spread of influenza was not well understood. Experts from the CDC and elsewhere believe that the pandemic started when a very aggressive flu strain that was only found in birds acquired the ability to transmit to humans. The process of this happening is summarized in the following graphic.



This new strain of flu spread across the globe until enough people had been exposed to allow immunity to develop.

## **The Bird (Avian) Influenza Virus (H5N1)**

Currently there is a strain of avian influenza known by its medical designation as avian influenza virus H5N1. This virus has not acquired the genes that allow it to spread to humans quickly or efficiently. Notwithstanding, the virus has been shown to be extremely aggressive. It has the ability to spread quickly and infect bird populations that usually are not susceptible to avian influenza. The genetic make-up of this virus has been recently analyzed, and the similarities to the 1918 influenza virus are striking. The H5N1 virus contains much of the same genetic makeup as the 1918 virus that killed between 20 and 50 million people.

Although the virus is usually found in birds, there have been more than 100 human cases where the bird virus has infected humans. Those infections have occurred only in individuals who have been working closely with infected birds. The death rate of those infected has been about 50%.

The World Health Organization (WHO) and the Centers for Disease Control (CDC) are concerned that it is only a matter of time for this very aggressive virus to mix with a human influenza strain and create a new pandemic human strain. Although the pandemic will occur only when the virus acquires the human genes, it is often referred to as a "bird-flu pandemic" or "avian-flu" pandemic.

## **Implications of a Humanized Avian Flu Pandemic**

Hopefully this will never happen, but the likelihood is believed to be extremely high. If the virus maintains the same aggressive characteristics as has been shown in the few human cases thus far, the number of severe infections and deaths will be catastrophic on a global scale.

It is likely that if the pandemic starts, it will first be seen in Southeast Asia and then quickly -- within only a few weeks -- be world wide. In 1918, the infection spread throughout the majority of United States in three weeks. Now, with easier travel, more concentrated populations and greater global integration, the pandemic will spread even faster.

As people are infected and disease is spread, certain services will likely be intermittently shut down due to inadequate personnel to handle needs. This means that transportation, shipping, utilities, protective services, food, medical services, etc. may be significantly disrupted, and those who remain unaffected will have huge burdens placed upon them. The impact is likely to be greatest during the first two to three months of the pandemic and then will gradually alleviate as the infection burns itself out.

## **National and International Response Plans**

International governments have started to put together response plans to deal with the potential threat. These plans include rapid development of vaccines, early identification and quarantine of infected individuals, early administration of anti-viral medications and working closely with state and local health departments. Each of these government plans contains strong recommendations for development of local plans.

## **Concerns about National Plans**

Although these plans are in place, it is unclear how effective any of these plans will be. For example, the ability for pharmaceutical companies to produce vaccine quickly is sorely compromised. In the last several years, it has been common to have vaccine shortages. Stockpiling of anti-viral medications is very expensive, and although pharmaceutical companies are manufacturing the medications as quickly as possible, in a pandemic, it is almost certain that there will not be enough doses to handle more than a regional outbreak. In addition, if the virus is as aggressive as the 1918 virus, a person may not have time for the medication to work before the virus becomes fatal. Quarantining infected people is nearly impossible because of the rapid spread of disease. For 24-48 hours before a person has symptoms they can be shedding virus and infecting others (incubation period). It is likely that by the time a community identifies that a certain infection is pandemic influenza, there will be literally thousands of cases within days.

Realistically, in a pandemic situation, within the very first weeks the federal and state governments will be overwhelmed, and communities will essentially be left alone to deal with the aftermath.

## **Development of the Self Imposed Reverse Quarantine Plan (SIRQ)**

If a pandemic starts, the best way to deal with the problem is to protect as many healthy people as possible until they can be immunized against the infection or until the infection risk subsides. Quarantines work if you can identify individuals who are infected before they spread infection to others. With pandemic influenza, it is nearly impossible to have an effective quarantine because of the incubation period (see above). Rather than trying to identify sick people and keeping them away from the healthy population (quarantine) we recommend an exact opposite approach – namely, sequestering healthy people from the outside world (reverse quarantine). Quarantines are legally binding and imposed by the health department. A reverse quarantine must be instigated by an individual or groups of individuals voluntarily (self imposed).

### ***A Brief Overview of the SIRQ Plan***

**Note:** This is an overview of the plan. It is not meant to be comprehensive, but gives general outlines to the plan. MORE DETAILS AND EDUCATION WILL BE FORTHCOMING.

- 1) Protecting the Family – Building a Safe Haven
  - a. Protecting the family from the influenza virus is central to the plan.
  - b. This requires that families sequester themselves from the outside world in order to avoid infection.
    - i. Children should not go to school or play with friends.
    - ii. Parents should work from home as much as possible.
    - iii. The family should not attend public events (sporting events, cultural events, religious services, etc.).
    - iv. If family members do have to leave sequestration, they must be educated and committed to maintaining protection.
  - c. Parents
    - i. Must establish their home as a protected cell.
    - ii. Must understand that as long as their family is sequestered they are safe, but safety is only good AS LONG AS EVERY FAMILY MEMBER REMAINS SAFE AND DOES NOT BRING THE INFECTION HOME.

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### *The Self Imposed Reverse Isolation (SIRQ) Plan*

- iii. Must understand the importance of not allowing children to interact with others outside the family during the time the plan is in place.
- iv. Must know how to remain safe when they leave the home:
  - 1. Protective equipment,
  - 2. Protective methods of interacting in an infectious environment.
- v. Must have their homes prepared for a disruption in services.
- d. Children
  - i. Are at high risk for transmission of disease because of less than ideal hygiene, close contact with others in closed environments, inadequate hand washing, etc.
  - ii. Need to be sequestered in family groups.
  - iii. Need to be isolated from others who are potentially infected.
  - iv. Need to be trained in methods of protecting themselves from infection at their level.
- 2) Protecting the Individual
  - a. During an influenza pandemic, any individual that has to interact with the outside world must consider all they come in contact with as being infected.
  - b. Individuals must know how to interact in such an environment:
    - i. Need education and training about how to protect themselves.
    - ii. Need protective equipment to allow them to interact.
- 3) Protecting the Community
  - a. Community leadership must support the SIRQ plan and strongly encourage its implementation:
    - i. Educating leaders, families and individuals about the plan.
    - ii. Implementation of reverse quarantine protection early (BEFORE THE INFECTION HITS THE COMMUNITY).
    - iii. Cancellation of schools, meetings, public venues, etc. (BEFORE THE INFECTION STARTS)
    - iv. Identify key services and individuals essential to these services:
      - 1. Provide or strongly encourage personal protection use in all essential sectors early.
      - 2. Plan on contingencies.
  - b. Must provide venues for education of individuals and families.
  - c. Should facilitate obtaining protective equipment for individuals or groups.
  - d. Must lead by example.

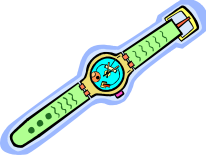

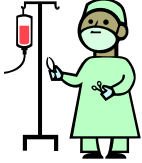



This plan can be implemented without government or community support. A family or individual could use this plan and protect themselves as long as they are willing to keep themselves separate.

### **Personal Protective Equipment in the Setting of an Influenza Pandemic**

See *Methods of Protecting Individuals and Families* sheet

## Methods of Protecting Individuals and Families During a Pandemic Influenza Outbreak

Note: The following are recommendations to reduce the risk of transmission of influenza. Nothing is fool proof so as to avoid infection. With this said, these are general guidelines which if followed with exactness will reduce the risk of being infected with influenza

	<p><b><u>TIMELY PROTECTION</u></b> Must start these precautions before the first case hits the community:</p> <ul style="list-style-type: none"><li>- Start when the first case hits the United States.</li><li>- If the pandemic has started anywhere in the world, wear masks and practice protection when traveling in public places (i.e. airports)</li></ul>
	<p><b><u>DISTANCE</u></b> We must consider everyone that is outside of our own family as potentially infected. We must distance ourselves from others by not going into public places (school, religious events, cultural events, sporting events, other public events or places, etc.).</p>
	<p><b><u>FACE MASK</u></b> The majority of the flu virus is transmitted through inhaling flu particles. A tight-fitting face mask (resistant to fluids) is key to protecting against the virus and must be worn at all times when we are out side of our family.</p>
	<p><b><u>HAND WASHING</u></b> The virus can live up to two days on surfaces where it is deposited. If we touch the surface and then our mouths or eyes before washing, we can spread the virus. We must wash our hands frequently.</p>
	<p><b><u>TISSUES and COUGHING or SNEEZING</u></b> When we cough or sneeze we need to do it into a tissue. This reduces the number of droplets in the air and reduces the risk of spreading a potential infection to others.</p>
	<p><b><u>EDUCATE</u></b> Must share these principles with all those around us. Start with our families and extended families. Share them with our co-workers and those that provide services to our works places. Help others to follow this plan.</p>