Pandemic Planning

How to Implement a
Pandemic Plan

Agenda

- A little background…
- Where to begin?
- Planning assumptions
- Trigger points - planning and execution
- Task force
- Challenges you need to plan for

Basic Assumptions

- Business Continuity Planning (BCP) 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***

Influenza - A Primer…

- Influenza is a ***highly contagious*** respiratory disease.
  - Historical accounts go back to Italy in the 16th century.
- 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 the US, annual seasonal influenza results in approximately 36,000 deaths and 114,000 hospitalizations.

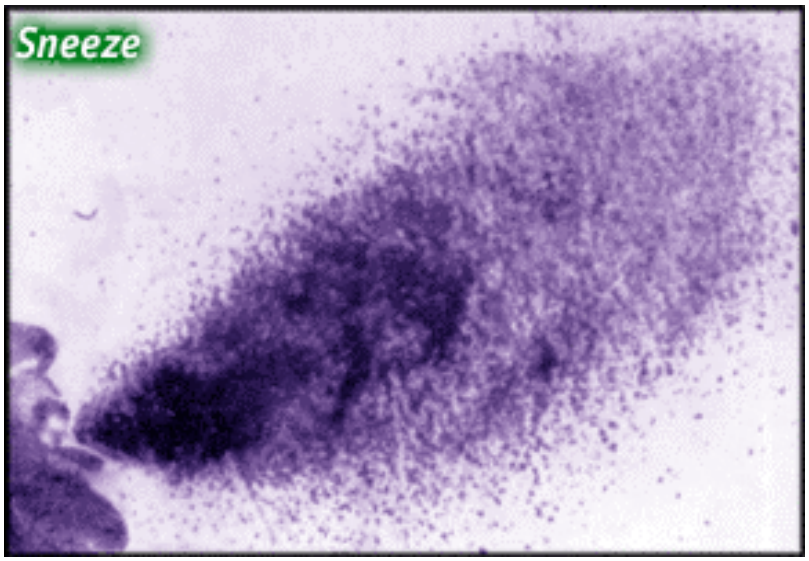
Course of Influenza in Adults

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)

Influenza Symptoms

- Sudden onset of illness
- Fever higher than 100.4° F (38° C)
- Chills
- Cough
- Headache
- Sore throat
- Stuffy nose
- Muscle aches
- Feeling of weakness and/or exhaustion
- Diarrhea, vomiting, abdominal pain (occur more commonly in children)

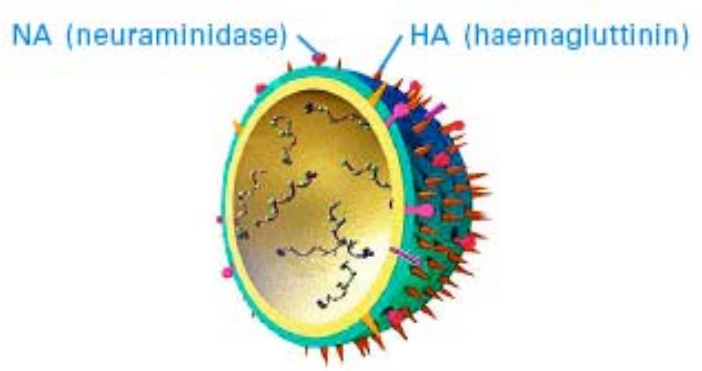
How You Become Infected



- When you breath, talk, cough or sneeze, tiny particles containing droplet nuclei are expelled into the air.
  - 1 - 5 microns in size.
- Influenza is spread by droplet nuclei within 3 - 6 foot.
  - Droplet nuclei can remain suspended in the air for *several hours*.
  - “Close personal contact”is 3 to 6 feet

Influenza 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.
- Influenza has thrived over the millennia by adhering to one simple principal- **adapt or die**. Pandemic strains are created via:
  - **Recombination** of human and animal antigens (often swine and/or avian).
  - **Adaptation** - Direct leap to humans



Current Human Cases & Death Toll

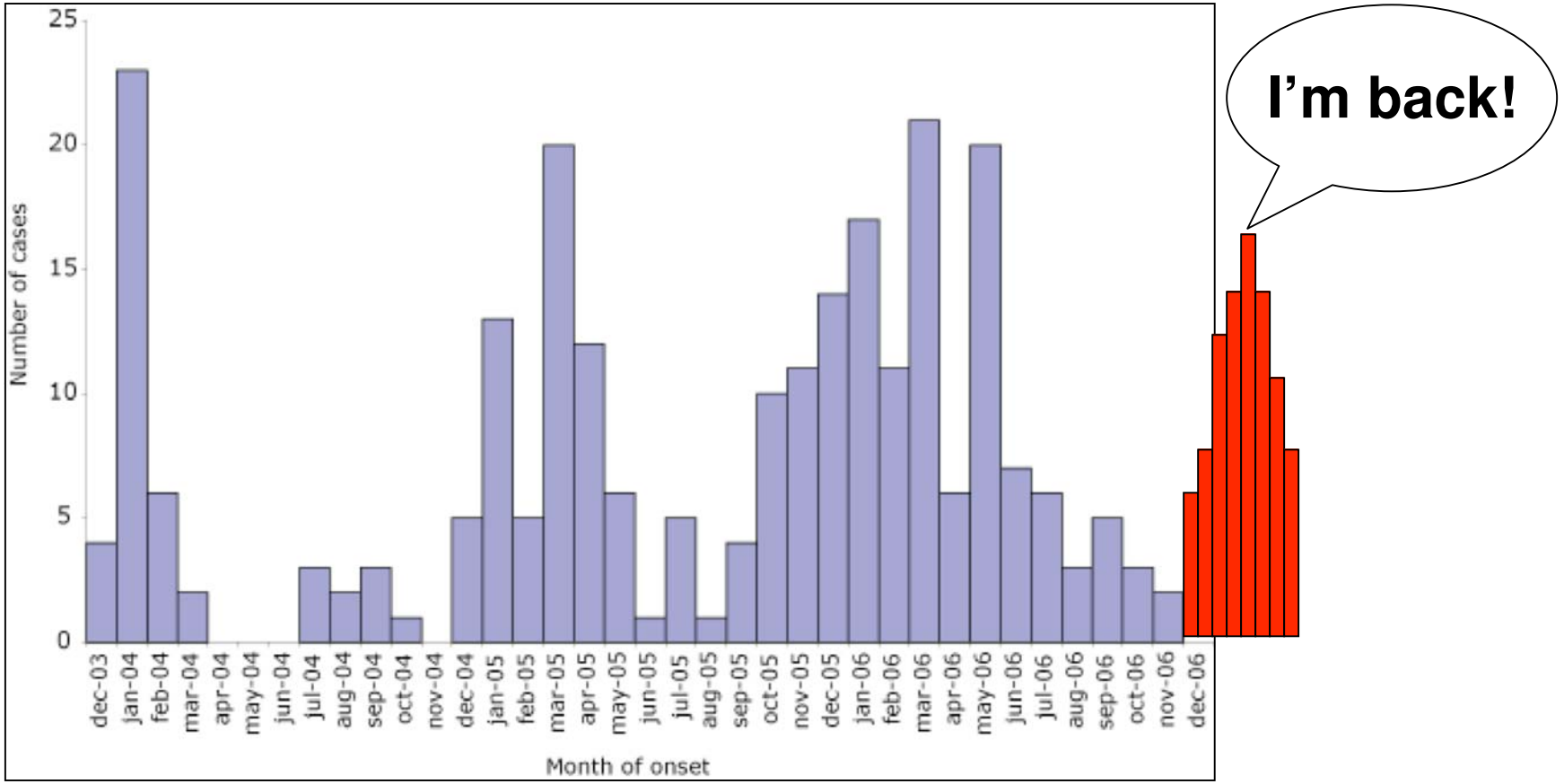
- These summary of cases and deaths is as of July 8, 2007
  - Indonesia 101/80 (77%) **
  - Vietnam 95/42 (45.2%) **
  - Thailand 25/17 (63.6%) **
  - Egypt 37/15 (60%)
  - Cambodia 7/7 (100%)
  - China 25/16 (66.7%)
  - Turkey 12/4 (33.3%)
  - Iraq 3/2 (100%)
  - Azerbaijan 8/5 (62.5%)
  - Dijbouti 1/0 (0%)
  - Nigeria 1/1 (100%)
  - Laos 2/2
  - Total 317 cases / 191 deaths
  - 60% fatality
- The total number of cases/deaths includes **only** WHO laboratory confirmed cases.

**** Areas that have had documented human to human transmission**

Who has been affected?

- Who?
  - Median age was 18 years old.
  - 52 per cent were younger than 20 years old and 89 per cent were under age 40.
  - Men and women made up virtually an equal number of cases.
- The death rate was highest among cases aged 10 to 19
  - 76 per cent of cases in that group died
- Lowest death rate?
  - Cases over 50 (40 per cent)
  - Followed by children under age 5 (44 per cent) and children aged 5-9 (49 per cent).
- The total case fatality (CFR) rate was 60 per cent.
  - 2007 CFR has increased to 87%.

First of all - Where did bird flu go?



Influenza A

- Disease of cooler seasons
  - Usually ***fewest*** number of cases are seen in the bird populations between May and October during the warmer months.
- Recent Cases
  - Egypt: June 8, 2007 10 year old girl (died June 8)
  - Egypt: June 8, 2007 - 4 year old girl (still living)
  - Vietnam: June 8, 2007 two new adult cases

Indonesia: Suspected Mutation?

- The H5N1 bird flu virus in Indonesia ***may*** have undergone a mutation that allows it to jump more easily from poultry to humans, the head of the country's commission on bird flu control said on 6 Jun 2007.
- The suspicions were based on preliminary findings of molecular genetic tests conducted at laboratories in Indonesia.
  - "Virus samples from poultry cases have increasingly shown a similarity in their amino acid structure to virus samples extracted from humans. This makes it easier for the virus to attach to human receptors," a chief researcher was quoted, referring to receptor cells lining the human throat and lungs.
  - For the H5N1 virus to pass easily from bird to human, it would have to be able to readily attach itself to these special cells.
    - For the moment, because H5N1 is a bird virus, it has evolved to easily attach to these receptors in poultry.
  - Humans have a different type of receptor site, making it harder for people to become infected. Researchers have spotted "gradual changes" in the virus samples received every month. No details were given on these gradual changes.
- ProMED Digest V2007 #277 Moderator notes that this has NOT YET been documented in peer reviewed scientific publications.
  - Be sure to sign up up for: www.promedmail.org

What does this mean?

- Frankly, no one knows…
  - Are we closer to a pandemic?
  - The same?
  - Never gonna happen with H5N1?
- All speculation…

Uphill Battle in Impacted Countries

AP / Said Abu el-Einein

- Convinced that her own pigeons are healthy, a poultry trader in the Nile delta in Egypt feeds corn by mouth to the birds.
  - *H5N1 avian flu has killed 14 people in Egypt.*

“It's not business as usual, but it's not like the house is on fire — it's somewhere in between.”

Keiji Fukuda MD MPH
World Health Organization

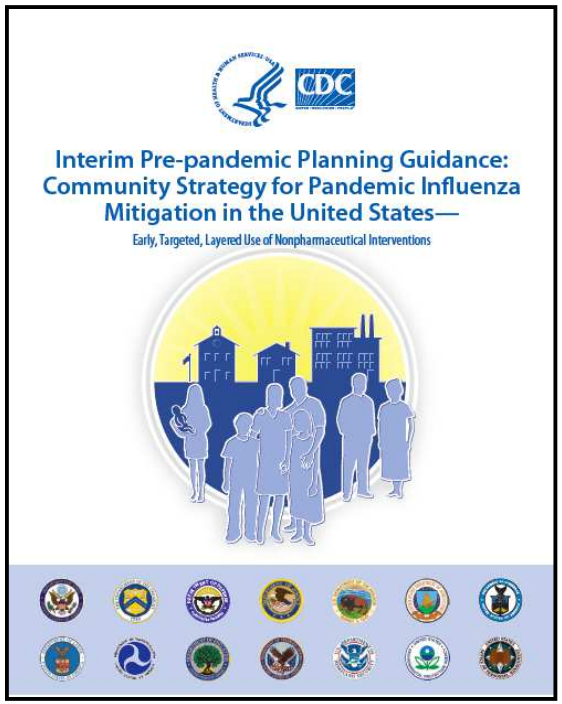
New Vaccine - April 18, 2007

- Just approved - The vaccine was obtained from a human strain and is intended for ages 18 through 64 years of age.
  - H5N1 influenza vaccine immunization consists of two intramuscular injections, given approximately one month apart.
  - The manufacturer, sanofi pasteur Inc., will **not** sell the vaccine commercially.
- The vaccine ***could*** be used in the event the current H5N1 avian virus were to become easily passable between humans.
  - Should an influenza pandemic emerge, the vaccine **may** provide early limited protection in the months before a vaccine tailored to the pandemic strain of the virus could be developed and produced.
- Efficacy is poor - 48 - 50% after two injections.
- The vaccine has been purchased by the federal government for inclusion within the U.S. Strategic National Stockpile for distribution by public health officials if needed.
  - Manufactured in Swiftwater, Pa.

Antivirals

- Tamiflu (Oseltamivir) approved 1999, made by Roche.
  - Neuraminidase (N) inhibitor, preventing the virus from penetrating the respiratory cells.
  - Things to consider if you decide to pursue it for staff:
    - Employees, families? Who pays?
    - Stockpile? Distribute now?
    - Ethical, moral and legal issues for companies who decide to use it.
- National Infrastructure Advisory Council (NIAC) report - Jan 2007
  - www.dhs.gov/xlibrary/assets/niac/niac-pandemic-wg_v8-011707.pdf
- CDC is sending signals that they will likely *"strongly encourage"* employers to "stockpile" antivirals.
  - An antiviral statement is expected by the end of summer.

Community Strategy for Pandemics

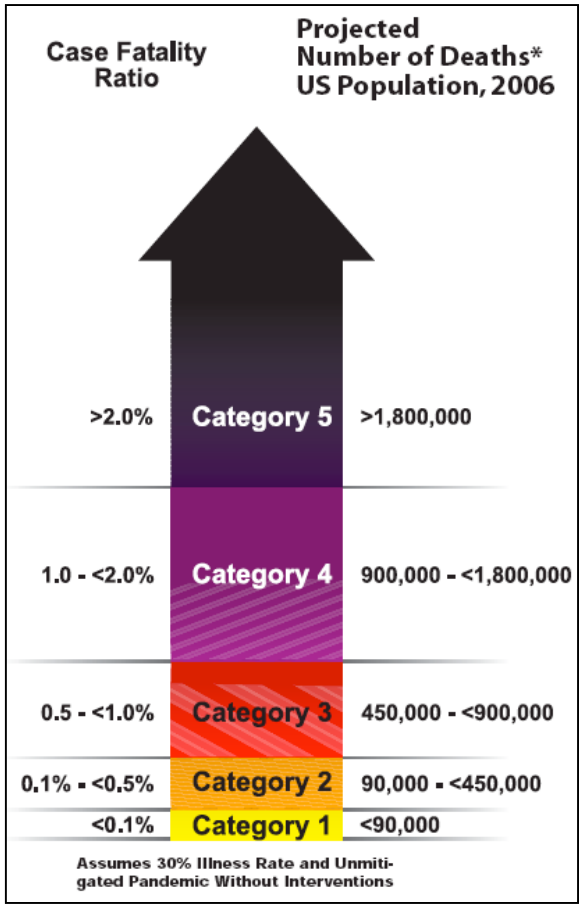


January 2007

http://www.pandemicflu.gov/plan/community/community_mitigation.pdf

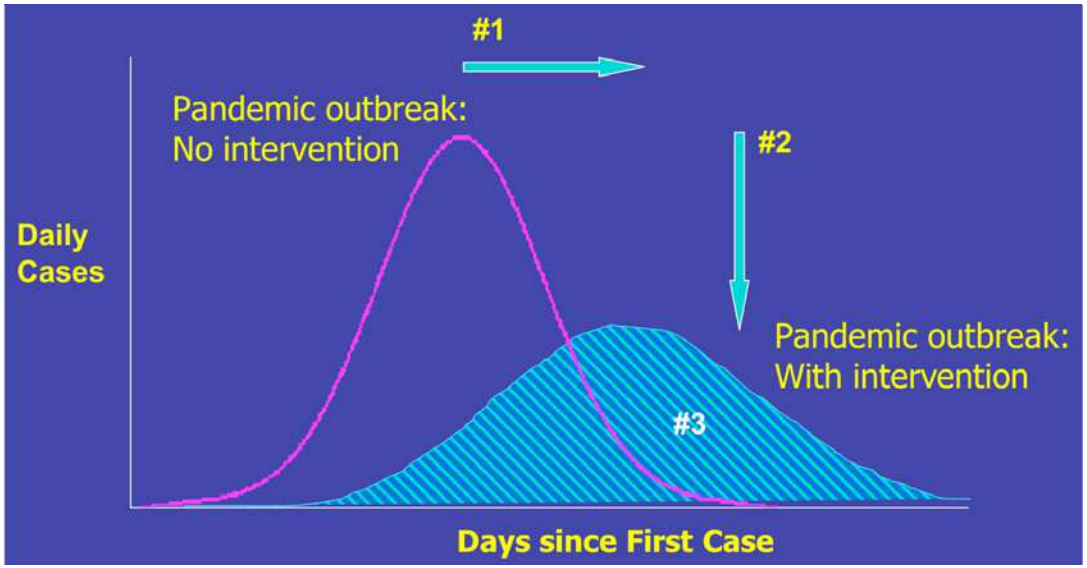
Pandemic Categorization

- Based on Hurricane ratings but using case-fatality ratios (deaths)
  - Category One - CFR of less than 0.1%
  - Category Two - CFR 0.1% to 0.5% (1957 and 1968)
  - Category Three - CFR 0.5% to 1%
  - Category Four - 1% to 2%
  - Category Five - 2% or higher (1918)
- Estimated school closures in the first wave
  - Category 2 & 3 - Up to 4 weeks
  - Category 4 & 5- Up to 12 weeks



Community-Based Interventions

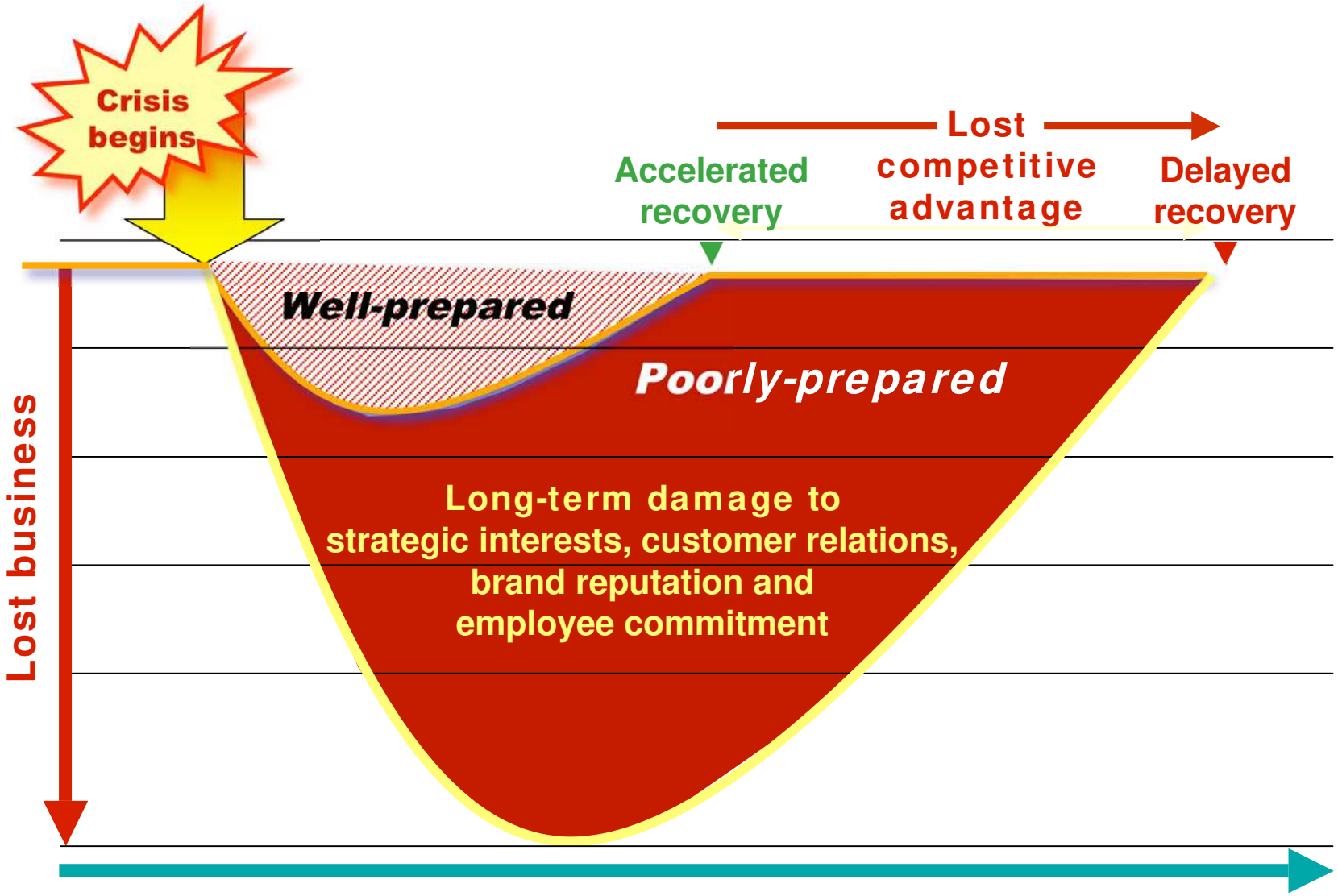
1. Delay outbreak peak
2. Decompress peak burden on hospitals & infrastructure
3. Diminish overall cases and health impacts



Building a Resilient Organization

- The good news…
  - **All** of the pandemic planning will make your organization a much more resilient organization.

Capture the competitive advantage by acting now



Dave Kieffer, Mercer Consulting

Planning Assumptions

1. 30% absenteeism of staff, vendors, services within the community such as health care, police, fire, etc.
2. The pandemic may last as long as eighteen months in three separate waves; mortality and morbidity will increase and decrease in spurts.
    1. The first three to four months (90-120 days) will likely produce the greatest deaths and illnesses.
3. Critical functions carried out by contractors, consultants and vendors cannot be guaranteed.
4. Civil society infrastructure will be stressed, but remain functional.
5. Potential closure of gathering places in the community including schools, churches, events, malls, etc.

Planning Assumptions

6. Will likely have less than six weeks of warning from the time the pandemic is announced before it reaches the United States.
7. No remedies will be immediately available. Tamiflu and other antivirals will be in very limited supply.
    1. Vaccinations will take 9-10 months and antibiotics are only for the treatment of a secondary bacterial infection.
8. Current WHO Alert Levels do not provide any indication regarding the time interval between levels.
    1. Current thinking among experts is that while it may take a significant amount of time for a virus to reach Alert Level 4 (small clusters of human to human viral spread), the time interval between Alert Levels 4, 5 and 6 may be rapid (ranging from days, to weeks, to months).
9. Phases One - Three are planning; Phases Four - Six execution.
10. Susceptibility will be universal.

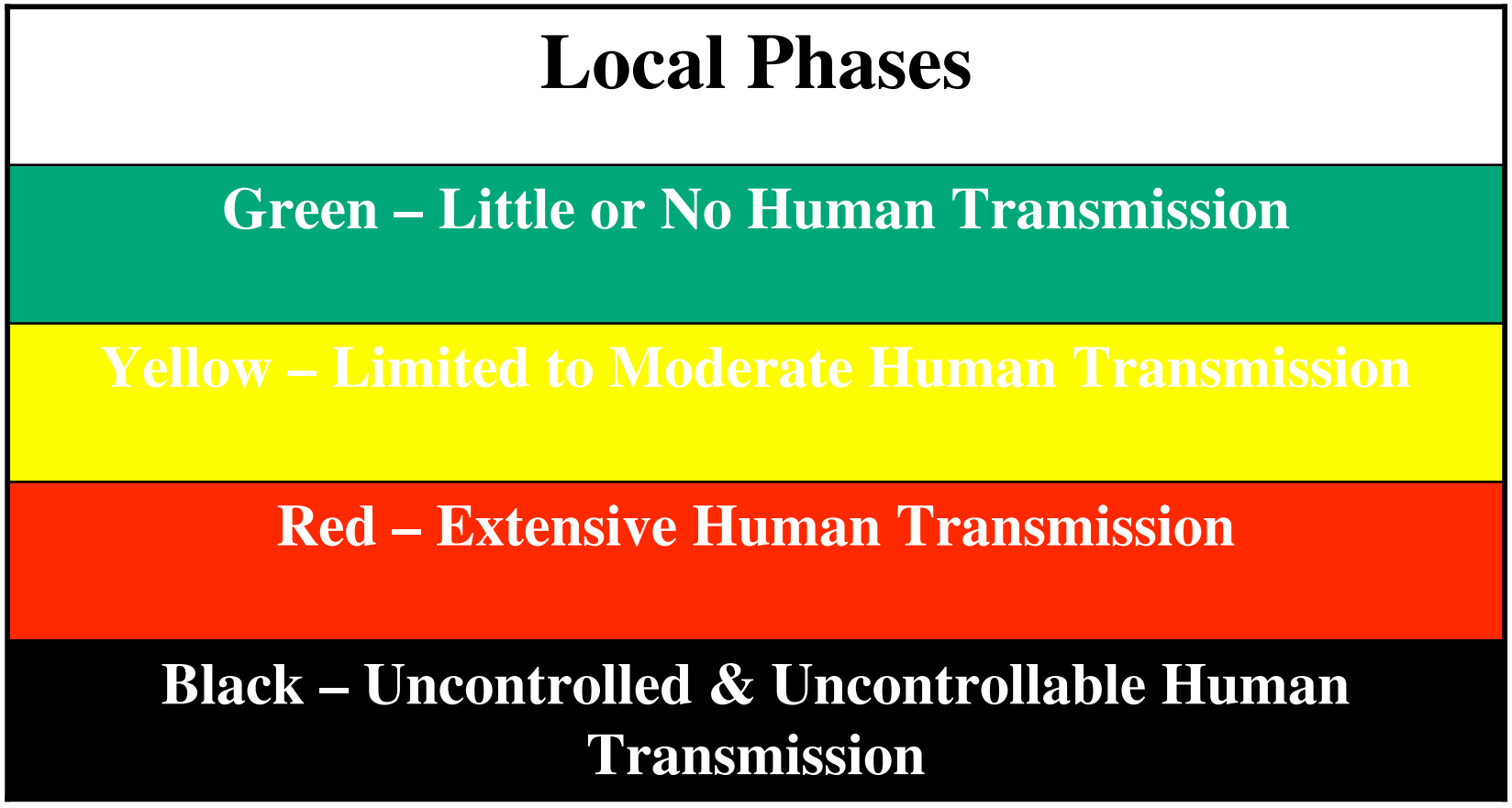
Planning Triggers

WHO Phases

- ***Phase 1 & Two*** *No new influenza virus* subtypes have been detected in humans.
- ***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*.
- ***Phase 5.*** Larger cluster(s) but human-to-human spread *still localized*,
- ***Phase 6***. *Pandemic*: increased and sustained transmission in general population.
  - Pandemics usually last approximately 18 months
  - The first 90 - 120 days are likely to be the most deadliest.

Plan Execution Triggers

Plan Globally Act Locally



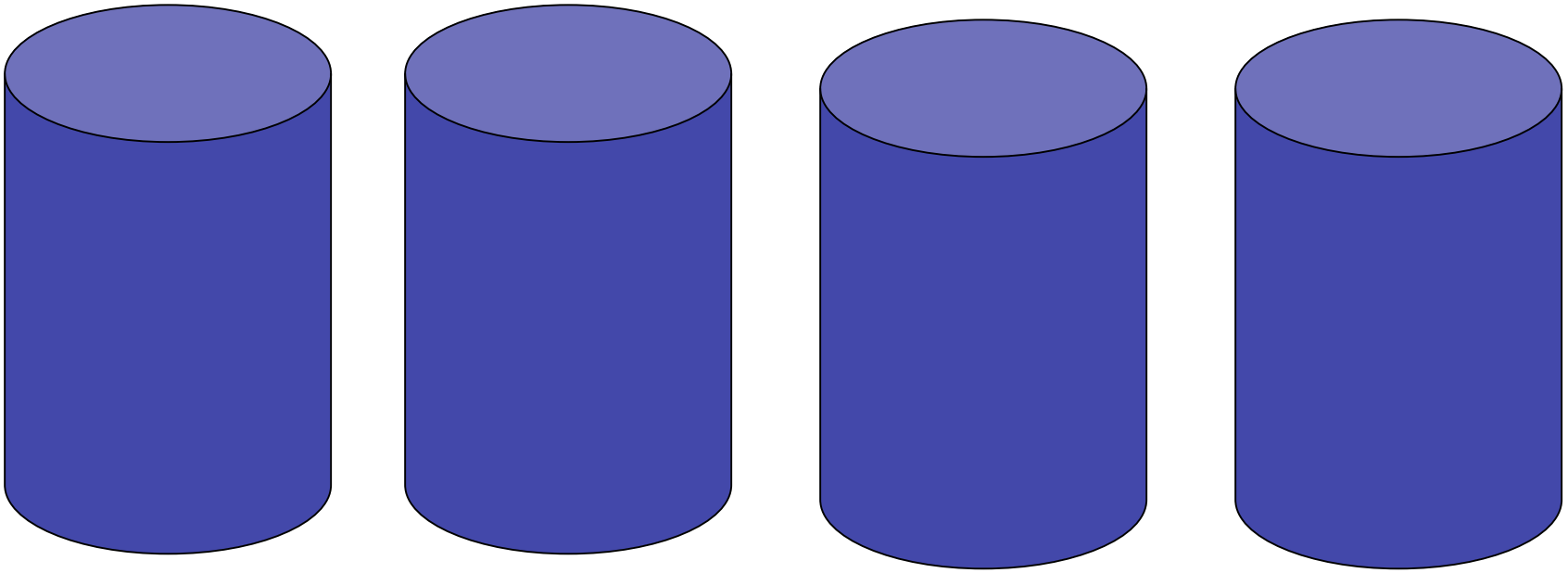
It Takes A Village…
At Least A Task Force

Develop A Task Force

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

Challenges You Need to Plan For…

Human Resources



Category One
"Must" be @ work

Category Two
"Must" work & can work @ home

Category Three
Can work @ home but not essential

Category Four
Not essential- no need for them to work

Human Resources

- Category One:
  - Social Distancing
  - Masks
  - Health education on handwashing
  - Spread people out on different shifts to spread them out
  - Employee cleans area frequently
  - Eliminate all face-to-face meetings

Human Resources

- Category Two: install a robust work from home program
  - Broadband connection
  - Company sponsored computer and all necessary peripherals
  - Work from home at least one day a month
  - Demonstrate in advance that can work from home
  - Desktop support for the home

Human Resources

- Category Three and Four:
  - How long do you pay those who aren't working?
    - Pay partially?
    - How long do you continue benefits?
- Other HR issues
  - What if they refuse to come to work?
  - What if a family member is sick but the employee is well - do you have them come in?
  - If a person comes down with the flu after being at work it is a workers comp issue?
  - What if schools are closed?

Personal Protective Equipment (PPE)

- Should you wear PPE?
  - When
  - Why?
- Gloves
  - Latex
  - Nitrile
- Masks
  - N95
  - Surgical masks

Masks

CDC guidelines on masks:

- Masks "could" be helpful.
- People should consider wearing a facemask during an influenza pandemic if …
  - They are sick with the flu and think they might have close contact with other people < 6 ft.
  - They live with someone who has the flu symptoms (and might be in the early stages of infection) or will be spending time in a crowded public place and thus may be in close contact with infected people.
  - They are well and do not expect to be in close contact with a sick person but need to be in a crowded place.

Travel

- Do you restrict travel?
  - If so, when?
- Can you make travel safe?
  - PPE
- What about personal travel?
- Strategies could include:
  - Home quarantine for 10 days
  - Work from home

Jet Travel to Avoid?

Travel

- What if a countries borders are closed?
- Do you have a relationship with an international medical provider?
  - How do you conduct a:
    - Medical evacuation?
    - Evacuation of remains?

Communication

- Communication is essential
- Identify your stakeholders…then…
  - How to communicate (what tools)?
  - How often?
  - To whom?
  - What is the message?
  - When to communicate?
  - Who does the communicating

Communication

- Update employee information including all forms of home contact - home cell, home email.
- Develop strategies if the phones are overloaded
  - Text messaging (SMS)
  - Voice over Internet (VoIP) www.skype
  - Instant messaging

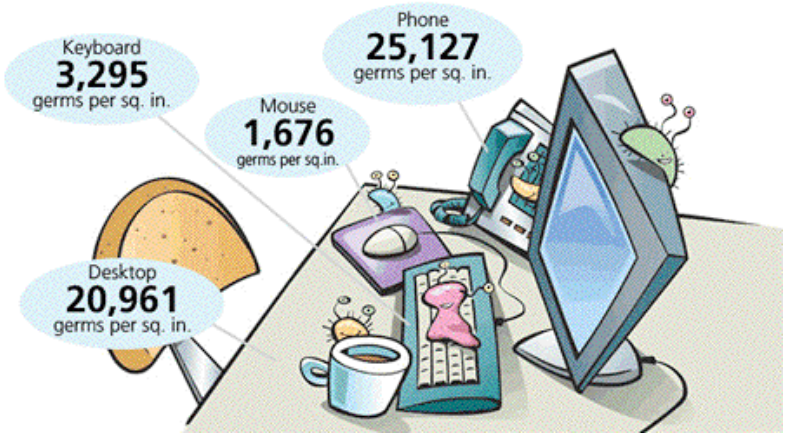
Security

- Visitor restrictions:
  - When?
  - How?
  - Exceptions?
  - Who can authorize?
- Visitor/vendor screening:
  - When?
  - How?
- Training
  - PPE

Facilities

- HVAC system
  - How often to change filters
  - Changing filters
  - How much recycled air?
- Janitorial
  - Cleaning procedures
  - PPE
  - Disinfectants

Infection Control at Work



- Cleaning work areas
  - What are the top four germy office work areas?
- What type of cleaning agents?

Hand Sanitizers

- Work by stripping away the outer layer of oil on the skin.
  - Must be at least 60% alcohol.
- 99.9% effective
  - Not exactly, tested on inanimate objects, not human hands.
  - Good alternative when you can't wash your hands but NO substitute for good hand washing.

Purchasing

- Procure necessary equipment: masks, antiseptic solutions, hand gel, gloves
- Supply chain analysis - where do your critical supplies come from?
  - What if ports are closed 90 - 120 days?

Risk Management

- Insurance
  - Do you have coverage?
  - If not, do you need/want to acquire it?
- Assess impact to company
  - Do modeling showing reductions in revenue by 10-20-30% for 90-120 days; up to 18 months.

Incident/Crisis Management Team

- Virtual EOC (VEOC)
  - Conference bridge (less than ideal)
  - Web meetings (better option)
  - Look for new developments in the near future
- Succession planning
  - For the Incident/Crisis Team
  - Senior executives

THANK YOU!

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