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Now a New Threat to Add to Your Plan...





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Agenda

- The Problem
- Why Plan? What are the risks?
- What should you plan for?
- Pandemic Planning
- Going forward

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“I’ve been involved in a number of investigations, but in terms of infectious diseases there are *very few comparable events* to an influenza pandemic. Most infectious diseases have regional or local implications; even a really devastating disease like malaria is confined to warmer areas. There’s probably *no other disease like influenza that has the potential to infect a huge percentage of the world’s population inside the space of a year....* I don’t think anybody’s prepared. I don’t think even people in the field really have a good understanding of what it could be like.”

Dr. Keiji Fukuda, head influenza epidemiologist at the U.S. Centers for Disease Control and Prevention, in The Guardian, August 1999

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The Problem

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Pandemic - Definition

- A **pandemic** is a disease that affects people over an extensive geographical area (from Greek *pan+demos*, all+people).
- An **epidemic** is an outbreak of a disease that
 - spreads more quickly
 - more extensively among a group of people than would normally be expected



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History of Pandemics

- There have been a number of significant pandemics in human history.
- These are generally zoonosis infections that can be transmitted from vertebrate animals to humans:
 - Smallpox
 - Diphtheria
 - Tuberculosis
 - Yesinia Pestis (The Plague)
 - AID's
 - **Influenza**



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The Big One - Influenza

- Influenza is a highly contagious respiratory disease.
- Historical accounts go back to the 16th century.
- Three types:
 - Influenza A- moderate to severe illness, affects people of all ages
 - Influenza B- mild to moderate illness, usually affects children
 - Influenza C- Mild illness, sporadic cases, minor outbreaks

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Course of Influenza in Adults



Day 0	Infected
Day 1 - 4	Incubation (average 2 days)
Day 1 - 6	Contagious (one day before symptoms to 5 days after symptom onset)
Day 2 - 9	Symptomatic (usual 2 - 5 days)
Day 4 to ?	Decreased energy (one week or more)

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Influenza Statistics

- During any given year, 10-20% of the world's population gets influenza.
- Influenza is associated with 500,000 to 1,000,000 deaths worldwide each year.
- In unpredictable years 25% of the population get it.
- In 2002 in the US, influenza resulted in 36,000 deaths and 114,000 hospitalizations.

Source- UCLA

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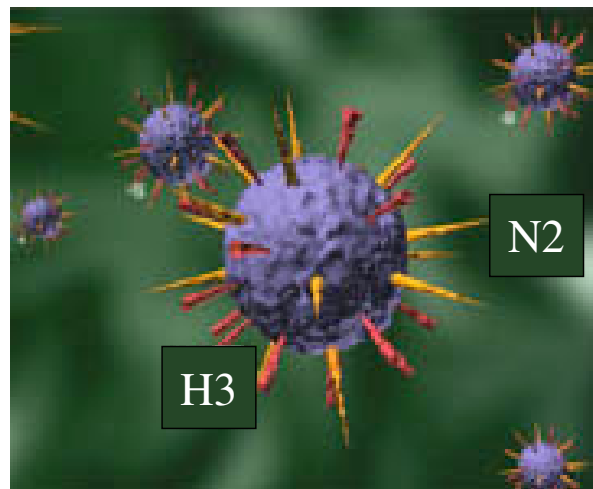
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Influenza A - A Tutorial

- Influenza A has two subtypes determined by proteins on the outer surface of the virus
 - Hemagglutinin (H) – helps virus attach to respiratory cells
 - Neuraminidase (N) – helps virus penetrate into the cells once it is attached.
- Influenza A is sub-typed by the H and N they possess,
 - An example a description of a subtype would be the H3N2 virus



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Influenza- A Microbial Chameleon

- Influenza has thrived over the millennia by adhering to one simple principal- **adapt or die**.
- If this constant process of genetic shuffling didn't frequently result in new types of H or N, eventually many humans would become immune and the virus would die out.
- Therefore most of us will experience repeated Influenza infections in our lifetime.
 - Or, why you got the flu shot and still got the flu (it could also be another strain too!).

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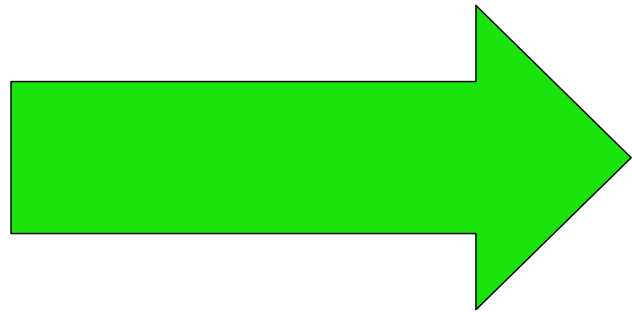
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Antigenic **Drift**

- A subtle mutation within the **same** subtype.
- Can be associated with epidemics.
- These changes or drifts occur continually even within the same “flu season.”



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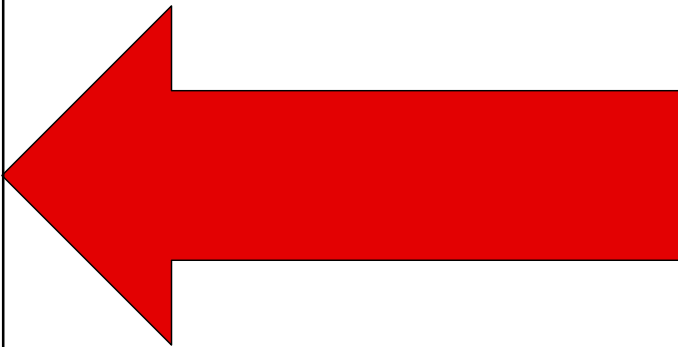
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Antigenic **Shift**



- An entirely new subtype of virus emerges through recombination of human and animal antigens (often swine and avian).
- Associated with a pandemic because the **entire world** population is suddenly susceptible to the new virus.
- There are impossible to predict and can happen anytime.

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Three Great Influenza Pandemics in the 20th Century

1. 1918-1919 - Spanish Flu
2. 1957-58 - Asian Influenza
3. 1968 - Hong Kong Influenza

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Spanish Flu March 10, 1918



- The virus first manifested on March 10 at Camp Riley, Kansas, after it underwent a genetic "shift".
- With WWI in progress it moved around the globe with ease.
- It affected young people in the prime of their life, often killing them within a day.
 - Average age - 20-25 years old

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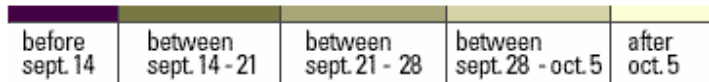
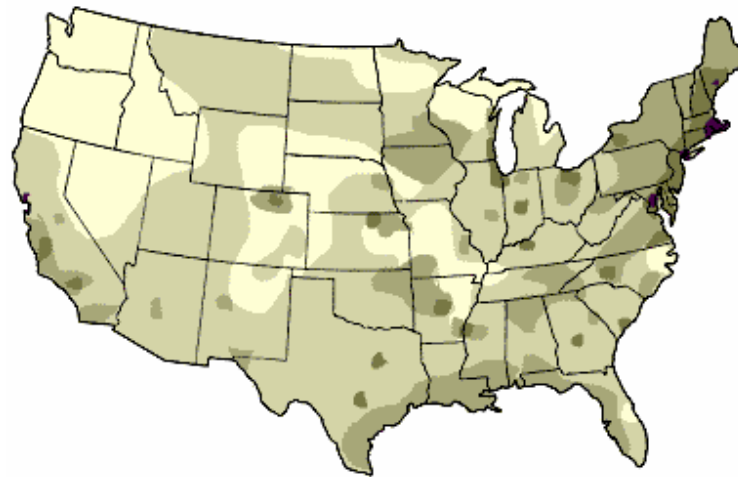
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Approximate beginning of the epidemic, 1918



Source: *America's Forgotten Pandemic - The Influenza of 1918 - 1989*

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Spanish Flu 1918-1919



- The three hardest hit large cities all experienced:
 - City quarantines
 - Required masks while on the street
 - Severe shortage of nurses (up to 75%) and caskets
 - School closures
 - Panic and widespread fear

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October 1918



- Some of what was happening in October 1918
 - 851 New Yorkers die of influenza in a single day.
 - In Philadelphia, the city's death rate for one single week is 700 times higher than normal.
 - The crime rate in Chicago drops by 43 percent.
 - October 1918 turns out to be the deadliest month in the nation's history as 195,000 Americans fall victim to influenza.

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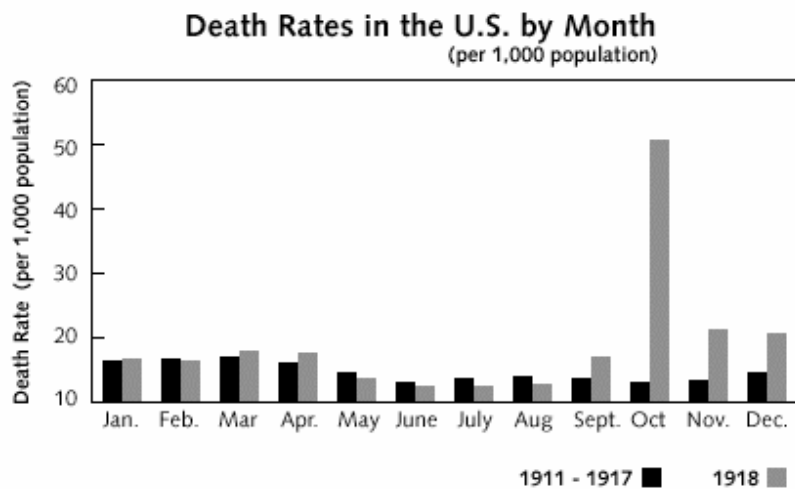
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US Deaths Comparing 1917 to 1918



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Worldwide Tolls

- Entire Inuit villages in Alaska completely wiped out.
- 20% of the population died in Western Samoa (7,500).
- 1 out of every 20 citizens in Ghana died over 60 days between September 1 and November 1.



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The Toll of Spanish Influenza

- 50 million deaths worldwide
 - (17 million in India alone)
- 550,000 deaths in the United States
 - Total death toll in Philadelphia 13,000 with 150,000 cases



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“The (1918 Spanish Influenza) epidemic killed, at very, very conservative estimates 550,000 Americans in ten months; that’s more Americans than died in combat in all the wars of this century, and the epidemic killed at least 30 million in the world and infected the majority of the human species. As soon as the dying stopped, the forgetting began.”

*Alfred W. Crosby
Influenza 1918,
The American Experience*

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Asian Influenza - 1957-58

- In May 1957 the World Health Organization (WHO) reported a new H2N2 subtype from Singapore.
 - By May 1958 the virus had spread throughout the globe.
- Infection rates were reported to range from 20% to 70%.
 - Death toll 70,000 excess mortality.



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Hong Kong Influenza - 1968-69

- In mid July 1968 a new subtype, H3N2 emerged in Hong Kong.
 - Mortality rates were similar in magnitude to those caused by Asian influenza.
 - Age-specific mortality rates peaked in 1970 and were highest for those over the age of 65 years.
- Death toll 31,00 excess mortality.

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Why less deaths in 1957 & 1968?

- Less virulent viruses. Were caused by human flu viruses which acquired 2 or 3 key genes from bird flu virus strains (recombination).
 - Scientists now believe the 1918 strain was probably entirely a bird flu virus that adapted to function in humans (like today's H5N1)
- Antibiotic treatment for secondary infections.
- Improved supportive care.

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1918 - The Deadly One



- The 1918 virus acted much differently from ordinary human flu viruses.
 - Infected cells deep in the lungs of mice and infects lung cells, that would normally be impervious to flu.
 - And while other human flu viruses do not kill mice, the 1918 flu, like today's bird flu, does.

Journal of Nature October 2005

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Today's Threat

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December 2003 - September 2005



AP / Suzanne Plunkett

- Tens of millions of birds with **H5N1** have been culled:

- South Korea
- Thailand
- Vietnam
- India
- Taiwan
- Japan
- Cambodia
- China
- Madagascar
- Indonesia
- Laos
- Pakistan
- Myanmar (Burma)
- Malaysia
- Russia
- Mongolia
- Kazakhstan
- Romania

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Asian Avian Flu

- Has successfully spread to
 - Domestic Cats
 - Pigs
 - Tigers in the Bangkok zoo
 - Several documented cases of human-to-human transmission



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Current Human Death Toll

- These deaths have occurred in as of October 11, 2005
 - Vietnam 44 deaths
 - Thailand 12 deaths
 - Cambodia 4 death
 - Indonesia 6 deaths (2 are still unconfirmed)
 - 60% fatality



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WHO is Sounding the Alarm

- Speaking in New York on 15 September 2005, World Health Organization Chief Lee Jong-wook said,
 - “the virus was moving toward becoming transmissible by humans and that the international community has **no time** to waste to prevent a pandemic.”



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Circulating Viruses



- “The longer the virus is circulating in animals, including chickens and ducks, the greater the risk of human cases and consequently, the higher the risk of a pandemic virus emerging through genetic changes in the virus.”

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“We’re due. Its not a matter of if, but **when** this will happen. I am far more afraid of a flu pandemic than I am of SARS.”

*Albert Osterhaus
WHO Scientist
Wall Street Journal
May 29, 2003*

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SARS

- Severe Acute Respiratory Syndrome is a coronavirus **not** Influenza A.
- Nov 2002 - July 2003
 - 29 countries, 8098 cases, 774 deaths, 35-50 median age, overall 9% fatality.
- Droplet spread, 3 feet, person-to-person contact.
- 2-10 day incubation, 2-3 week duration of illness.
- Recently discovered to come from the Horseshoe Bat



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Pandemic Phases

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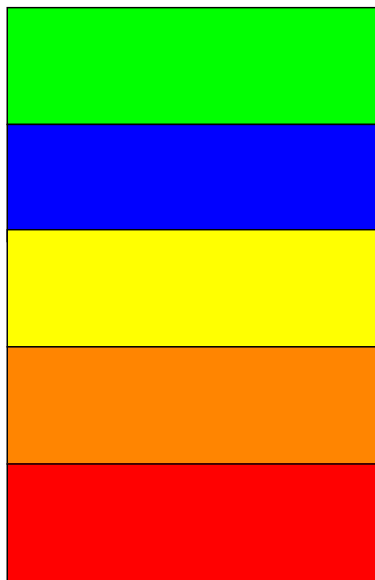
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Pandemic Levels - Terrorist Threat Levels



Phase One

Phase Two

Phase Three

Phase Four

Phase Five & Six

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Interpandemic Period

- ***Phase 1.*** No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection or disease is considered to be low.
- ***Phase 2.*** No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.

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Pandemic Alert Period

- **Phase 3.** Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact.
- **Phase 4.** Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans.
- **Phase 5.** Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).

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Pandemic Period

- ***Phase 6.*** Pandemic: increased and sustained transmission in general population.
 - Pandemics usually last approximately 18 months and come around the globe three distinct times in that time period (which are referred to as waves).



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Why Prepare?

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Why Should We Prepare for a Pandemic?

- It **will** happen again. Experts believe another pandemic is inevitable – just don't know when it will happen.
- There will be **very little warning**. Most believe there would be 1-6 months between the time a new Influenza strain is identified before outbreaks would occur in the US.
- Vaccines will **likely not be available for 6 - 12 months** (if at all) from the time the organism is identified and it will likely take 2 doses, 30 days apart.

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Why Should We Prepare for a Pandemic?

- Will likely **occur simultaneously** throughout the US, preventing shifts of resources that normally occur with natural disasters.
- There will be a **prolonged effect on communities**- lasting months, maybe as long as a year.
- Biologics will be in short supply (vaccinations, antibiotics and antivirals)
- **Health care workers and first responders** will be at **high risk** for exposure and illness
- **Shortage of critical personnel** in important sectors- military, police, fire, utility workers, etc.

CDC Statistics 2002

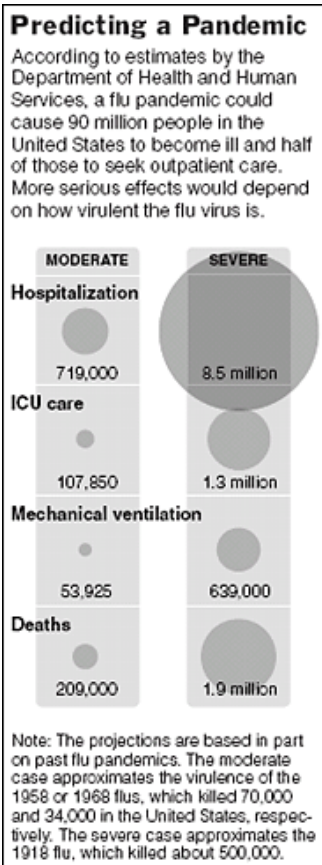
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Health Care Predictions



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What to Plan For?

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What should you be planning for?

- Probable average absenteeism of 30% - that includes your vendors and customers too!
- May have less than six weeks of warning.
- Could have three waves in six month intervals.
 - Each wave could last six weeks to six months.
- No remedy immediately available.

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Pandemic Planning

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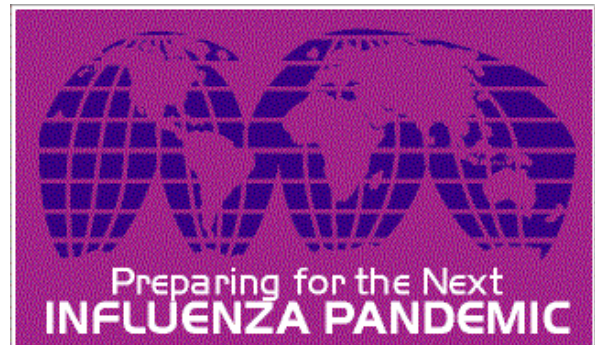
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Centers for Disease Control Recommendations

- Surveillance
- Vaccination delivery
- Antiviral delivery
- Emergency response
- Communications
- Command and control management structure in place
- Supplement existing plans now in place for “all hazards.”



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Surveillance At Your Company

- How do you know that anyone is sick?
- How can you begin to detect trends or patterns?
- Initially it may just be anecdotal - pay attention. If the cafeteria is less crowded, the parking lot lighter than usual or security notices less people coming in to work.
- Combine your observations with news.
- How can you develop a central tracking system?

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Assessment

- Check vulnerabilities; look at the pandemic scenario with months of significant employee absences.
- Revisit your BIA
 - Maximum tolerable downtime
 - Single-points-of-failure
 - Dependence on vendors
- Failure scenarios -For example, what if you lost s mission critical call or data center for two weeks, a month?

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Preparedness

- Staff policies regarding flexible work schedules, work-from-home options and stay home if sick.
 - Company sponsored initiative “robust work from home”
- Staff cross-training that includes task checklists and complete documentation (SOP) on how to do the job.
- Stockpiling supplies- N-95 masks, nitrile gloves, antiseptic wipes.

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Vaccination Programs

- Offer annual flu shots at your firm.
- Why?
 - Lessens chance of “routine flu” at your place of work.
 - You already have a mechanism and relationships in place.
 - Chance to educate your employees about the flu, epidemics and pandemics and good health practices such as effective hand washing.

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Level Five - Six Planning

- Think about your daily business activities completely differently:
- Dispense with all unnecessary “face time”. Do you need face-to-face meetings or will conference calls or web-casting work? Work cafeterias, on-site gyms and day care should be reconsidered immediately.
- Hygiene concerns - No shaking hands. Use your own phone when possible. Distribute antiseptic wipes.
- Develop and enact worker isolation and quarantine as necessary.
- Staff who are ill and have symptoms need to stay home!

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Level Five - Six Planning

- Reorganize your work and workforce immediately.
 - Can you split up mission critical activities to minimize potential downtime?
 - For example if work is normally done by 20 people split them up into two or three groups to prevent cross contamination.
 - If possible split across different locations too.
 - Can they work remotely? If possible, send them home.
- Immediately offer virtual mental health assistance- Employee Assistance Programs.

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Level Five - Six Planning

- Once a level six has been announced, determine how you might treat a person who gets suddenly seriously ill at work.
 - Isolate and mask till transported?
 - Clean their area? Who and how?
 - Isolation rooms?
- Have janitorial clean all phones and hard surfaces with approved disinfectant (antiviral) nightly
 - 1 part bleach to 9 parts water



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Communications

- This is the essential key to the plan. You cannot communicate too much.
 - 800 employee number
 - Your company intra-net and internet site
 - Email - sharing health information; the company response plan; what you are doing; policies regarding pay, time off, benefits, etc.
 - Daily broadcast voicemails using a notification system (great for keeping people that are home informed). Have the CEO record them.
 - Remember **all** of your stakeholders: employees, vendors, customers, investors, government (DPH, EMS, County EOC)

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Crisis Mgmt Involvement

- Engage them in the Pandemic Planning process.
- Develop virtual protocols, webcasting and phone bridges.
- At the first sign of a potential problem, convene the group, assemble the facts, review the plan, determine a course of action...then operate virtually!

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Training and Exercises

- Train your Crisis Management team, managers and employees now!
- Meet with your local Emergency Management System (EMS) and Department of Public Health (DPH) to learn their plans and make a connection.
- Develop a tabletop exercise with a pandemic narrative to work through your plan and policies and then revise.

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Going Forward

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Develop A Task Force

- Business Continuity Planning
- Security
- Safety
- Human Resources
- Travel
- Key lines of business
- Corporate Communications
- Purchasing
- Legal
- Telecommunications
- Technology

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Pandemic Planning Steps

- Develop a written plan
 - Legal review
 - Executive approval
- Disseminate it to all regions
- Educate staff about the threat
- Perform exercises to test the plan and raise awareness

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Monitor on the Web



- Sign up for Pro-Med
www.promedmail.org

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What Can You Do To Protect Yourself?



- Don't worry... at least overly anyway!
- WASH your hands.
- If sick, stay home.
- Avoid touching your eyes, ears and mouth.
- Get a flu shot.
- Stock up! Practice personal preparedness, have enough basic supplies at home for a week.

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Avoid Fear Mongering



- Be careful where you get your information...
 - the websites you read...

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Hand washing is one of the
single most important means
of preventing the spread of
infection

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“How To” Hand Washing

1. Wet hands with **warm water**.
2. Apply a generous amount of **soap** & lather hands well.
3. Rub hands together for **20 seconds**, paying special attention to the areas between fingers & under nails.
4. Rinse hands thoroughly with warm water.
5. Dry hands with a disposable towel
6. Use the disposable towel to turn off the faucet & open the door.



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What is 20 seconds?

- Songs suggested by the CDC or “approved” to sing while washing for 20 seconds include...
 - Twinkle, Twinkle Little Star
 - Happy Birthday

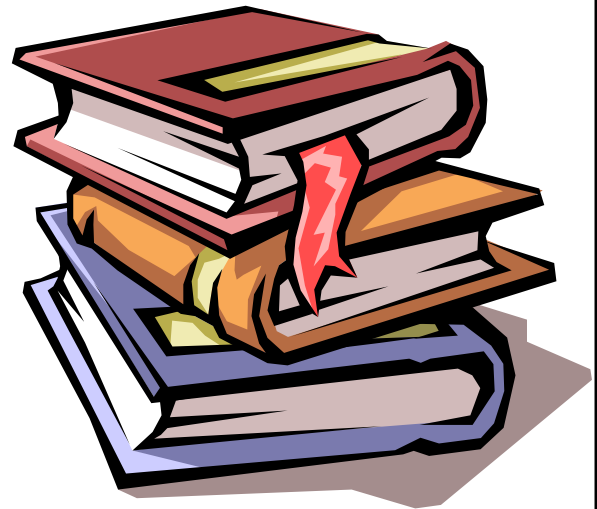
- Twinkle, twinkle, little star,
- How I wonder what you are.
- Up above the world so high,
- Like a diamond in the sky.
- Twinkle, twinkle, little star,
- How I wonder what you are!



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Do A Little Fall Reading...

- The Great Influenza: The Epic Story of the Deadliest Plague In History, John Barry 2004
- The Coming Plague, Laurie Garrett
- Influenza 1918- The Worse Epidemic in American History, Lynette Iezzoni
- Epidemic and Peace, Alfred Crosby
- Man And Microbes: Disease and Plagues in History and Modern Times, Arno Karlen
- Viruses, Plagues, and History, Michael B. A. Oldstone
- Flu, Gina Kolata
- Plagues and Peoples, William H. McNeill
- Influenza 1918: The American Experience, Andrea Kalin VHS



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Thank You!

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