EMERGENCY PREPAREDNESS WORKSHOP:

Pandemic Influenza

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This presentation is available on my website:

www.iwillprepare.com

Emergency Preparedness

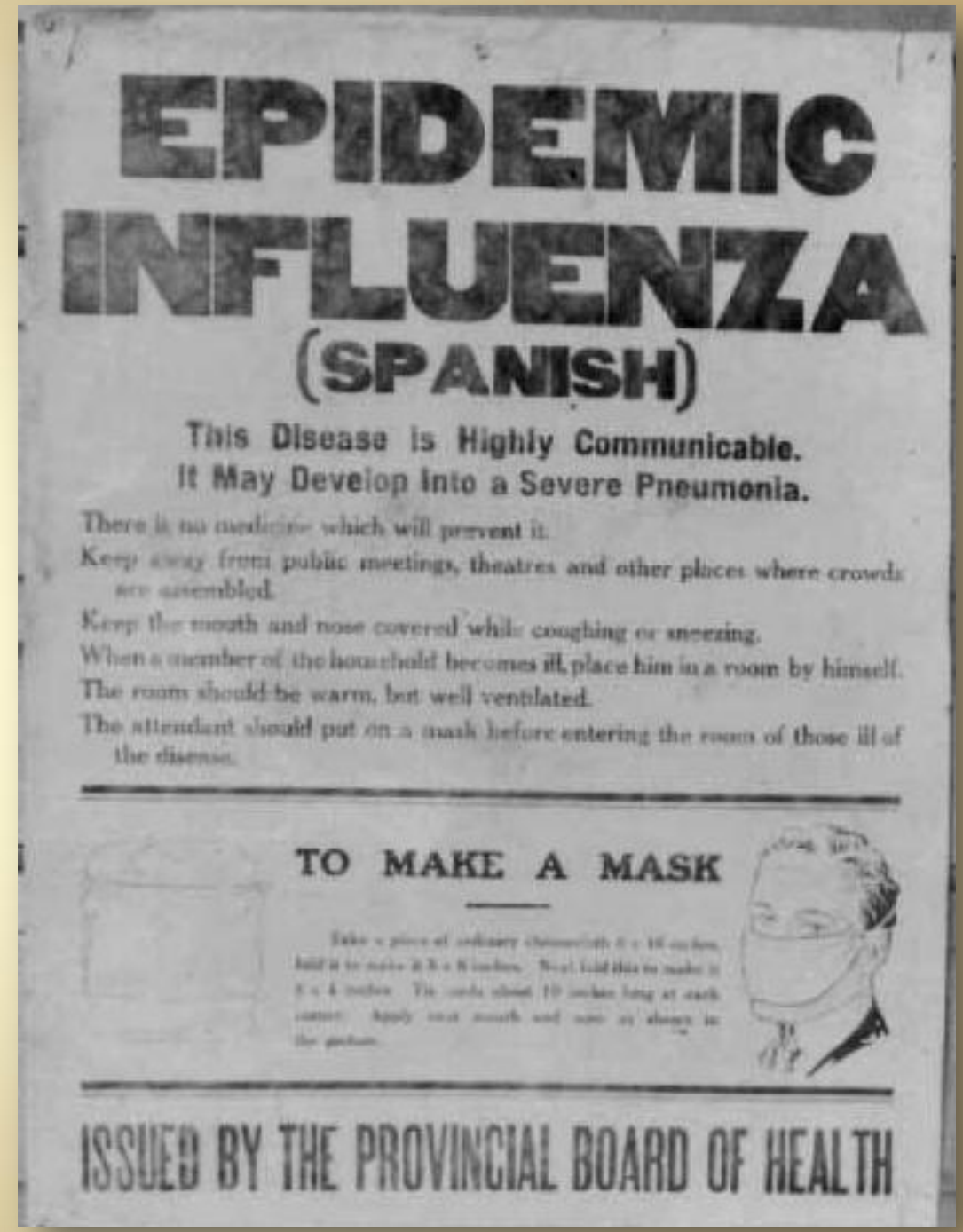
BYU Idaho Video on Avian Influenza (H5N1)

Play Video

[18 Minutes]

http://streaming.byui.edu/safetyoffice/flu.wmv

The Spanish Flu of 1918



EPIDEMIC INFLUENZA
(SPANISH)

This Disease is Highly Communicable.
It May Develop Into a Severe Pneumonia.

There is no medicine which will prevent it.

Keep away from public meetings, theatres and other places where crowds are assembled.

Keep the mouth and nose covered while coughing or sneezing.

When a member of the household becomes ill, place him in a room by himself.

The room should be warm, but well ventilated.

The attendant should put on a mask before entering the room of those ill of the disease.

TO MAKE A MASK

ISSUED BY THE PROVINCIAL BOARD OF HEALTH

History of the Influenza Pandemic of 1918 "Spanish Flu"

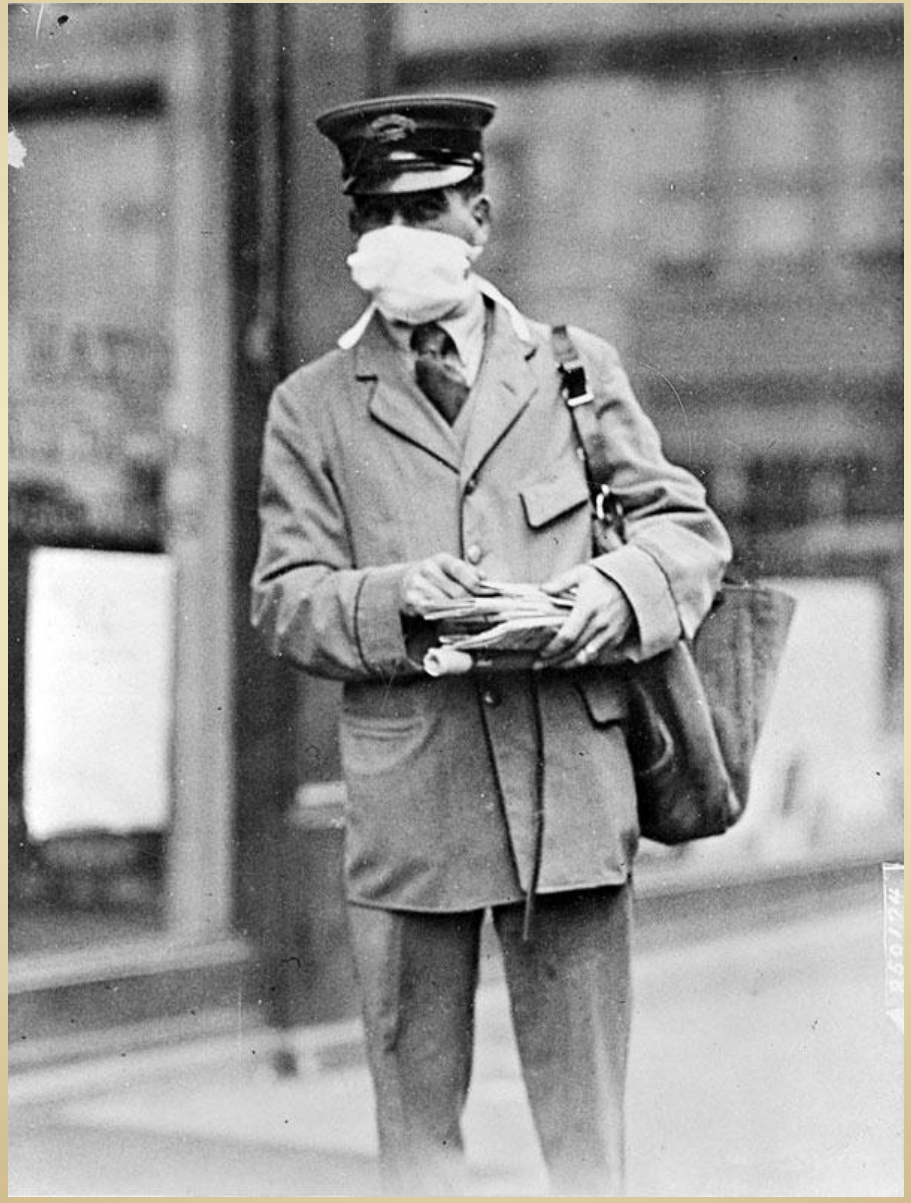
- Killed more people than WWI and all the wars of the 20th century combined.
- Around 50 million people.
- The most devastating pandemic in recorded world history.
- More people died of the flu in one year than in four-years of the Bubonic Plague (Black Death) [1347-1351].
- 1/5 of the world's population was infected.

History of the Influenza Pandemic of 1918 "Spanish Flu"

- The flu was most deadly for people ages 20 to 40
  - Unusual for influenza which usually kills the elderly and young children.
- It infected 28% of all Americans
- An estimated 675,000 Americans died of influenza during the pandemic (195,000 in Oct. 1918)
- 10 times as many as in WWI.
- 50% of U.S. soldiers that died in the war, died of influenza.
- The influenza virus had a mortality rate at 2.5%.
- Previous influenza epidemics had a 0.1% mortality rate.

The Spanish Flu of 1918
was a
mutated
Swine Flu Virus!
(H1N1)

History of the Influenza Pandemic of 1918 "Spanish Flu"




THE CLARENDON
INFLUENZA

Symptoms of the Influenza Pandemic of 1918 "Spanish Flu"

- Symptoms of infection were similar to, but more severe than typical, seasonal flu.

  - Fever (usually high)
  - Headache
  - Muscle aches
  - Runny nose
  - Pneumonia
  - Chills
  - Extreme tiredness
  - Dry cough
  - Eye infections
  - Stomach symptoms: nausea, vomiting, and diarrhea
  - severe respiratory diseases (such as acute respiratory distress)
  - other severe and life-threatening complications.

Symptoms of the Influenza Pandemic of 1918 “Spanish Flu”

- Death often occurred within hours of signs of the first symptoms.

- There are stories of people on their way to work suddenly developing the flu and dying within hours (Henig).

- One physician writes that patients with seemingly ordinary influenza would rapidly "develop the most viscous type of pneumonia that has ever been seen" and later when cyanosis appeared in the patients, "it is simply a struggle for air until they suffocate," (Grist, 1979).

- Another physician recalls that the influenza patients "died struggling to clear their airways of a blood-tinged froth that sometimes gushed from their nose and mouth," (Starr, 1976).

Avian Flu "H5N1"

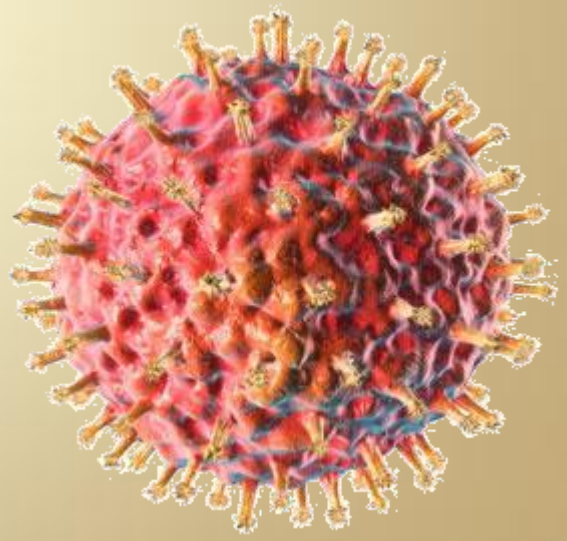
- There are 144 strains of Avian Influenza
  - H5N1 is just one of them.
  - Other strains of flu come from other mammals like, horses, pigs and monkeys.

- Currently, H5N1 is only transmitted from birds-to-humans. The belief is the flu may eventually mutate to allow human-to-human transmission.

- CDC: "Pandemic flu is virulent human flu that causes a global outbreak, or pandemic, of serious illness. Because there is little natural immunity, the disease can spread easily from person to person."

Avian Flu "H5N1"

- Historically, there have been 10 pandemics in the last 300 years.
- About 1 every 30 years.
- It isn't a question of if we have another, but when!



Confirmed Human Cases of Avian Influenza

As of 8/10/2012

Cases/Death

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Azerbaijan	0/0	0/0	0/0	8/5	0/0	0/0	0/0	0/0	0/0	0/0	8/5
Bangladesh	0/0	0/0	0/0	0/0	0/0	1/0	0/0	0/0	2/0	3/0	6/0
Cambodia	0/0	0/0	4/4	2/2	1/1	1/0	1/0	1/1	8/8	3/3	21/19
China	1/1	0/0	8/5	13/8	5/3	4/4	7/4	2/1	1/1	2/1	43/28
Djibouti	0/0	0/0	0/0	1/0	0/0	0/0	0/0	0/0	0/0	0/0	1/0
Egypt	0/0	0/0	0/0	18/10	25/9	8/4	39/4	29/13	39/15	10/5	168/60
Indonesia	0/0	0/0	20/13	55/45	42/37	24/20	21/19	9/7	12/10	8/8	191/159
Iraq	0/0	0/0	0/0	3/2	0/0	0/0	0/0	0/0	0/0	0/0	3/2
Laos	0/0	0/0	0/0	0/0	2/2	0/0	0/0	0/0	0/0	0/0	2/2
Myanmar	0/0	0/0	0/0	0/0	1/0	0/0	0/0	0/0	0/0	0/0	1/0
Nigeria	0/0	0/0	0/0	0/0	1/1	0/0	0/0	0/0	0/0	0/0	1/1
Pakistan	0/0	0/0	0/0	0/0	3/1	0/0	0/0	0/0	0/0	0/0	3/1
Thailand	0/0	17/12	5/2	3/3	0/0	0/0	0/0	0/0	0/0	0/0	25/17
Turkey	0/0	0/0	0/0	12/4	0/0	0/0	0/0	0/0	0/0	0/0	12/4
Viet Nam	3/3	29/20	61/19	0/0	8/5	6/5	5/5	7/2	0/0	4/2	123/61
Total	4/4	46/32	98/43	115/79	88/59	44/33	73/32	48/24	62/34	30/19	608/359

Avian Flu "H5N1"

Confirmed Human Cases of Avian Influenza

As of 8/10/2012

Cases/Death

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Total	4/4	46/32	98/43	115/79	88/59	44/33	73/32	48/24	62/34	30/19	608/359

359/608 = 59% Mortality Rate

Projected Deaths from Avian Flu Pandemic Vary from 100 Million to 1 Billion People

“Swine Flu” 2009 H1N1

- What was the 2009 H1N1 (swine flu)?
- 2009 H1N1 (referred to as “swine flu” early on) was a new influenza virus causing illness in people.
- This new virus was first detected in the U.S. in April 2009. This virus spread from person-to-person worldwide, in much the same way that regular seasonal influenza viruses spread.
- On June 11, 2009, the WHO signaled that a pandemic of 2009 H1N1 flu was underway.

“Swine Flu” 2009 H1N1

- Why is 2009 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 (swine) 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 bird (avian) genes and human genes. Scientists call this a "quadruple reassortant" virus. (4 Sources)

http://www.cdc.gov/h1n1flu/qa.htm

“Swine Flu” 2009 H1N1

- How severe was the illness from 2009 H1N1 flu virus?

- Ranges from mild to severe.

- While most people who have been sick have recovered without needing medical treatment, hospitalizations and deaths from infection with this virus have occurred.

“Swine Flu” 2009 H1N1

- In seasonal flu, “High Risk” group consists of:
  - 65 years and older
  - Children younger than five years old
  - Pregnant women
  - People with certain chronic medical conditions.

- About 70% of people who have been hospitalized with this 2009 H1N1 virus have had one or more “High Risk” medical condition (i.e. pregnancy, diabetes, heart disease, asthma & kidney disease.)

“Swine Flu” 2009 H1N1

- One difference from seasonal flu is that adults older than 64 years do not yet appear to be at increased risk.
- CDC lab studies claim no children and very few adults younger than 60 years old have existing antibodies to 2009 H1N1 flu virus.
- About 1/3 of adults older than 60 may have antibodies against this virus.
- It is unknown how much, if any, protection may be afforded against 2009 H1N1 flu by any existing antibody.

“Swine Flu” 2009 H1N1

- CDC analysis states that 2009 H1N1 flu has caused greater disease burden in people younger than 25 years old than older people.
- At this time, there are few cases and few deaths reported in people older than 64 years old, which is unusual when compared with seasonal flu.
- However, pregnancy and other previously recognized high risk medical conditions from seasonal flu appear to be associated with increased risk of complications from this 2009 H1N1.

Swine Flu "H1N1"

2009 H1N1	Mid-Level Range*
Cases	
0-17 years	~20 million
18-64 years	~35 million
65 years and older	~6 million
Cases Total	~61 million
Hospitalizations	
0-17 years	~87,000
18-64 years	~160,000
65 years and older	~27,000
Hospitalizations Total	~274,000
Deaths	
0-17 years	~1,280
18-64 years	~9,570
65 years and older	~1,620
Deaths Total	~12,470

12,470/61 Million= 0.0002% Mortality Rate (2 in 10,000)

Early Projected Deaths from Swine Flu Pandemic Varied from 100 Million to 500 Million (2-3M in US)

Pandemic Influenza

- How does it Spread?
  - Direct Contact
  - Droplets (Respiratory Secretion) [Coughing, Talking, Sneezing]
  - Not confirmed: Aerosol (Droplet Nuclei)
    - Tiny droplets suspended in the air from Coughing, Talking, Sneezing.
    - These droplets can remain airborne for hours.

How Do We Protect Ourselves?

Protecting Ourselves

- 90 Day Food Supply & Water
- Maintain Proper Hygiene
- Disinfection
- Social Distancing
- Personal Protective Equipment (PPE)
- Isolation of the Sick
- Treatment of the Sick

90 Day Food Supply

Hygiene

- The best ways to reduce the spread of germs that cause the flu and other illnesses are:
  - Wash Hands Often
  - Practice proper coughing and sneezing etiquette.

- According to the CDC, "Hand washing is the single most important means of preventing the spread of infection."

Hand Washing

When washing hands with soap and water:

- Wet your hands with clean running water and apply soap. Use warm water if it is available.
  - Rub hands together to make a lather and scrub all surfaces.
- Continue rubbing hands for 20 seconds. Need a timer? Imagine singing "Happy Birthday" twice through to a friend!
- Rinse hands well under running water
- Dry your hands using a paper towel or air dryer. If possible, use your paper towel to turn off the faucet
- Remember: If soap and water are not available, use alcohol-based gel to clean hands.

When should you wash your hands?

- Before preparing or eating food
- After going to the bathroom
- After changing diapers or cleaning up a child who has gone to the bathroom
- Before and after tending to someone who is sick
- After blowing your nose, coughing, or sneezing
- After handling an animal or animal waste
- After handling garbage
- Before and after treating a cut or wound

Coughing and Sneezing

Without Contaminating

1 If you have to sneeze or cough, cover your mouth and nose with a tissue.

2 Dispose of soiled tissues in the trash.

3 If you do not have a tissue, turn your face into your shoulder or the bend of your elbow to sneeze or cough.

4 Wash your hands often. If soap and water are not available, use an antiseptic product.

IF YOU ARE ILL, AVOID VISITING FAMILY AND FRIENDS.

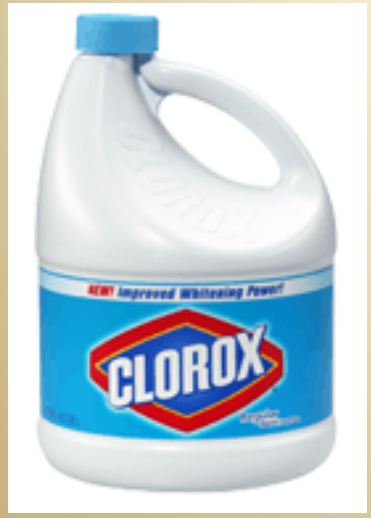
07-228-12A

www.pandemiequebec.gouv.qc.ca

Santé et Services sociaux Québec

Disinfection

- Keep your house clean.
- Use anti-bacterial and anti-viral disinfectants especially during flu seasons. (or during a Pandemic)
- Disinfect/Sanitize rooms/dishes used by the sick.



Social Distancing

- What Is Social Distancing?
- Social distancing (SD), self-shielding, voluntary isolation, and reverse quarantine. SIRQ (Self Imposed Reverse Quarantine)
- Methods to limit close physical proximity between infected and healthy individuals.
- Give personal control over their own exposure to a potential pandemic.
- SD can be instituted voluntarily by individuals or through actions taken by local, state, or government officials.
  - Closure of schools
  - Cancel public transportation
  - Restrictions on large gatherings (No Church?, It happened in 1919 and Mexico 2009)

Social Distancing

What Are the Basics of Social Distancing?

- Social distancing may be a viable alternative for the general public to avoid the pandemic influenza infection until a vaccine becomes available or the danger subsides.

- Some SD suggestions:
  - 1. Limit exposure to other people within 12 feet.
  - 2. Minimize exposure to enclosed spaces containing crowds, such as movie theatres, grocery stores, gas stations, schools, malls, and so forth.
  - 3. Use personal protective equipment, such as N95 masks
  - 4. Wash hands after touching any item that may have been touched by others or use disposable gloves.

- Contaminated surfaces can transmit influenza for 24 hours.

Social Distancing

What are the potential impacts of Social Distancing?

- Closure of office buildings, stores, schools, and public transportation systems may be feasible community containment measures during a pandemic and are considered forms of forced SD.

- All of these have significant impact on the community and workforce.
  - Will you have enough food if stores are closed?
  - Will you be able to get to work? Or will your office be closed?
  - Will your children be able to continue their education at home?

Personal Protective Equipment (PPE)

- Public Contact
  - Surgical Mask (To reduce Respiratory Secretion)
  - Rubber gloves (Optional)

- Caring for the Sick
  - Respirator/Mask (N95) for Care Giver
  - N95 or Surgical mask (To reduce Respiratory Secretion) for Patient
  - Rubber gloves
  - Isolation gown
  - Safety Glasses, Goggles or Face Shield
  - Cap (Optional)
  - Shoe Covers (Optional)

The Mask: Demystified

The Mask: Demystified

The Mask: Demystified

- Masks are not all the same.
- You will want an N95 Mask

The Mask: Demystified

- What does N95 mean?
- NIOSH/CDC Filter Ratings:

To help you remember the filter series, use the following guide:

N for Not resistant to oil,
R for Resistant to oil
P for oil Proof

The Mask: Demystified

- What does N95 mean?
  - % Filter efficiency (i.e., 95%, 99%, or 99.97%) depends on how much filter leakage can be accepted. Higher filter efficiency means lower filter leakage.

- So why settle for 95% efficiency? Wouldn't 100% be better?

The Mask: Demystified

- % Efficiency tested on particles 0.3 micrometers (Microns) in diameter (μ or μm)

- The current consensus of scientific opinion is that transmission of infection from a patient is via respiratory droplets (droplets larger that 5 μ in diameter) rather than true airborne transmission (Droplet nuclei of suspended evaporated droplets , or dust particles less than 5 μ in diameter)
- Droplets travel about 2 meters in distance
- No need for separate airflow in isolation room.

- Note: Anthrax 10 Microns, 1.5 – 3 Microns for weaponized
- Human Hair 80-100 Microns

The Mask: Demystified

"Transmission of human influenza is by droplets and fine droplet nuclei (airborne). Transmission by direct and indirect contact is also recognized. However, during the 1997 influenza A (H5N1) outbreak in humans in Hong Kong (China), droplet and contact precautions successfully prevented nosocomial spread of the disease. So far there is no evidence to suggest airborne transmission of the disease in the current outbreaks in Thailand and Viet Nam. Nevertheless, because of the high mortality of the disease and the possibility of the virus mutating to cause efficient human-to-human transmission, WHO is currently recommending the use of high-efficiency masks in addition to droplet and contact precautions. "

Influenza A (H5N1): WHO Interim Infection Control Guidelines for Health Care Facilities March, 2004

The Mask: Demystified

Recommendations:

Surgical or dust masks can be worn by patients to reduce respiratory secretion

Proper fitting N95 Masks should be worn by care givers

The Mask: Demystified

- What about Children?

The Mask: Demystified

- What about Children?

- When the flu is in your area, leave your children at home.
- Only take your children out if evacuation is critical.
- Buy smaller masks for proper fit
  - Use first aid tape to seal around the edges of larger masks if smaller ones are not available.

Isolation of the Sick

- Isolate the sick away from the rest of the members of your home.
- A plastic Sheeting barrier may be used to create this separation.
  - Especially useful with keeping children out.
- Create a secondary enclosed area leading into the patients room where you can put on/remove your PPE's.

- Your isolation room should include a restroom and a window. If a restroom is not possible, consider a 5 gallon bucket toilet.
  - A hole made near the top of the bucket with a section of garden hose running from the toilet to a window will expel gasses and smells.

Isolation of the Sick

- Those infected, can be contagious 48 hours prior to the first visible symptoms and 5 days following the first symptoms.

- Isolate newcomers for 48 hours (Watching for symptoms) before allowing them to join your main group.

Treatment of the Sick

- Treat flu symptoms as you would any other flu. (Avoiding spreading the virus)

- Keep patients isolated from those who are well

- Keep cold and flu medications on hand.

- Setup a plan to care for extended family and friends if they should become ill and have no one to care for them. Maybe it will be better to have them move in with you at the beginning of the pandemic and hopefully avoid becoming ill as they self quarantine with your family.

Pandemic Kit

- 4 Categories
  - Personal Protective Equipment (PPE)
  - Disinfection
  - Caring For The sick
  - Isolation Barrier

Also consider Activities and Educational supplies

Pandemic Kit

- Personal Protective Equipment (PPE)
  - N95 Masks
  - First Aid Tape (around masks, of kids) or Child Sized Masks
  - Gloves (Latex Free)
  - Safety Glasses, Goggles, or Face Shield
  - Gown
  - Shoe Covers
  - Cap

Pandemic Kit

- Disinfection
  - Hand Sanitizer
  - Hand Cleansing Towelettes
  - Surface Wipes
  - Lysol Spray
  - Bleach

Pandemic Kit

- Caring For The Sick
  - Hand Cleansing Towelettes
  - Waste/Biohazard Bags
  - Tissues (Anti-Viral)
  - Gallon Ziplock Bags
  - Wash Basin
  - Gatorade (Electrolyte Replacement)
  - Thermometer and disposable covers
  - Toilet (5 Gallon Bucket) [If Isolation area doesn't have one]
  - Hose (To allow fumes from toilet to escape through a window)
  - Cold and Flu Medication
  - Vitamin C
  - Ibuprofen and Tylenol
  - Garbage Bags and Can
  - Consecrated Oil (For Priesthood Blessings)

Pandemic Kit

- Isolation Barrier
  - (Needed to separate an infected family member)
  - Quarantine Sign (Buy one or print one online)
  - Plastic Sheeting
  - Duct Tape

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Emergency Preparedness