

危機

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The Transportation Sector – America's Critical Infrastructure and Pandemic Influenza

June 11, 2009



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Agenda

- The current pandemic status
- Developing a pandemic plan
 - Non-Pharmacological Interventions
 - Administrative Controls
 - Environmental Controls
 - Engineering Controls
 - Personal Protective Equipment
 - Pharmacological Interventions

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Current Pandemic Status

- H1N1
- H5N1



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CDC Summary

- It's uncertain at this time how serious or severe this novel H1N1 virus will be in terms of:
 - How many people infected will develop serious complications or die.
 - How this new virus may affect the U.S. during its upcoming influenza season in the fall and winter.
- Because this is a new virus, most people will have little or no immunity against it, and illness may be more severe and widespread as a result.
- In addition, currently there is no vaccine to protect against this novel H1N1 virus.
- CDC anticipates associated with this new virus that there will be:
 - More cases.
 - More hospitalizations.
 - More deaths.

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H5N1 Update



- Remains a threat.
- 80th case reported in Egypt
- Eight cases of H1N1 reported in Egypt
 - Start praying now that they don't link up

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Why is influenza so different?

- 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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Pandemic Plan Strategies

- There are basically two strategies to consider when developing your plan:
 - Non-Pharmacological Interventions
 - Pharmacological Interventions

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Non-Pharmacological Interventions

- Administrative Controls
- Environmental Controls
- Engineering Controls
- Personal Protective Equipment



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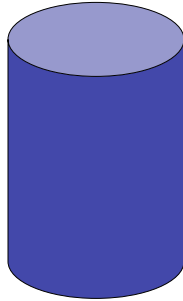
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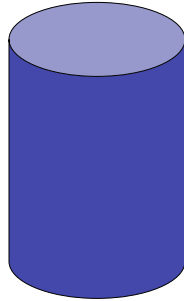
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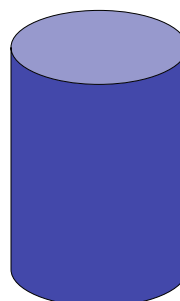
Administrative Controls - Human Resources



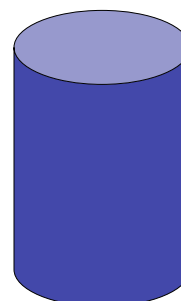
Category One
Essential & “must”
be @ work



Category Two
Essential &
“must” work
BUT can work
remotely



Category Three
Can work
remotely but not
essential



Category Four
Not essential- no
need for them to
work at this time

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Human Resources

- Essential staff who must be work (Category 1):
 - 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
 - Antivirals?



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Human Resources

- Essential staff but can be remote: install a robust work from home program (Category 2):
 - High-speed 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
 - Plan for what to do if working remotely fails

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Human Resources

- Not essential to work (Category 3 and 4):
 - 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?

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Expatriate Employees & Families



- Employees abroad - Do you bring them back?
 - When?
 - Families earlier?
- Employees in US – When do you send them back?
- What if they want to come back and you don't think it is appropriate?

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Stricken Employees/Customers at Work



- How to handle a sick employee/customer at work
 - Mask
 - Isolate
 - Trained responders at work
- What if 9-1-1 doesn't come?

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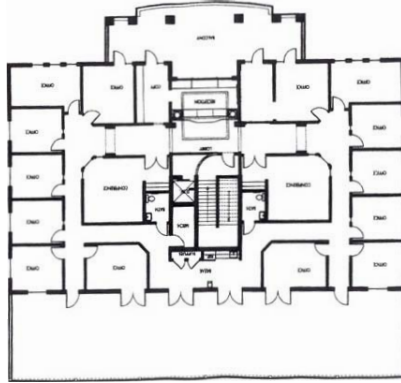
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Administrative Controls - Social Distancing



- Develop guidelines for social distancing.
 - Floor plans for spreading staff out at least six feet from each other.
 - Look at shift work.

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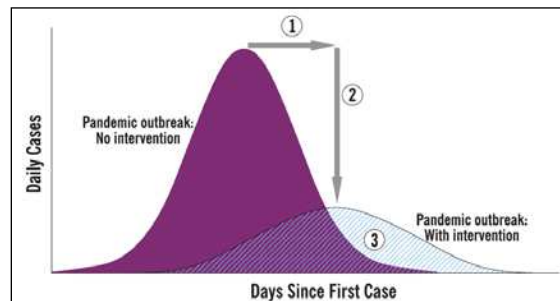
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Community-Based Interventions - The Impact of Social Distancing



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

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Administrative Controls - 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
- What if a countries borders are closed?
- Do you have a relationship with an international medical provider?
 - Medical evacuation
 - Evacuation of remains

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Administrative Controls - Communication

- Communication plan including template communications, strategies and tools.
- Update employee information including all forms of contact
 - Work and personal cell, office and personal email
- Develop strategies if the phones are overloaded
 - Text messaging
 - VoIP ([www.skype](http://www.skype.com))
 - Instant messaging ([skype](#), [yahoo](#), [aol](#))

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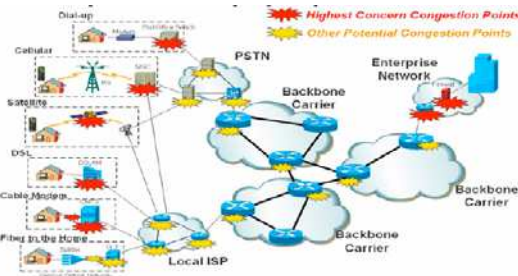
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DHS Study: Pandemic Influenza Impact on Communications Networks



- Page 4: Telecommuters – “Employees who plan to telecommute during a pandemic and are truly critical to business operations should not rely on best effort, residential Internet access.”
 - Released December 2007

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Administrative Controls - Security



- Visitor restrictions:
 - When?
 - How?
 - Exceptions?
 - Who can authorize?
- Visitor/vendor screening:
 - When?
 - How?
- Training
 - Personal Protective Equip.
 - Procedures

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Administrative Controls - Education

- Influenza Basics
- Workplace cleaning
- Hand washing technique
- “Cover Your Cough” campaign
- Polite social distancing
- Stay Home if you are sick policy
- Virtual meeting techniques and strategies
- Strategies to minimize face to face contact with customers



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Examples of Other Responses

- UK
 - Catch It, Bin It, Kill It
 - Dirty Bertie



NHS

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Administrative Controls – Seasonal Flu Programs

- Every year in the United States,
 - 5 to 20 percent of the population will get the flu
 - 200,000 people will be hospitalized from flu complications
 - about 36,000 will die
- Seasonal flu programs:
 - Seasonal flu vaccinations
 - Health education
 - Company seen as part of the solution
- Seasonal flu programs will likely result in lowered insurance costs, decreased company costs and increased employee productivity.



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Engineering Controls - HVAC

- HVAC system
 - How often to change filters
 - Changing filters
 - How much recycled air?



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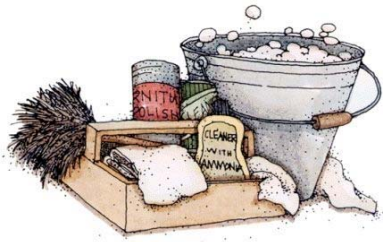
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Environmental Controls - Janitorial



- Janitorial
 - Cleaning procedures
 - Disinfectants that match the surface needs.
- Virus survival:
 - Virus lives on hard non-porous surfaces > 24 hours
 - On porous surfaces 24 - 48 hours
 - Swiss banknotes up to 17 days!

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Environmental Controls - Janitorial



- Surface cleaning and disinfecting
- **High Touch Areas and surfaces** require increased frequent and more intense cleaning
 - Doorbells
 - Intercoms
 - Handrails
 - Door handles
 - Elevator buttons
 - Steering wheels
 - Common controls (levers, buttons)

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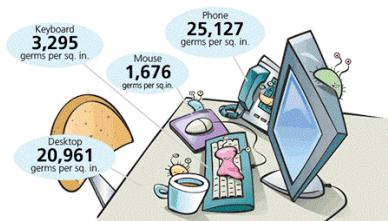
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Environmental Controls - Infection Control at Work



- Cleaning work areas
 - What are the top four germiest office work areas?

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Environmental Controls - 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.

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Personal Protective Equipment (PPE)



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

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PPE - Facemask Recommendations

- Encourages employers to stockpile respirators and facemasks so they can protect employees during a pandemic.
- Discusses various types of respirators and facemasks available for use.
- Provides estimates of the quantity of N95 respirators and/or facemasks employers should stockpile.



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PPE - Tool to Estimate Mask Use

Occupational setting	Proportion of medium or higher risk employees	Number of respirators or facemasks per employee per work shift		Number of respirators or facemasks per employee for a pandemic (120 work days)	
		N95 Respirators (high or very high risk)	Facemasks (medium risk)	N95 Respirators (high or very high risk)	Facemasks (medium risk)
Healthcare					
Hospital	67%	2	0	240	0
Outpatient office/clinic	67%	4	0	480	0
Long term care	25%	1	3	120	360
Home healthcare	90%	2	4	240	480
Emergency medical services	100%	8	0	960	0
First responders					
Law enforcement	90%	2	2	240	240
Corrections	90%	1	3	120	360
Fire department (non-EMS, career and volunteer)	90%	2	2	240	240
Medium risk employees	NA	0	2	0	240

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Pharmacological Interventions

- Vaccination
- Antiviral Prophylaxis and Therapy

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Vaccinations



- The best method of preventing and reducing the impact of the flu on the population is the timely development, distribution, and administration of influenza vaccine
- Key target groups for **seasonal** influenza include persons at increased risk for complications:
 - Health care workers
 - People 50-64 years
 - Children 6-23 months
 - Pregnant women

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Pandemic Vaccinations



- The Federal Pandemic Plan advocates pandemic vaccination for:
 - Those essential to the pandemic response and provide care for persons who are ill.
 - Those who maintain essential community services.
 - Children.
 - Workers who are at greater risk of infection due to their job.

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Pre Pandemic and Pandemic Vaccines

- Pre-pandemic vaccines (H5N1)
 - Could provide earlier protection
 - Won't match pandemic flu strain exactly
 - First shots given before a pandemic
 - Likely to require 2 doses 21 days apart
- Pandemic vaccine best option
 - Directly matches circulating flu strain
 - Up to 6 months to develop
 - May require 1 dose or 2 doses 3-4 weeks apart

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Antiviral Therapy



- Two antivirals are being used for treatment in H5N1:
 - Tamiflu (Osetamivir) - Roche.
 - Relenza (Zanamivir) - GlaxoSmithKline
- These drugs work as a Neuraminidase (N) inhibitor
 - Prevent the virus from spreading in your body.
- Questions to consider:
 - How is it administered?
 - What is the shelf life?
 - Prophylaxis vs. Treatment?
 - How to set up a program?

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Proposed Considerations for Antiviral Drug Stockpiling by Employers In Preparation for an Influenza Pandemic

Draft Guidance for Stakeholder Discussion

The "Proposed Considerations for Antiviral Drug Stockpiling by Employers in Preparation for an Influenza Pandemic" was developed by a Federal working group to provide information to employers to inform planning and implementation decisions on antiviral drug stockpiling and, if drugs are stockpiled, to assure that they are maintained and used optimally.

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Potential Role of Antivirals in a Pandemic

- The WHO recommends antivirals for the prevention of the spread of pandemic influenza disease through household contacts.
- The CDC encourages the private sector to consider stockpiling in advance of a pandemic as part of comprehensive pandemic planning program.
- Mathematical modeling suggests that antivirals could delay the spread of a pandemic influenza virus thus gaining time to augment vaccine supplies.

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Employers and Stockpiling Antivirals

- May elect to stockpile for several reasons:
 - Assure early treatment for those who are ill.
 - Provide pre-exposure prophylaxis for employees.
 - Probably occupational exposure/risk to ill persons
 - Essential to business operations
 - Certain critical infrastructure workers and/or
 - All workforce
 - Provide post exposure prophylaxis following household or workplace exposure.
 - Protect overseas employees and operations.

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Key issues in Antiviral Stockpiling

- Plan for collaboration with state and local health departments
- Comply with State dispensing laws.
- Consider the ethical and equity concerns.
- Develop a stockpiling and dispensing model
 - Utilize existing health care providers or pharmacy's
 - Contract with a wholesale drug distributor
 - Stockpile onsite
 - Dispense pre-pandemic
- Educate employees and families

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THANK YOU!

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