



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

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19GET277 / Biology For Engineers IV YEAR / VII SEMESTER UNIT-IV: HUMAN DISEASES

INFLUENZA



INFLUENZA-FLU



Topics of Discussion

- Seasonal Influenza (Flu)
- Avian Flu
- Pandemic Flu
- Your Role
- Resources



What is Seasonal influenza (flu)?

Illness caused by the influenza virus

Extremely contagious and spreads quickly to others.

- Symptoms vary from person to person
- Occurs every year, usually in the fall and winter, killing 36,000 people in U.S.





Symptoms of Seasonal Flu

Sudden onset of:

- Respiratory symptoms= cough, sore throat, difficulty breathing
- Fever, headache, aching muscles, weakness

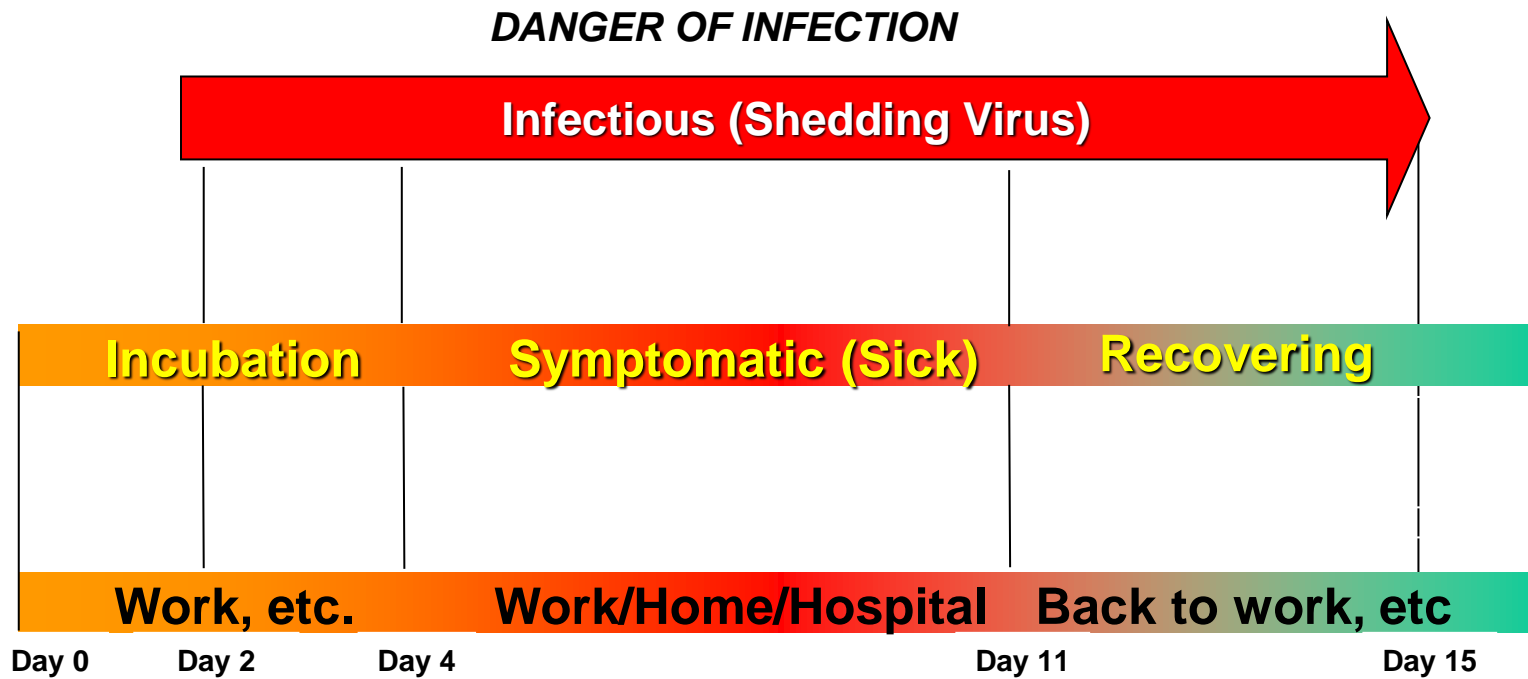
IS IT A COLD OR THE FLU

	COLD	FLU
Possible complications	Cold: Sinus congestion, earache Flu: Bronchitis, pneumonia	Prevention Cold: None Flu: Annual vaccination
SYMPTOMS	COLD	FLU
Fever	Rare	Characteristic, high (102-104° F); lasts three to four days
Headache	Rare	Prominent
General aches and pains	Slight	Usual, often severe
Fatigue, weakness	Quite mild	Can last two to three weeks
Prostration (extreme exhaustion)	Never	Early and prominent
Stuffy nose	Common	Sometimes
Sneezing	Usual	Sometimes
Sore throat	Common	Sometimes
Chest discomfort, cough	Mild to moderate, hacking cough	Common, can become severe

Source: National Institutes of Health, Grand Forks (N.D.) Herald KNIGHT-RIDDER



The Flu Virus as a Contagion





Home Treatment of the Flu

Bed rest

Hydration-with eight ounces of fluid every hour



- Acetaminophen, ibuprofen, naproxen
- Avoid aspirin when dealing with children





Seeking Medical Treatment for the Flu

Persistent fever

- Productive cough
- Increasing difficulty breathing
- Improvement, followed by relapse

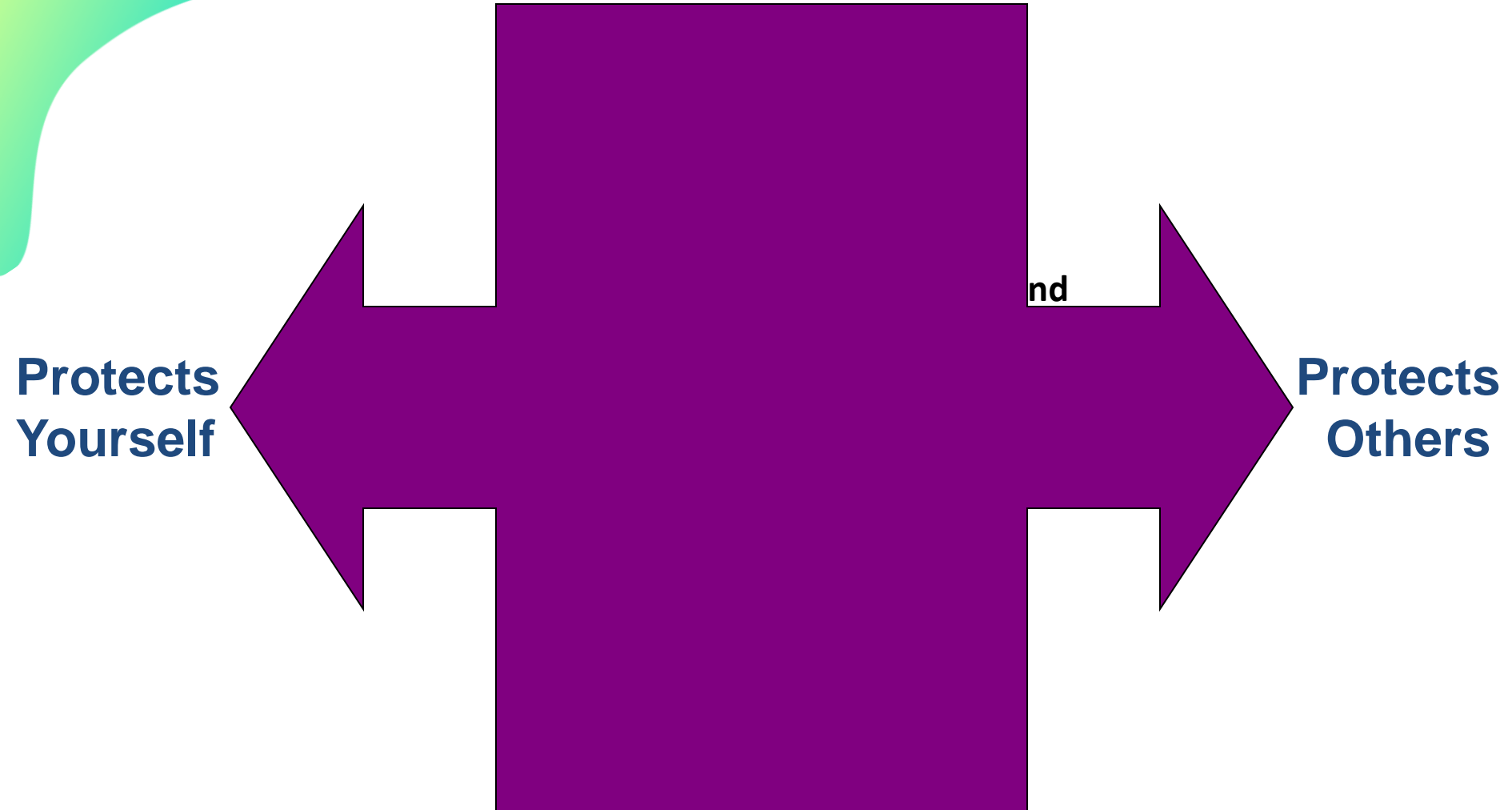




Prevention



Here are Some Things You can Do





Avian (Bird) Flu

- **What is it?**
 - An infection occurring naturally among birds (example: H5N1)
 - Wild birds are natural carriers- Sometimes without illness
 - Can infect domesticated birds- often resulting in illness, culling, and death.
 - Humans can become infected. Most cases due to close contact.





H5N1 become the next pandemic.

Avian Flu not yet Pandemic Flu

- current outbreaks of H5N1 Avian Flu in poultry and birds are the largest ever documented
- Issue of concern- some cases of H5N1 virus in other kinds of animals, such as pigs and tigers
- Some human cases of contraction

- Impossible to predict next pandemic flu event

If not H5N1, then
another

Plan now!

Practice Prevention
NOW!





What is a Pandemic Flu?

- **Pandemic:** an epidemic spreading **around the world affecting hundreds of thousands of people, across many countries**
- **Pandemic flu:** a pandemic that results from an influenza virus strain that humans have not been previously exposed to





Putting Pandemic Flu into Perspective

2001 terrorist attack with anthrax

- killed **five** people

• 2002 outbreak of West Nile Virus

- killed **284** people nationally in six months

• 2003 SARS outbreak

- killed over **800** people world wide
- froze Asian economies
- frightened millions of people into wearing masks on the streets





Pandemic
Asian Flu- H2N2-
First identified in China- Caused roughly 70,000 deaths in the U.S.

Appearance of a new influenza strain in humans- Russian Flu-H1N1

Appearance of a new influenza strain in humans- H9N2

H7N1- 89 people in the Netherlands, most of whom were poultry workers, became infected with eye infections or flu-like symptoms. A veterinarian who visited one of the affected poultry farms died.

H9N2- Caused illness in one child in Hong Kong

1957

1977

1999

2003



1918

1968

1997

2002

2004

Pandemic

Pandemic

Appearance of a new influenza strain in humans-H5N1

Appearance of a new influenza strain in humans- H7N2-

H5N1- caused illness in 47 people in Thailand and Vietnam, 34 of whom died

H7N3- is reported for the first time in humans. The strain caused illness in two poultry workers in Canada.

H10N7- is reported for the first time in humans. It caused illness in two infants in Egypt. One child's father is a poultry merchant.

Spanish Flu- H1N1-
The most devastating flu pandemic in recent History, killing 40 to 80 million world wide

Hong Kong Flu- H3N2-
First detected in Hong Kong, this virus caused roughly 34,000 deaths in the U.S.

Evidence of infection in one person following a poultry outbreak in Virginia



Three Pandemics

1968-Hong Kong Flu

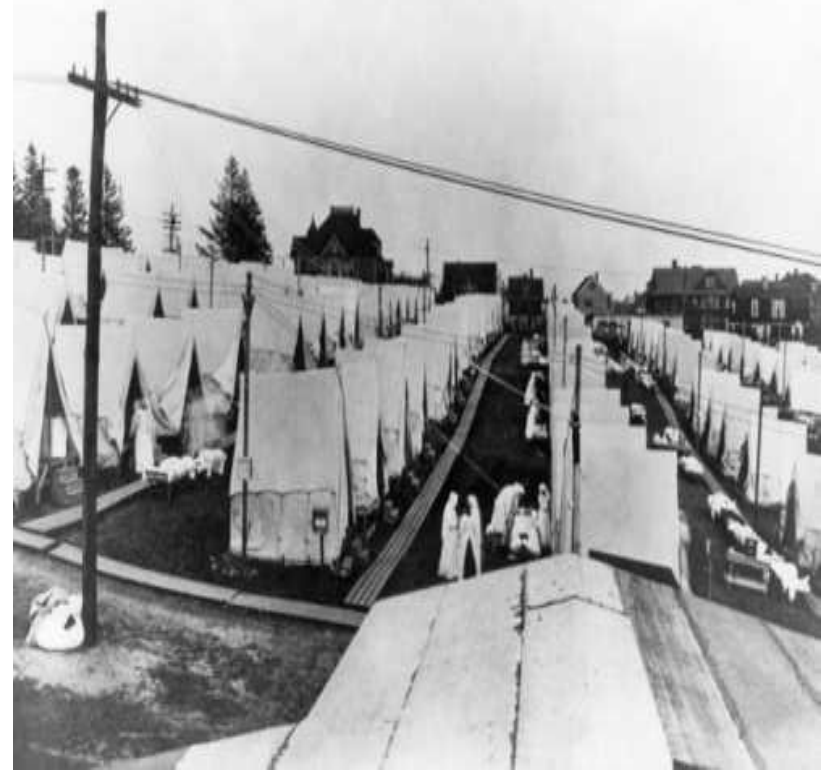
- Caused 34,000 deaths in the United States

- 1957-Asian Flu

- 70,000 deaths in the United States

- 1918-Spanish Flu

- Over 600,000 deaths in the United States. Up to 100 million world wide



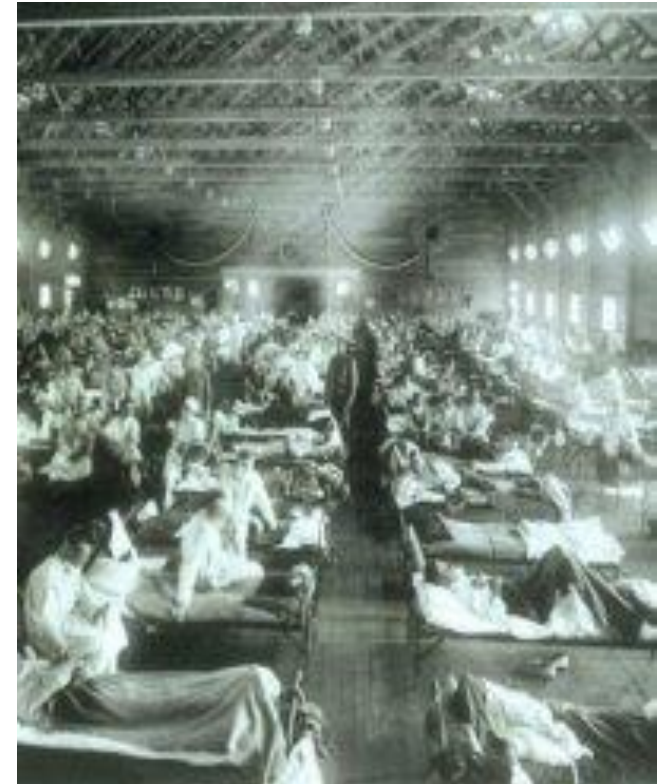
Tent Hospitals-1918



More History about Spanish Flu 1918



- 8-10% of all *young adults* may have been killed.
- From September 1918-December 1918-Killed more people than the Black Death in the Middle Ages killed in 100 years
- Killed more people in 24 weeks than AIDS has killed in 24 years





Compare 2008 to 1918

2008

- Modern travel
- Many areas more densely populated
- Population exceeds 6 billion

- 1918

- World War I (civilian and military overcrowding)
- Public information withheld
- Population approximately 1.8 billion





Lessons from Past Pandemics

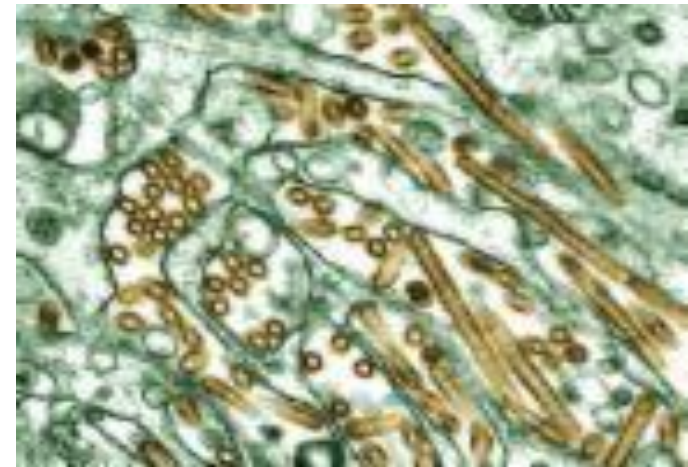
- Occurs unpredictably, not always in winter
- Variations in:
 - Case fatality rates (number of people diagnosed with a disease that die from that disease)
 - Severity of illness
 - Pattern of illness (ages most severely affected)
- Rapid surge in number of cases over brief period of time
- Tend to occur in waves- May only be one wave





Becoming a Pandemic

- For pandemic influenza to occur, three conditions must be met:
 - ✓ A new virus which humans are not immune emerges
 - ✓ The virus causes severe human illness or death in humans
 - The virus spreads easily from person to person worldwide
- H5N1 has **two** of the three today.





Possibility versus Probability



- World Health Organization assures us that there will be another influenza pandemic.
- Unknown when it will occur/how severe the next pandemic will be
- Unknown what the organism will be



World Health Organization



Current Status



Interpandemic		Pandemic alert			Pandemic
Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
No new virus in humans	No new virus in humans	New virus in humans	Small clusters, localized	Larger clusters, localized	Increased and sustained spread in general human population
Animal viruses low risk to humans	Animal viruses low risk to humans	Little/no spread among humans	Limited spread among humans	Limited spread among humans	

↑
**Current
H5N1 status**



Would there be a vaccine?

Because the virus will be new, there will be no vaccine ready to protect against pandemic flu

- A specific vaccine cannot be made until the virus has been identified
- Seasonal flu vaccine or past flu immunization will not provide protection

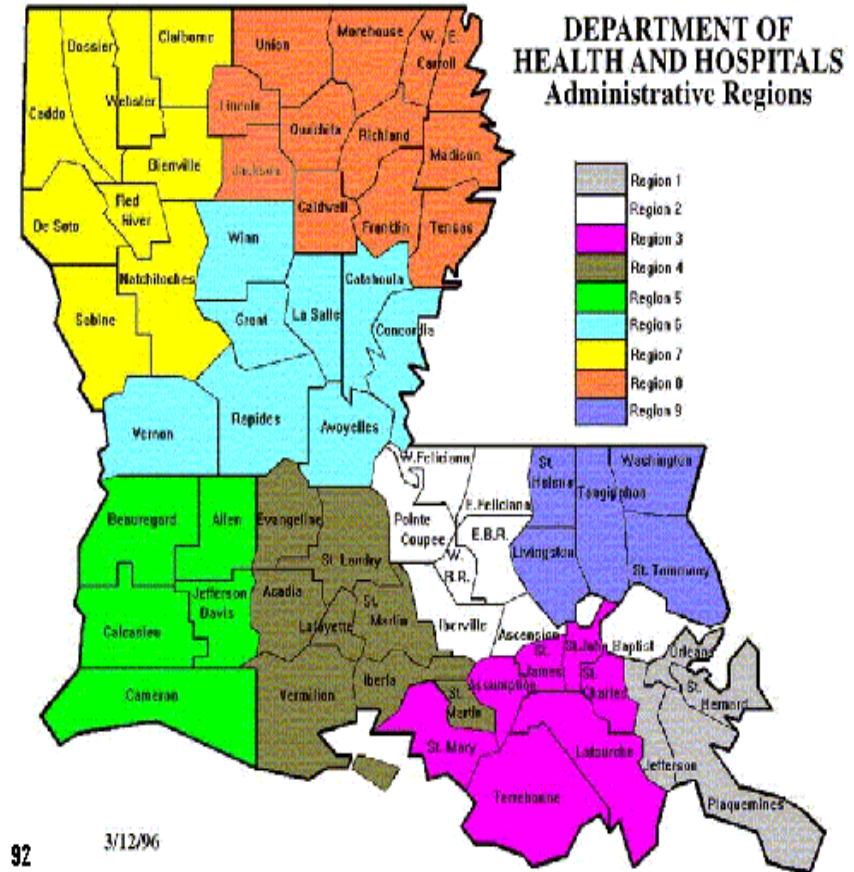




Pandemic Influenza Impacts



- Estimated Impact in Louisiana
 - 3 Million infected
 - Between 600,000-1.4 million clinically ill
 - Between 300K-700K requiring outpatient care
 - Between 10,000 – 22,500 hospitalized
 - Between 3,000 – 6,000 deaths





Health Care, Business, Communities Government, Schools



- Significant disruption of infrastructure

- Transportation
- Schools
- Businesses
- Medical care
- Utilities
- Police and fire protection
- Communications



- Limited to no assistance from State and Federal Governments due to nation-wide impact

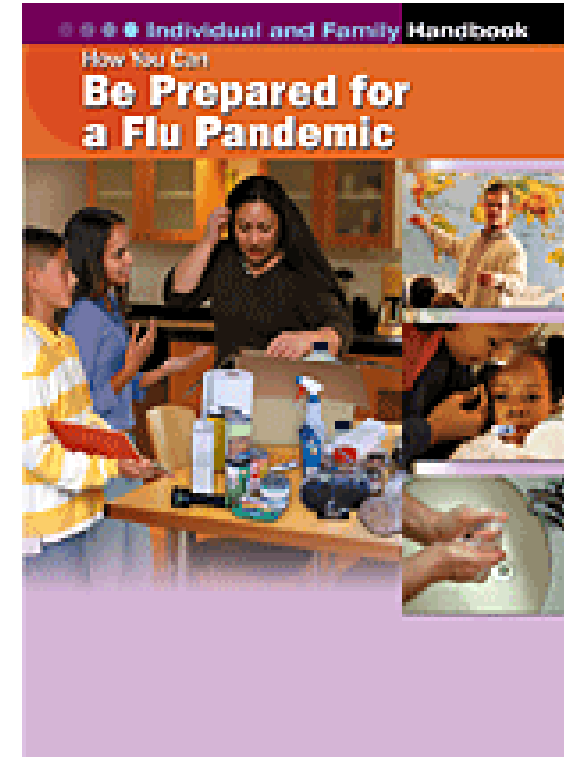


Personal/Family Planning



Stockpiling up to 30 days of water, food, supplies, medicines

- Social distancing
- Practice all the same behaviors to prevent seasonal flu
- Stay at Home Toolkits.





Public Health Role in Pandemic

- Facilitate planning
- Disease tracking & control
- Communication about public health issues
- Coordinate mass antiviral medication and vaccination clinics
- Issue isolation and quarantine orders

