



Out of  
Danger  
Comes  
Opportunity

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## The Greatest Threat in Our Lifetime?



What are you doing to get ready?

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## Agenda

- Basic Planning Assumptions
- Past Threats
- The Pandemic Threat
- Public Health Law
- Modern Medicine
- Pandemic Economics
- What you can do...

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## Planning Assumptions

- Business Continuity Planning generally has two assumptions:
  - Back to “business as usual” in 30 days or less
  - Go from the “affected” site to the “unaffected site” and resume business
- ***Neither apply with Pandemic Influenza***

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Recent Threats

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### The Good Thing About Y2K



- A tremendous unified effort went into Disaster Recovery (DR) and Business Continuity Planning (BCP)...
  - The beginning integration of DR and BCP
  - The industry as a whole markedly improved!

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### The Unthinkable Happens...

- The attacks on September 11, 2001 not only changed the country, they changed the world of business continuity.
  - Suddenly the phrase, “that would never happen” seemed to disappear from our vocabulary...
  - A new definition of “recoverable” came into being...

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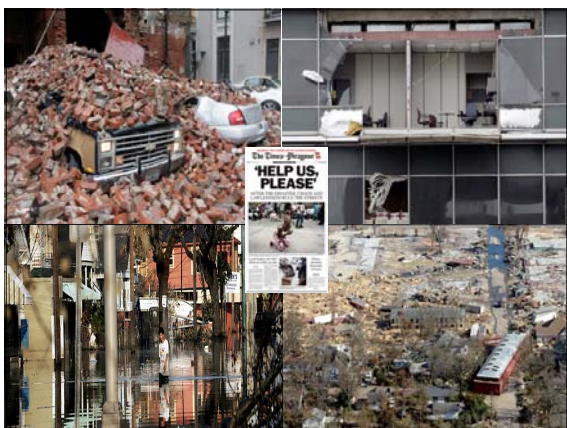
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 **FEMA's Top Three...**

- In early 2001 FEMA noted the three *likeliest*, most *catastrophic* disasters facing this country:
  - A terrorist attack in New York City ✓
  - A catastrophic earthquake in San Francisco
  - A hurricane and levee break in New Orleans ✓

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## But It's Only the Flu!

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## Influenza - A Primer...

- Influenza is a *highly contagious* respiratory disease.
- Historical accounts go back to Italy in 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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## Annual 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 (epidemic 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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**Course of Influenza in Adults**

Day 0      Become infected  
 Day 1 - 4    Disease 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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**How You Become Infected**

- Influenza is spread by droplet nuclei within 3 - 6 foot.
- When an infected person breaths, talks, coughs or sneezes, tiny particles containing droplet nuclei are expelled into the air.
  - 1 - 5 microns in size.

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**Airborne Droplet Nuclei**

- Droplet nuclei can remain suspended in the air for *several hours*, depending on the environment.
- Talking for **five minutes** can generate 3000 droplet nuclei.
- Singing can generate 3000 droplet nuclei in **one minute**.

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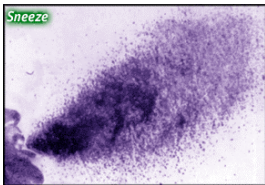
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**Sneezing**



- Sneezing generates tens of thousands of droplet nuclei which can spread up to 10 feet away.

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**How Close is Close?**



- What is considered to be “close personal contact” is 3 to 6 feet
- Take a moment now to look around you to see who you are sharing your droplet nuclei with!

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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 (H 1 - 16).
  - Neuraminidase (N) – helps virus penetrate into the cells once it is attached (N 1 - 10).
  - 144 different H and N combinations
- 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 occur, eventually many humans would become immune and the virus would die out.
- Most of us will experience repeated Influenza infections in our lifetime.
  - **Or**...why you got the flu shot and still got the flu!

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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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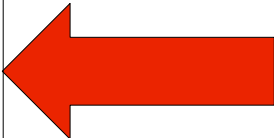
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### Antigenic **Shift**

- An entirely new subtype of virus emerges through either:
  - Recombination of human and animal antigens (often swine and/or avian).
  - Direct leap to humans
- 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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## 1918 Spanish Flu The Great Killer

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## Spanish Flu March 10, 1918



- The virus first manifested on March 10 at Camp Riley, Kansas.
- 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 - 20-29 years old

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### Approximate beginning of the epidemic, 1918



before sept. 14	between sept. 14 - 21	between sept. 21 - 28	between sept. 28 - oct. 5	after oct. 5
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Source: America's Fatal Pandemic - The Influence of 1918 - 1989

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**Spanish Flu 1918-1919**

- United States cities experienced:
  - City quarantines
  - Required masks while on the street
  - Severe shortage of nurses (up to 75%)
  - Shortage of caskets
  - Mass burials
  - School closures
  - Business 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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**US Deaths Comparing 1917 to 1918**

Death Rates in the U.S. by Month (per 1,000 population)



Month	1917 (per 1,000 population)	1918 (per 1,000 population)
Jan.	~15	~15
Feb.	~15	~15
Mar.	~15	~15
Apr.	~15	~15
May	~15	~15
June	~15	~15
July	~15	~15
Aug.	~15	~15
Sept.	~15	~15
Oct.	~15	~58
Nov.	~15	~20
Dec.	~15	~20

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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
  - Global numbers range from 50 - 100 million
  - (17 million in India alone)
  - World population 1.75 billion
- 550,000 deaths in the United States
  - Total death toll in Philadelphia 13,000 with 150,000 cases



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**1957 & 1968 Pandemics**

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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.
  - World population was 2.75 billion

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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 31,000 excess mortality.
  - World population was 3.65 billion

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### Why less deaths in 1957 & 1968?

- Less virulent viruses.
  - Caused by recombination - human flu viruses that acquired 2 or 3 key genes from bird flu virus strains.
- Antibiotic treatment for secondary infections.
- Improved supportive care.

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**1918 - The Deadly One**



- The 1918 virus acted much differently from the “ordinary” human flu viruses.
  - Scientists now believe the 1918 strain was probably **entirely** a bird flu virus that adapted to function in humans
    - Just like today’s H5N1
  - The 1918 virus was a **direct leap** from birds to humans.
    - Just like the current H5N1.

*Journal of Nature October 2005*

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**Today’s Threat**

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**Countries with H5N1  
December 2003 to Present**

1. South Korea	15. Russia	29. Kuwait	43. Albania
2. Thailand	16. Mongolia	30. Zimbabwe	44. Slovakia
3. Vietnam	17. Kazakhstan	31. Libya	45. Bosnia-Herzegovina
4. India	18. Romania	32. Nigeria	46. Switzerland
5. Taiwan	19. Greece	33. Italy	47. Serbia-Montenegro
6. Japan	20. Turkey	34. Bulgaria	48. Cameroon
7. Cambodia	21. Germany	35. Azerbaijan	49. Afghanistan
8. China	22. Canada	36. Slovenia	50. Denmark
9. Madagascar	23. Croatia	37. Austria	51. Israel
10. Indonesia	24. Macedonia	38. Egypt	52. Jordan
11. Laos	25. Iraq	39. France	
12. Pakistan	26. Iran	40. Hungary	
13. Myanmar (Burma)	27. Ukraine	41. Sweden	
14. Malaysia	28. UK	42. Niger	

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**Indonesia - The Hot Spot**



- 17,000 islands
- 220 million people
- Jakarta - 12 million people
- 11 fatalities so far in 2006
- 6 clusters

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**Current Human Death Toll**

- These summary of cases and deaths is as of March 26, 2006
  - Vietnam 93/42
  - Thailand 22/14
  - Cambodia 5/5
  - Indonesia 29/22 (6 clusters)
  - China 16/11
  - Turkey 12/4
  - Iraq 2/2
  - Azerbaijan 7/5
  - Egypt 4/1 (unconfirmed)
  - Total 186 cases/105 deaths
  - 56.5% fatality
- The total number of cases/deaths includes only WHO laboratory confirmed cases.



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**H5N1 and the Victims**

- Age was reported for 116 human H5N1 influenza cases. According to these data:
  - 50 percent of cases occurred in individuals 16 years or younger
  - 75 percent of cases were 29 years or younger
  - 90 percent of cases were 39 years or younger



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**Susceptible Mammals**

- To date the following mammals have been infected with the H5N1 virus.
  - Palm Civet
  - Domestic cat/feral cat
  - Cynomolgus macaque
  - Ferret
  - New Zealand white rabbit
  - Leopard
  - Tiger
  - Rat
  - Pig
  - Dog (Israel 3/06)



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**Wild Bird Vs. Poultry**

- Controversial issue
  - Poultry is the primary reservoir.
  - H5N1 lives in soil and bird feces for 30 days.
  - Wild birds are often infected from domestic birds.



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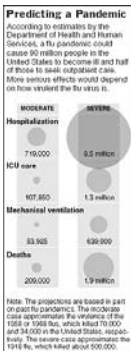
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**Health Care Predictions**

Location	Deaths	Hospitalizations	# of Cases
United States	541,433	2,358,089	66,914,573
Florida	35,737	142,386	3,663,486

Source: *Trust for Americas Health*  
<http://healthamericans.org/reports/flu/>

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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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Public Health Law  
and Quarantine

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### Public Health Law - Quarantine

An executive order of the president limits quarantine to nine diseases:

- Cholera
- Diphtheria
- Infectious tuberculosis
- Plague
- SARS
- Smallpox
- Yellow fever
- Viral hemorrhagic fevers like Ebola
- Influenza caused by new strains that could cause a pandemic.

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### Powers of Public Health Authority

- Public health authority required during a state of public health emergency to **use every available** means to prevent transmission of infectious disease.
- Examples of powers given to public health authorities include:
  - **Close, direct, evacuate** or decontaminate **any facility** that is reasonably believed to endanger the public health.
  - **Control or limit egress** to and from any affected public area, the movement of persons within the area, and the occupancy of the premises therein.
  - **Perform physical examinations** and/or tests as necessary for the diagnosis or treatment of individuals.
  - **Vaccinate** persons as protection against infectious or contagious disease.
  - **Collect specimens** from both living and deceased persons.
  - **Treat** persons exposed to or infected with disease.
  - **Isolate or quarantine** individuals or groups of individuals – including those who refuse medical examination, testing, or vaccination.

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## What Can Modern Medicine Do?

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### Antivirals

- Tamiflu (Oseltamivir) approved 1999
  - Neuraminidase (N) inhibitor, preventing the virus from penetrating the respiratory cells.
  - Made from the Chinese anise star plant (can also be produced artificially)
  - Used during the "regular flu" season especially for the elderly.
- Some H5N1 cases have already exhibited drug resistance to Tamiflu.
- Roche stopped shipping to US in late October 2005 due to stockpiling by companies and individuals.
  - Ethical, moral and legal issues for companies who decide to use it.
  - How much would be enough?



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### Vaccines

- Grown in eggs (current cellular production is only in the experiment phase).
- Takes 8-10 months to produce.
- Often takes two doses to confer complete immunity (given over 30 day period).
- Manufacturers worldwide can only produce 250 - 300 million doses at a rate of 5 million a week
  - Enough to vaccinate just 1 percent of the U.S. population a week.

Mayo Clinic.com

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### Economic Impact

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**Possible Economic Impacts**

- Severe impact to airlines, tourism and hospitality industry.
- May trigger foreclosures, bankruptcies and credit restrictions.
- Collapse of the housing market.
- Health care system strained to the breaking point.
- Insurance industry would have a huge increase in medical claims.
- Rampant decline in spending. High unemployment.
- Flight to gold and other “safer investments.”

*An Investors Guide to Avian Flu - BOM*  
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**Supply Chain Disruption**

- Border and port closures leading to subsequent trade disruptions.
- Just-in-Time -“JIT” may create an environment of less goods and services as the movement of goods is impacted.
- Shortages of goods may result in panic buying behavior.



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**Economic Forecasts**



- Asian Development Bank - “Asia could lose \$282 Billion, 6.5 GNP, trigger worldwide recession.”
- Bank of Montreal - “A dramatic slow down in the economy equal to that of the Great Depression.”
- Nottingham University - UK to suffer a 8.5 drop in GNP with a mild pandemic.

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### Any Good News?

- If you ever doubted it...what we do as BCP professionals is absolutely critical!
- A viable and current business continuity program is essential and vital for the success of your organization.

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### Protecting Yourself & Your Family

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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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**Can You Eat Poultry?**

- No evidence that *properly cooked* poultry or eggs are sources of infection.



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**Bird Watching? Bird Feeders?**

- Absolutely!
- Watch wild birds from a distance.
- Don't handle dead birds.
- Clean bird feeders well with water and bleach (1-9 solution).



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**“How To” Hand Washing**

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



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Danger  
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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
  - OR**
  - 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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**Background Reading...**

- Sign up for ProMed - [www.promedmail.org](http://www.promedmail.org)
- The Monster At Our Door, Mike Davis, 2005
- 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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**Incredible Opportunity**

- We have an incredible opportunity to plan...
  - We don't know **when** the pandemic will occur.
  - We don't know **how** “bad” it will be.



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## Do Something!

- NOW!
- Begin preparation today for you, your family and your business.



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# Thank You!

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