



*Caring... Committed... Helping... Dedicated...
To the Wellness of Our Community*

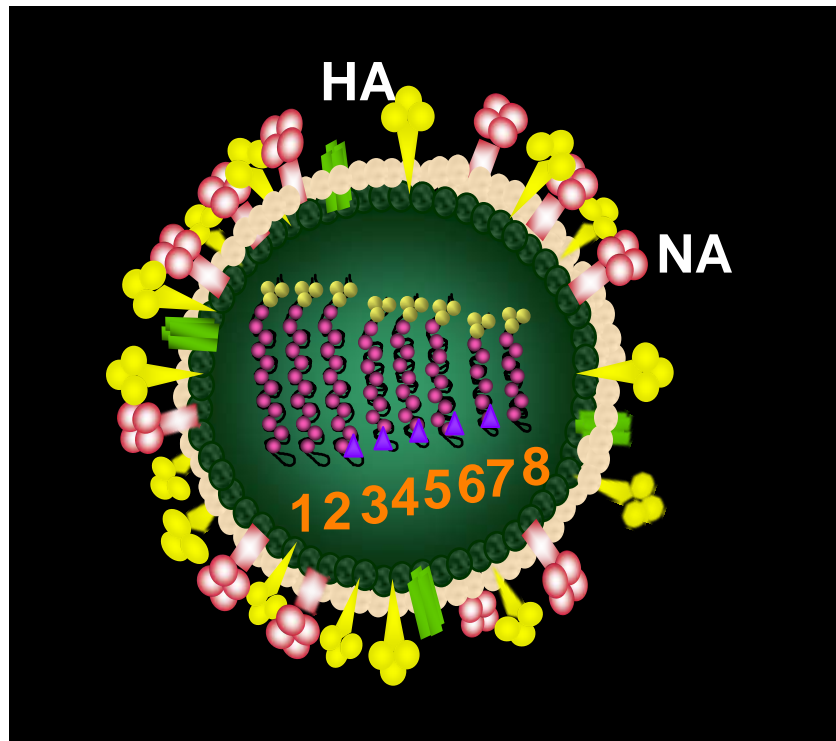
What is Influenza?

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- **High Temperature**
- **Chills**
- **Cough**
- **Body Aches**
- **Severe Respiratory Distress**
- **Pneumonia**

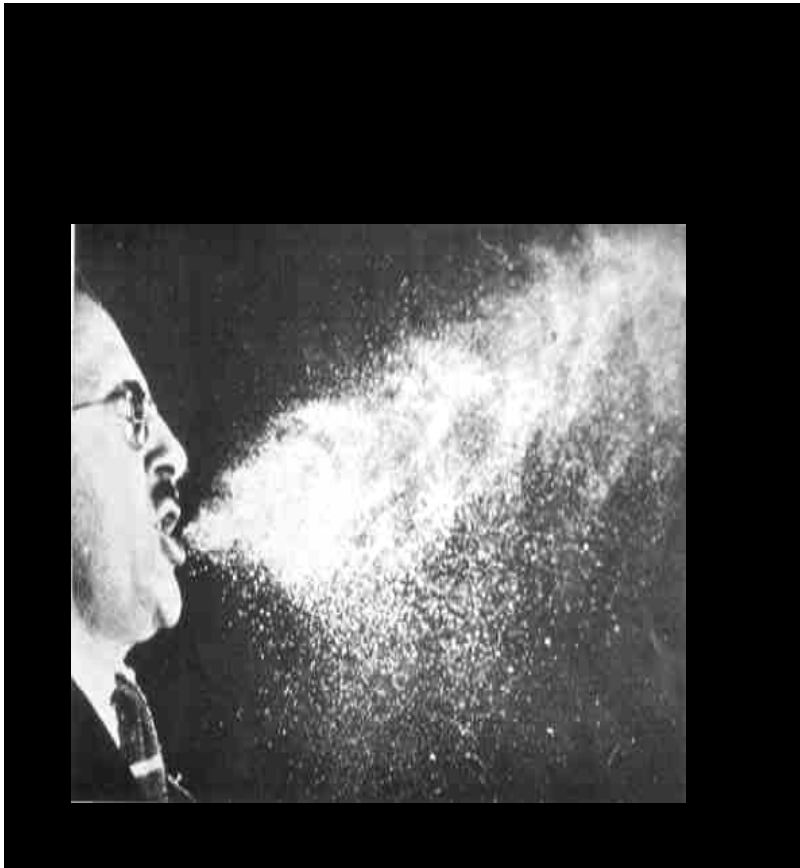
This slide describes the spectrum of clinical symptoms in humans which a typical health care professional would look for.

What Does Influenza Look Like?



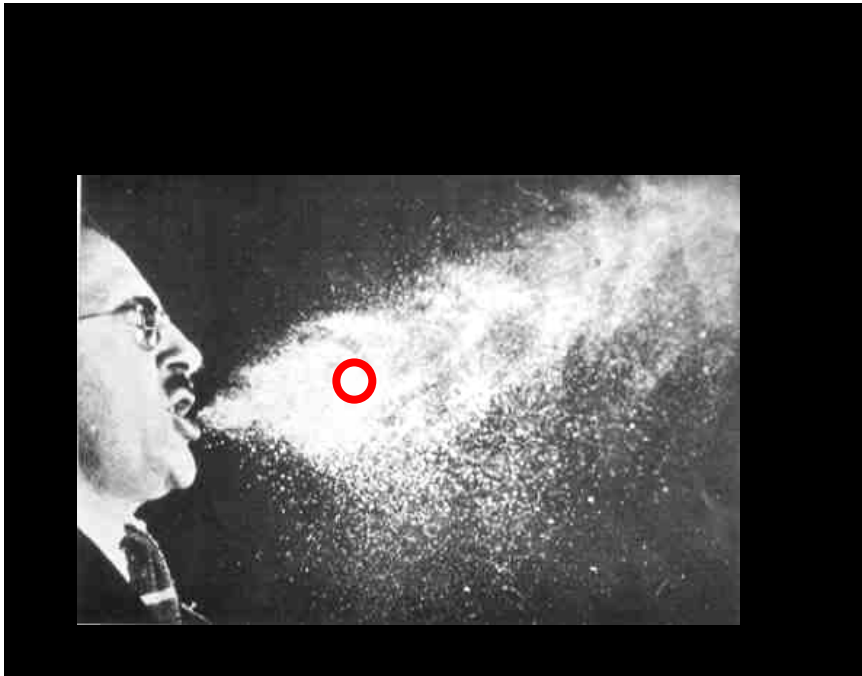
This is what the flu virus looks like to the average scientist. Each flu virus has spikes of hemagglutinin and neuraminidase on its surface; you can see them on the picture. The strains of flu are named for the combination of H and N spikes. It is important to point out all influenza viruses, whether from birds, swine, people, horses, dogs, etc., have the same basic structure and have H and N antigens.

What Does Influenza Look Like?



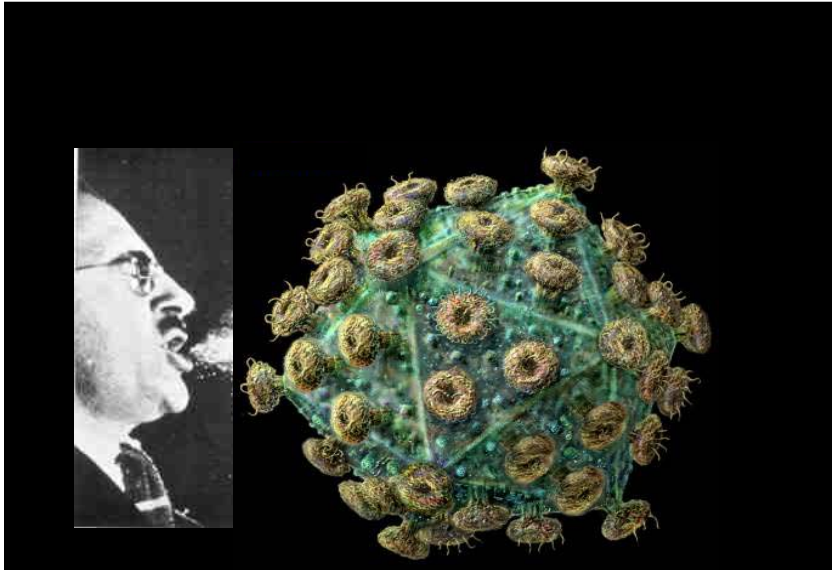
This is what the flu looks like to most of us lay people. A couple feet of moist droplets coming out of someone else's mouth. Avian Influenza is not necessarily an airborne disease, in the sense you can get it from breathing the air in the same room as an infected individual. It is a droplet infection and the droplets carry the virus that causes the infection.

What Does Influenza Look Like?



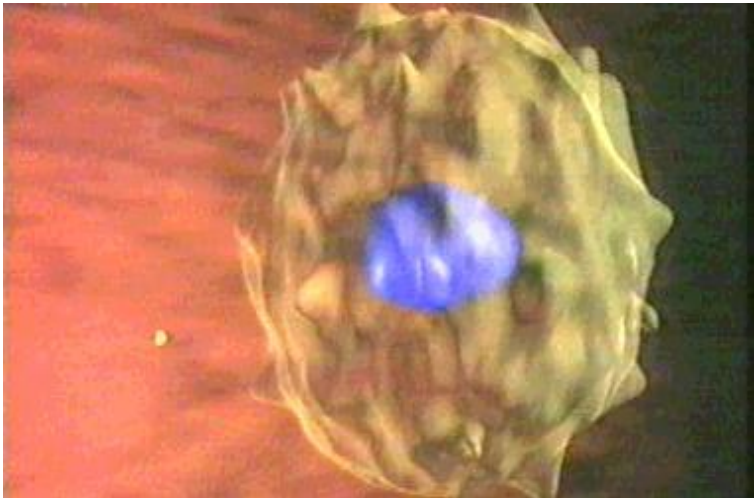
• Lets take one of these droplets and magnify it large enough to get a microscopic view of exactly what this little bugger looks like.

What Does Influenza Look Like?



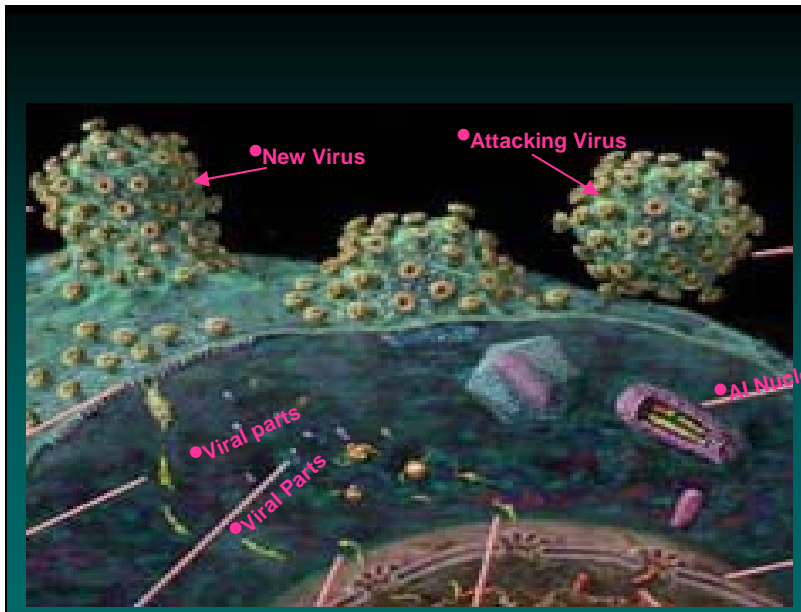
An important quality of a virus you need to know is, it cannot reproduce. You'll remember from your high school biology days that cells can reproduce by dividing their DNA in half and becoming two identical cells. This virus does not have the ability to do that. It contains no DNA. However, it does have the ability to replicate itself (make a copy), but it must first get into a cell that does have DNA. This is where you offer to help spread the disease voluntarily through out your body. Your body, within your immune system, contains a cell called a T-cell or white blood cell (WBC).

What Does Influenza Look Like?



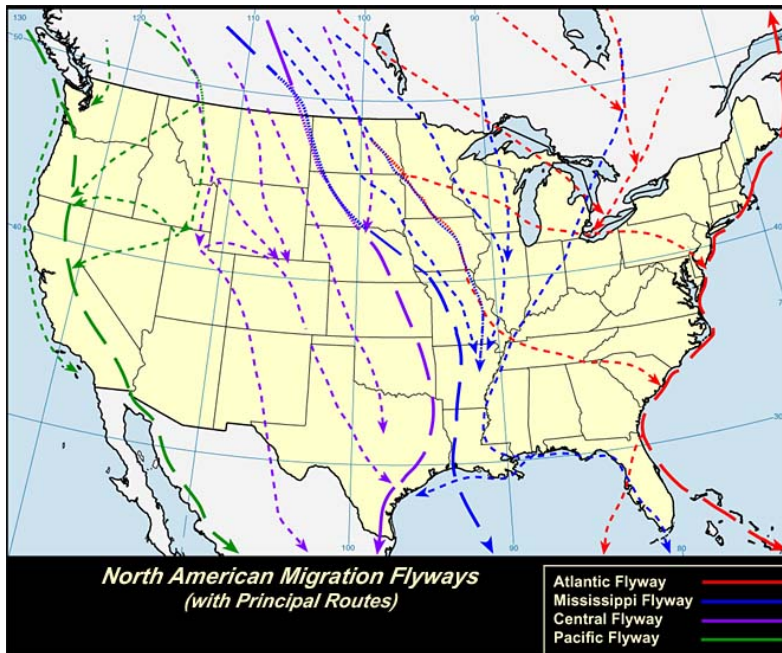
This is a microscopic picture of a typical white blood cell. I have colored the center blue to indicate the presence of a nucleus containing your DNA. If you look to the left of the cell you will see a flu virus represented under the same magnification. Obviously this virus cannot contain the same quantities of matter that the larger WBC contains. In order to replicate (the only purpose of a virus), it will need to get into your cell and utilize your DNA. To give you an idea of the actual size of this virus. If you took 50,000 influenza viruses and aligned them side by side, they would stretch all the way across the head of a pin. Imagine the potential numbers in the droplets sprayed on you by an infected person when they sneeze or cough. Under optimal conditions it actually takes less than a hundred viruses to infect you. Let's talk about how this tiny virus can bring down a big strong human being as complex as yourself.

How Does a Virus Replicate?



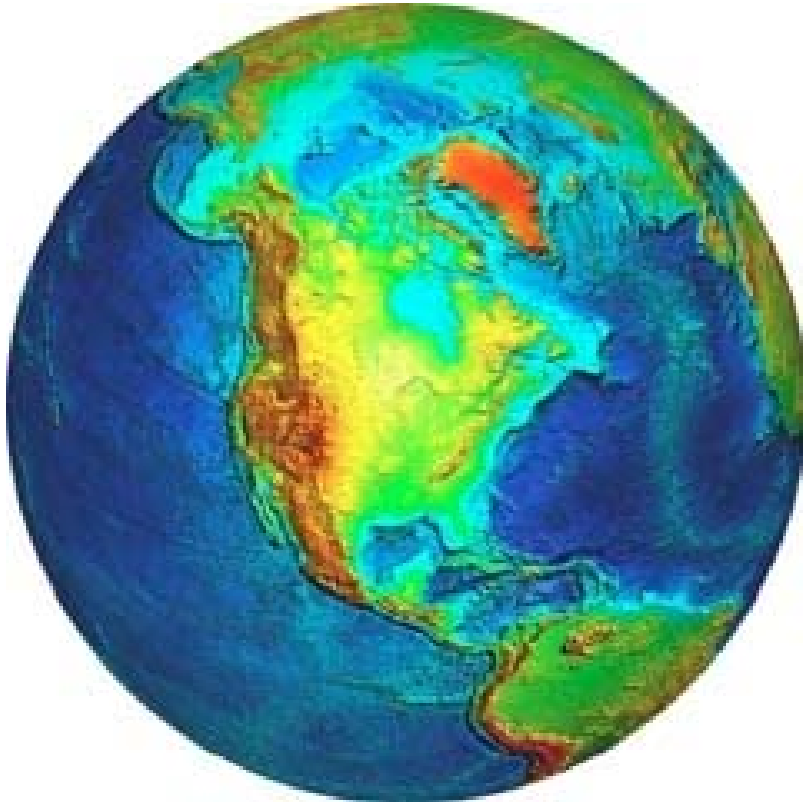
This picture represents a white blood cell (WBC) being attacked by the virus. To the right you see the attacking virus. The virus attaches itself (using the hooks and barbs) to your white blood cell. It then chemically dissolves your cells outer layer and injects its nucleus (no DNA only RNA) into your WBC. At this point the virus RNA enters your WBC nucleus and mixes with your DNA to produce viral parts (this is where mutations occur). The viral parts move toward your cell wall and begin to assemble into a new virus. The virus bursts through your cell wall in a process called “budding” and “voila”, a new virus. This process takes about ten minutes. Once a WBC is infected, it no longer does any of its normal functions. It continues to use all its energy to produce new viruses until all its resources are depleted, and it dies. This cycle must begin within eight hours of invasion of the body. The curious thing about the new virus that is formed by this process is, it now contains pieces of your DNA. The significance of this will become apparent in our next slide.

U.S. Migration Flyways



These are the flyways of migratory birds over the 48 contiguous states. Notice that flyways that come over Florida bring birds from the Central and the Mississippi flyways, as well as the Atlantic flyway. The wild birds seem to carry the Avian virus without themselves being affected. Through their feces, the domestic bird population becomes infected, and depending on the pathogenicity, can be devastated in a short amount of time. Sometimes in as little as 24 hours, once the symptoms begin to appear. Right now, throughout the world, the Avian flu is a Pandemic to the bird population, however, I want to reiterate, it is not a pandemic to humans yet. Let's explore the word "pandemic: so we can better understand what it means.

What is an Influenza Pandemic?



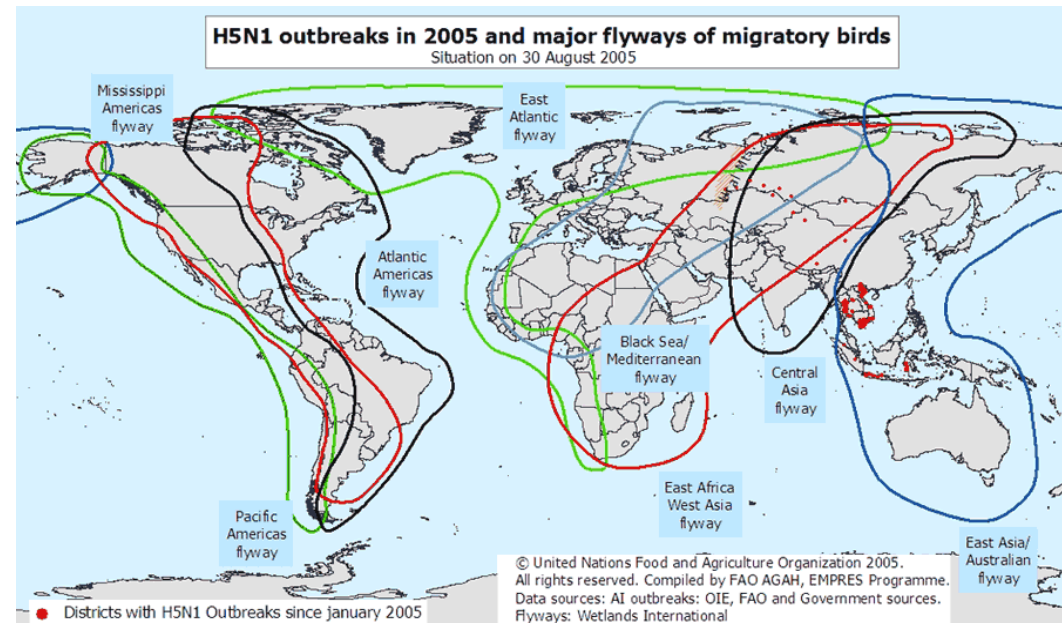
An epidemic occurs when a disease affects a cluster of inhabitants.

A pandemic is a global disease outbreak.

An influenza pandemic occurs when a new Influenza A virus emerges, for which there is little or no immunity in the human population, and begins to cause serious illness.

It then spreads easily person-to-person worldwide.

Major Flyways of Migratory Birds



This is a representation of the world wide flyways of migratory birds. Notice the number of flyways that converge over Alaska. There is some speculation that when the bird flu starts in the United States, it may start in Alaska. ??????

Potential Pandemic Impact on Collier County

High Absenteeism

The attack rate of this virus is thought to be 30%. That means that 30% of the population will be affected in some way by the virus. Consider that every third person at your work or in your family would be affected. This is projected to last for a conservative estimate of 6 to 12 months. From the first appearance of a human to human transmission, it is estimated it will be approximately 6 months before a vaccine will be made available.

Hours of Operation

It is possible that many restrictions may be applied to try to curb the spread of the infection. Isolation of those infected, quarantine of those who have had contact with the infected, and curfews to maintain order.

Challenges

Since this is a worldwide problem, it is possible that the absenteeism issue will affect businesses and governments that supply local goods and services to Collier County. We will have to be prepared to go it alone for an extended period of time, unlike the hurricane scenario of a few days to a couple of weeks.

Economic losses

Try to imagine just the local economy if tourism comes to a standstill. Try to imagine the national economy if interstate commerce comes to a halt. If international travel would be curtailed.

**NUMBER OF EPISODES OF ILLNESS, HEALTHCARE
UTILIZATION, AND DEATH ASSOCIATED WITH MODERATE
AND SEVERE PANDEMIC INFLUENZA SCENARIOS, COLLIER
COUNTY 2006 Resident Population**

CHARACTERISTICS	MODERATE	SEVERE
ILLNESS	102,518 (30%)	102,518 (30%)
OUTPATIENT MEDICAL CARE	51,259 (50%)	51,259 (50%)
HOSPITALIZATION	986	11,277
ICU CARE	146	1,692
MECHANICAL VENTILATION	74	847
DEATHS	238	2,198

Source: Division of Epidemiology and Health Assessment, Collier County Health Department and U.S. Department of Health and Human Services, [HHS Pandemic Influenza Plan](#), November 2005.

Here are some projections for Collier County residents based on our permanent population, not the seasonal rate which would be significantly higher. If the pandemic were moderate, similar to the Asian Flu pandemic of 1957 or the Hong Kong Flu pandemic of 1968, we can find the projections in the center column. If the pandemic were severe, similar to the great pandemic of 1918, the numbers would be significantly greater. Although the attack rate would be the same, the pathogenicity of the virus would tax the available resources beyond our ability to handle the care. Infected residents would have to be reliant on their friends and families to provide supportive care. Some patients, regardless of care, will worsen, and significant numbers may die.

Let's Assume for a Moment

Influenza Assumptions

- We will have an epidemic soon of unknown strain
- We will have short time to prepare
- Vaccine likely won't be available
- If the epidemic starts tomorrow, supplies of antivirals are in short supply
- We will have limited help

There were three pandemics in the last century and we are overdue for one. We are also under prepared. If the Avian virus were to mutate and begin human to human transmission, we would have approximately 30 days before it would spread worldwide. As I stated earlier, after the human to human virus makes its first appearance it may take 6 months to make the first effective vaccine. Although we have begun to stockpile antivirals, they are in short supply and their effectiveness against the novel virus is unknown. Because this will be a worldwide event, this will be intensely local. We will be pretty much on our own.

High-Level Influenza Issues

- When vaccine becomes available, who should get it?
- How should we use limited supplies of antivirals?
- How do we approach reducing illness and death?
- What is the right balance among minimizing health burden, economic damage, and societal damage?

These are a few questions that officials are dealing with right now.

Who should be the first to get the precious vaccine? Some say first responders. What about the folks in Pennsylvania that are producing the vaccine? What about the truckers and airline personnel who move it from Pennsylvania to the various distribution points? What about local healthcare personnel who will be dispensing the vaccine?

Who should get the short supplies of antiviral that are currently available? Children, elderly, sick, first responders?

Should isolation, quarantine and curfew be voluntary or mandated by law?

Is it business as usual or should we consider limiting civil rights on some, for the greater good?

These are difficult questions that are being addressed at this time, but answers need to be flexible enough to adapt to the conditions that may exist at the time of the projected pandemic.

Economic and Business Issues

- Cost of care
- Cost of providing preventive measures
- Opportunity costs by not providing other kinds of care and services
- Impact on essential services and general productivity
- Tourism
- Business travel
- Shipment of goods, including food and essential supplies

Who should bear the cost of all the care and medication that will be involved?

What about the economic losses?

Avoiding Influenza

- Wash hands frequently
- Cover your mouth when you cough or sneeze
- Stay home if flu symptoms appear
- Thoroughly wash eating utensils
- Avoid close contact with other family members

Begin now to practice good health habits. For a while this may be the only vaccine available. It is certainly the most effective antiviral.

What Should YOU Do?

- Stay aware and informed
- Practice good hygiene and hand-washing
- Continue to get annual flu shot
- Cooperate with public health directives

Begin developing a personal preparedness plan, not only for a possible pandemic, but one that is flexible enough to use for any emergency.

What Are We Doing?

- Self-Triage
- Syndromic Surveillance
- RED Plan
- PODS
- Education
- Cross-training employees
- Partnerships
- Drills and exercises

Health and government agencies have been working on the pandemic flu threat since 1997. In Collier County the health department formed a committee of public and private partnerships in 2000, and have been working on a pandemic flu plan since that time. We have several programs that can be specifically adapted to the pandemic flu threat.

Self-Triage is a program that harnesses the power of the internet to provide residents with information through an interactive question and response program that will inform the user whether to shelter in place or seek medical care based on their self-reported symptoms. This will encourage those not already infected from coming in contact with those who are infected. The same system is available through phone service to the CCHD hotline. The **syndromic surveillance** program tracks hospital admissions and school absenteeism based on reported symptoms. Over the counter medications are also tracked through the local pharmacies to better assess the symptoms of affected residents, to get a real time assessment of the spread of a disease.

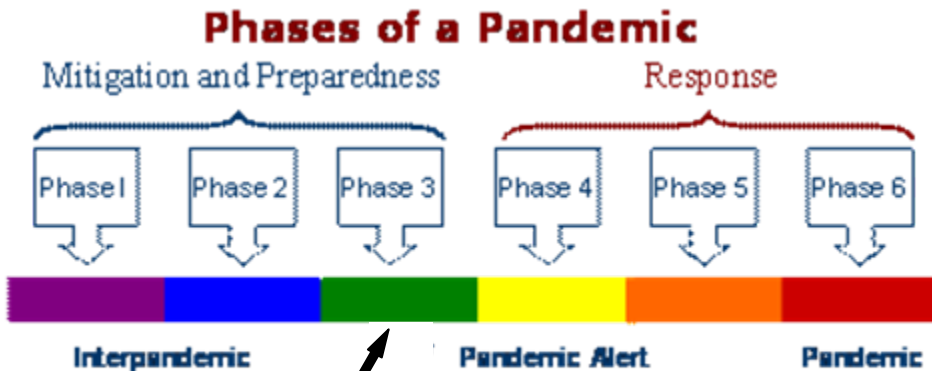
The **Residential Enclave Dispensing** plan was developed to encourage residential communities to establish a plan within their boundaries, for their residents, which would allow the dispensing of medications without the residents having to leave the safety of their own communities.

Points of Dispensing have been strategically located and exercised during the regular flu season for the dispensing of medication to mass populations. Current maximum dispensing would be approximately 8000 residents per hour.

CCHD currently has several community **education** plans, as well as internal education programs for employees. We are also developing education resources that will be available on our web site for the general public to use. CCHD has begun **cross training** employees to address the high rate of absenteeism projected for the pandemic. We also encourage all business and government agencies to do the same.

The **partnerships** that began in 2000 continue to meet once a month and share information, available resources and practice together in periodic **drills and exercises**, both internally and county wide. The last county wide exercise was March 10 and was based on a pandemic flu scenario.

According to WHO?*



We are Here

I will reiterate before closing, we are not in a pandemic. This is a graph of the World Health Organization's phases of a pandemic. We are currently in phase 3, which indicates there are some human infections from other species, but no verifiable human to human transmission. Take care, stay well and develop a plan.