



PANDEMIC INFLUENZA: A Planned Approach to a Novel Virus

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Quality Health Care Foundation
Really Ready Too!
Disaster Preparedness Conference

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Outline

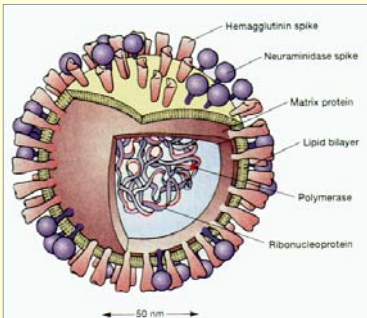
Overview
Containment
Sustainment
Communication

- Overview of a Pandemic
 - Definition
 - Seasonal vs. Pandemic flu
 - H1N1 Update
- Containment Strategies
 - Surveillance and Detection
 - General Infection Control
 - Non-pharmaceutical Containment
- Sustainment Strategies
 - Supplies
 - Staffing Strategies
 - Surge Capacity Planning
- Communication
 - Incident Command Systems (SEMS, NIMS, ICS)
 - Internal and External Facility Communication
 - Risk Communication Strategies

Overview of a Pandemic

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Viral Influenza



We identify a viral influenza by the “H” and “N” proteins

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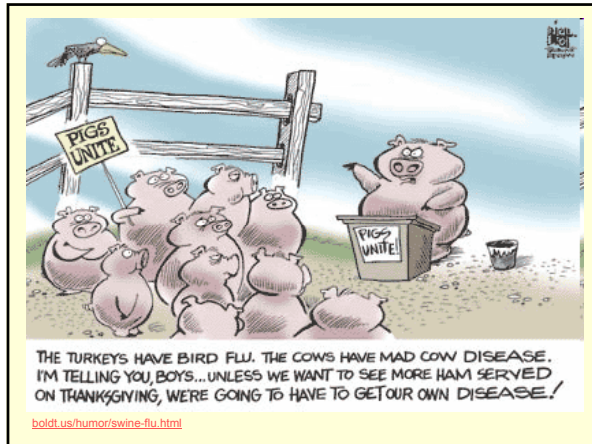
Seasonal Flu vs. Pandemic Flu

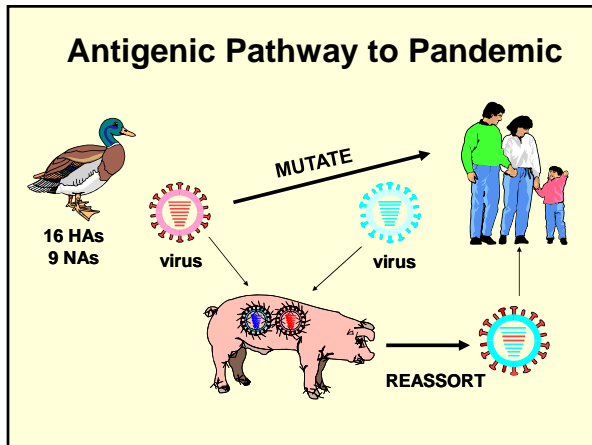
Both bad, probably similar
But we are *naive* to pandemic
(defenseless)

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Burden of Seasonal Influenza

- Globally: 250,000 - 500,000 deaths each year
- U.S.: 36,000 deaths each year
- 200,000 hospitalizations/year
- \$37.5 billion in economic costs from influenza and pneumonia





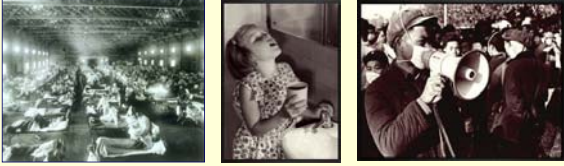
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Defining a Pandemic

- Worldwide outbreak of disease
- Rapid spread among humans
- VERY dangerous: major morbidity, mortality
- Potential to overwhelm society
- Origin may be influenza type H5N1 or H1N1, spread from a mutated form of avian (bird) flu or re-assortment from current swine flu
- Concern about H1N1 → resembles influenza virus of 1918

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We are Overdue



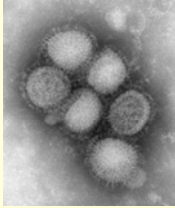
Source: US National Museum of Health and Medicine

- Pandemics occur in cycles: 1918-1919 (Spanish- H1N1)
1957-1958 (Asian – H2N2)
1968-1969 (Hong Kong – H3N2)
- Since 1969 there have been ten events with "Pandemic Potential"
- H5N1 ("avian flu") has been tracked by WHO since 1997
- H1N1 ("swine flu") has been identified in more than 170 countries since it was first characterized in April 2009.

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Update: H1N1

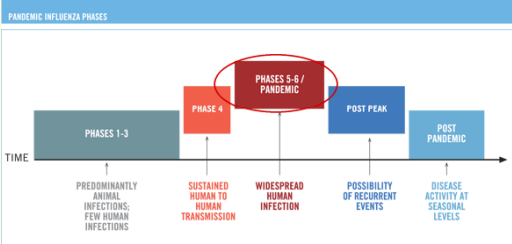
- In the United States:
 - 7,511 Hospitalized Cases*
 - 477 Deaths*
- Internationally
 - Total identified cases: 177,457
 - Total deaths: 1462



*as of 8/14/09 11am; <http://www.cdc.gov/h1n1flu/update.htm>

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WHO Pandemic Phase 6



WHO pandemic flu global alert and response 8/15/09
http://www.who.int/csr/disease/avian_influenza/phase/en/index.html

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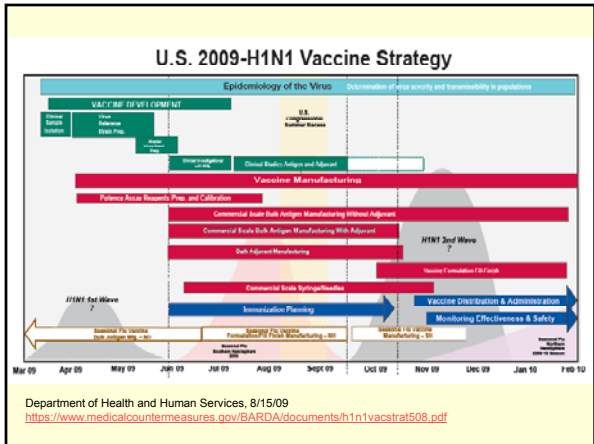
Symptoms

- **Typical flu symptoms**
 - Fever, chills
 - Muscle aches, malaise
 - Respiratory symptoms** (cough, sore throat)
- **H1N1 Atypical symptoms**
 - Significant respiratory distress
 - Flash pulmonary edema**
- **H5N1 Atypical symptoms**
 - Hemorrhaging of the gums, lips, nose, mucosal areas
 - Neurological impairment
 - GI symptoms (diarrhea, nausea, abdominal pain)**

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Vaccine Update: H1N1

- Vaccine is currently under development, to be ready in October 2009
- Priority groups:
 - Pregnant women
 - Health care workers and emergency medical responders
 - People caring for infants under 6 months of age
 - Children and young adults from 6 months to 24 years
 - People aged 25 to 64 years with underlying medical conditions (e.g. asthma, diabetes)
- Combined, these groups would equal approximately 159 million individuals.



Vaccine

- Ideal for prevention
- LIMITATIONS:
 - It is impossible to adequately prepare beforehand if the virus re-assorts
 - Elderly and those with compromised immune systems are NOT on the priority list

Antivirals

- Oseltamivir (“Tamiflu”)
- Zanamivir (“Relenza”)
- LTC can stockpile, following regulations for prescription meds in each type of facility
- Stockpiling: world, nation, state, some local
- LIMITATIONS:
 - By prescription unless a waiver is declared
 - Resistance of H1N1 virus to oseltamivir has been documented.

Other Treatment

- Antibiotics:
 - Major complication of flu is pneumonia, pulmonary edema (increased illness, death)
 - Use broad-spectrum antibiotics to treat
- Supportive Therapy:
 - HYDRATION!
 - Oral, IV, etc.
 - Most critical intervention
 - Oxygen
 - Ventilators (if available/necessary)
 - Other medications: pain, cough/cold, anti-diarrheal




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How do we prepare?

- Surveillance
- Containment/Quarantine
- Sustainment/Surge planning

- Vaccination against seasonal flu
- H1N1 vaccine development
- Stockpiling of Antiviral medications

- National H1N1 Summit July 9
<http://www.flu.gov/plan/2009flusummit.html>



Containment Strategies

Containment Strategies

- Surveillance and Detection
- General Infection Control
 - Worksheets
- Non-Pharmaceutical Containment
 - Isolation
 - Quarantine

Surveillance and Detection

- PREPARING FOR THE PANDEMIC:
 - Keep alert to the news and any announcements from Public Health authorities.
<http://www.flu.gov/>Report any unusual illnesses in your facility to Public Health and follow their guidance.
- DURING THE PANDEMIC:
 - Local Public Health will issue guidelines for reporting cases and conducting surveillance

Infection Control

- Establish Protocols: Containment Strategy Policies within the facility
 - Admissions
 - Limiting or closing the facility to admissions
 - Transfers
 - Determine appropriate policy with acute facilities in the area/harden to avoid transfers to acute care
 - Discharges
 - Discharging to home or lower level of care

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Infection Control Policies Staff and Visitors

- Policies for Staff
 - Consider an in-service on infection control Policies for Staff
 - Infection Control protocol
 - Absentee policies for those with sick family members
 - Fit to work – screening of employees
 - Vaccine and antiviral prioritization within your organization
 - Screening Policy for new admits
 - Use of Negative Pressure
 - Increased acuity and “Sufficiency of Care”
 - Encouraging Infection Control Behavior
 - Use of Personal Protective Equipment
- Policies regarding visitors
 - Precautionary masking (surgical) for visitors, delivery personnel, new admits, others)

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Encouraging Infection Control

- Infection Control Behavior Starts Now
- Make alcohol-based hand rubs widely available in common areas
- Use visuals to remind staff, residents and visitors
 - Cover your cough
 - Sneeze in your sleeve if no tissues
 - Hand hygiene
- Encourage vaccination, as recommended
 - Yearly influenza
 - Pneumococcal

WORKSHEET IV: SAMPLE HAND WASHING POSTER

Hand Washing

 1. Wet hands.	 2. Apply soap.	 3. Lather for 15 seconds. Rub between fingers, back of hands, fingertips, under nails.
 4. Rinse well under running water.	 5. Dry hands well with paper towel or hot air blower.	 6. Turn taps off with paper towel, if available.



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Infection Control for Contaminated Surfaces

- It is critical to clean all surfaces that you suspect could be contaminated by infectious agents
- Increase the frequency of wiping down frequently-touched surfaces such as counters and table tops, door knobs, telephones, TV knobs, computer keyboards, etc
- Consider mechanisms for cleaning “soft”, or porous surfaces such as linens, pillows, furniture coverings and keep these items laundered as much as possible
- Take measures to keep these surfaces clean
- Establish these protocols with your staff
 - Worksheets VII, VIII

WORKSHEET VII: ENVIRONMENTAL CLEANING AND DISINFECTION

Facility Disinfection in Detail—For All Staff

The transfer of bacteria and viruses from surfaces to people occurs when people touch an object and then touch their eyes, nose or mouth. In a pandemic, it is likely that there will be a shortage of cleaning staff, and available staff may be working outside of their regular hours to lessen their exposure risk. Therefore, it may become necessary for other staff to assist with cleaning.

As mentioned on Worksheet III: Overview of Infection Control for Pandemic Influenza, **Influenza can survive:**

- Up to 48 hours on non-porous surfaces (i.e. bedrails, door knobs, TV remotes, pens)
- Up to 12 hours on porous surfaces (i.e. tissues, cloth, linens)

Cleaning Tasks

- Routine cleaning tasks (e.g., vacuuming, floor cleaning, dusting, window cleaning) should be suspended during a pandemic and the focus should be on cleaning surfaces/items that are frequently touched by many people in those areas of the facility where staff are working (not all areas of a facility may be in use during a pandemic).
- Vacuuming and dusting should be avoided during a pandemic to reduce the spread of dust particles that could contain influenza virus.
- If dusting is performed, it should be damp, not dry.
- If vacuuming is performed, it should be done using vacuum cleaners with high-efficiency particulate air (HEPA) filters.
- Persons performing cleaning duties should wear cleaning gloves and should clean their hands after removing gloves.
- Trash from the rooms of residents known or suspected to be infected with pandemic influenza does not need to be handled as biohazardous waste unless it otherwise meets that definition.*

WORKSHEET X: SAMPLE POSTER ON HOW TO CORRECTLY DON AN N-95 RESPIRATOR

General Donning Instructions for N-95 Respirators

The following instructions must be followed **each time** the respirator is worn. Before donning, wash your hands and inspect the respirator to ensure the integrity of the components, including the shell, straps and metal nose-clip.

1. Cup the nosepiece in your hand with the nosepiece at fingertips, allowing the headbands to hang freely below hands.
2. Position the respirator under your chin. The nosepiece should be over the bridge of your nose.
3. Pull the top strap over your head so it rests high on the back of the head.
4. Pull the bottom strap over your head and position it around neck below ears.

Non-Pharmaceutical Containment

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- Measures that you can take to contain the spread of disease within your facility without using pharmaceuticals, vaccines or anti-virals.
 - Social Distancing
 - Self Isolation
 - Isolation and Quarantine
- BEFORE THE PANDEMIC
 - Understand and use infection precautions
 - Learn what you might expect to occur if a pandemic arrives
 - Decide, plan, and practice protocols for non-pharmaceutical containment

Non-Pharmaceutical Containment: Social Distancing

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- Keeping a “social distance” of three feet between the residents
 - Rotate resident time in common areas so areas are not as crowded
 - Place residents at least three feet apart at meal time or during therapy
- Reduce exposure to other persons, whether they are known to be sick or not, wherever possible

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Non-Pharmaceutical Containment: Self Isolation

- Keep sick visitors and staff out of the facility
- Persons who have been exposed to flu, or who reasonably suspect that they have been exposed, should also stay out of the facility

“If you have the flu, or if you think you might have the flu, or if you have been exposed to someone who has the flu (or even if you have been exposed to someone who became ill within two days of your exposure to them), PLEASE STAY OUT. If you MUST enter, please wear a mask, wash your hands frequently, and avoid breathing or coughing/sneezing near anyone else. Please leave as soon as possible.”

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Non-Pharmaceutical Containment: Isolation and Quarantine

- Isolation → limited interaction with exposed or sick persons (persons known to have actual flu)
- Quarantine → limited interaction with those who have been exposed (persons who likely have interacted with someone who has flu)
- If a person enters the facility inadvertently, and finds they are sick after arriving or within two days of leaving, they should let the facility know that the exposure has occurred, and the facility should attempt to quarantine (separate) the exposed persons.

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Quarantine Within Your Facility

- If a definite exposure has occurred in a limited part of the facility, these people should be kept apart from the rest of the population as effectively as possible
 - Cohort sick residents
 - Quarantine roommates who would also have been exposed to the infected individuals

Keeping Precautions in Place

- Most of the precautions should be in place as long as the pandemic lasts (months)
- Seek advice from public health officials
- Assure that food, water, utilities remain available as long as possible before breaking isolation
- Highest priority should be given to preventing the external introduction of the influenza virus into the facility.

Sustainment Strategies

Different From Other Disasters



- Broad impact over geographies, ages, workforces
- Prolonged over weeks/months
- Resources will be decreased while demand for services will be increased

Different From Other Plans

- Build on the existing plan:
 - Disaster Plan/Emergency Operation Plan
 - Infectious Disease Outbreaks
- Add sustainability over weeks/months
- Staffing strategies
- Plan for higher acuity residents and inability to transfer
- Ethical issues

Sufficiency of Care

- Establish Protocols: Sufficiency of Care (Liability)
- “The greatest good for greatest number”
 - Staffing, equipment and resources may be scarce
 - Consult with experts prior to event (medical director, health officer, attorneys)
 - Look at literature for standards, guides, precedents, guidance from feds and state
 - Be ready to have this conversation with your staff
 - Be ready to make hard decisions according to standards and policies

Identify Critical Functions

Providing care to the people that live there is the critical function of every long term care facility



Identify Essential Resources and Services

What must I have to carry out the critical function of resident care?

Financial Infrastructure
Supplies Security
Staff



Supplies

Types of Supplies to Stockpile

- Disaster supplies for all hazards (including food, water, etc.)
- Personal Protective Equipment (PPE)
- Rehydration supplies
- Infection control supplies
- Respiratory care supplies
- Mortuary supplies
- Medications (OTC and antivirals) as allowable under the regulations and reimbursement system

Simple Oral Rehydration Solution
1 TSP salt
4 TBSP sugar
8 Cups of clean drinking or boiled water and then cooled

WORKSHEET IV: SUGGESTED PANDEMIC SUPPLY LIST (IN ADDITION TO YOUR GENERAL DISASTER SUPPLIES)

<p>General infection control supplies</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hand hygiene supplies (antimicrobial soap and 70% alcohol-based, waterless hand hygiene product) <input type="checkbox"/> Facial tissues <input type="checkbox"/> Paper towels <input type="checkbox"/> Heavy duty garbage bags <input type="checkbox"/> Facility disinfectants (see Worksheet X) <input type="checkbox"/> *Positive air purifying respirators (PAFRs) or other equivalent <p>Personal Protective Equipment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Disposable N-95 respirators and surgical masks <input type="checkbox"/> Face shields or goggles <input type="checkbox"/> Gowns <input type="checkbox"/> Gloves <p>Respiratory care equipment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Portable oxygen <input type="checkbox"/> Regulators and flow meters <input type="checkbox"/> Oxygen and ventilator tubing, cannulas, masks <input type="checkbox"/> Suction kits <input type="checkbox"/> Tracheotomy <input type="checkbox"/> Vacuum gauges for suction and portable suction machines <input type="checkbox"/> Ventilators <input type="checkbox"/> Manual resuscitators (bag-valve mask) <p>Medications (consider stocking at 4-week supply)</p> <p>Over the Counter</p> <ul style="list-style-type: none"> <input type="checkbox"/> Nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen 200mg-pill and liquid forms <input type="checkbox"/> Acetaminophen (pill, suppository, liquid) <input type="checkbox"/> Vasopressor such as diphenhydramine 25 mg 	<p>Food-type supplies</p> <ul style="list-style-type: none"> <input type="checkbox"/> Table salt <input type="checkbox"/> Sugar <input type="checkbox"/> Baking soda <input type="checkbox"/> Coffeinated tea <input type="checkbox"/> Bullion <input type="checkbox"/> Pedialyte or similar (for children) <input type="checkbox"/> Gatorade or similar (for adults) <input type="checkbox"/> Clean water <p>Mortuary supplies</p> <p>See Allied Std. of Care/Class Fatality Care section</p> <ul style="list-style-type: none"> <input type="checkbox"/> Morgue packs <input type="checkbox"/> Plastic tarps (temporary screen, floor protection) <input type="checkbox"/> Heavy rubber gloves <input type="checkbox"/> Heavy rubber boots <input type="checkbox"/> Unscented bleach or dry bleach used for swimming pool maintenance <input type="checkbox"/> Bins <input type="checkbox"/> Mops <input type="checkbox"/> Buckets <input type="checkbox"/> Cloths <input type="checkbox"/> Labels or tags (for identification of the deceased) <input type="checkbox"/> 20lb/person sufficient to embalm 10% of your expected census of common roadway lot <input type="checkbox"/> 20lb/person sufficient to embalm 10% of your expected census of quick lime <p>Other supplies</p> <ul style="list-style-type: none"> <input type="checkbox"/> Beds <input type="checkbox"/> Stretcher/gurneys
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Staff Preparedness!



Your Staff: Preserve Them

- Infection Control
- Priority for Immunization
- Antiviral for treatment, prophylaxis
- Liberalize absentee policies
- Training about being prepared
- Communication

Occupational Health

Influenza-Like Illness Screening Form

Ask the ill person if they have any of the following symptoms:

- Fever (feels feverish and hot)
- Headache
- Fatigue or weakness
- Sore throat, cough, or difficulty breathing
- Muscle or joint aches or pains

During a pandemic, ill persons with any of the above symptoms should be considered a suspect case of pandemic influenza.

Occupational Health Policies

- PPE – who gets/what type/how much?
- Work from home
- Self assess before reporting to work
- Symptomatic employees at work
- High risk employees
- “Fit to Work” standards

Your Staff: Support Them

- Consider your staff and volunteers beyond their role as your employee:
 - Strongly encourage them to develop a **PERSONAL DISASTER PLAN** for themselves/their families
 - Staff either won't show up, will leave, or won't be focused on their work if they are worried about their families
 - Acknowledge barriers and do what you can to help

User-Friendly Personal Preparedness Resources

- An easy to follow web-based family planning resource from San Francisco—very user-friendly: www.72hours.org
- A wonderful resource with easy forms you can fill in to create your plan. Click on “Emergency Preparedness Guide” and use “Make a Plan” and “Prepare a Kit”:
www.emergencypreparednessweek.ca

Surge Planning for a Pandemic

- Number of hospitalizations and deaths will depend on virulence
- Pandemic fatality rate assumed at 50%
- For all health facilities, guidance and checklists published at <http://www.flu.gov/plan/healthcare/>



Surge Capacity

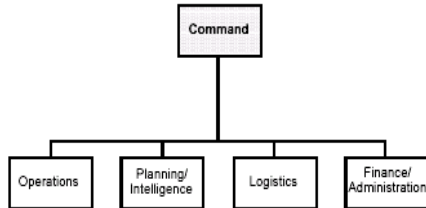
- The ability of a health care system to rapidly expand beyond normal service capacity to meet the increased demand for medical care and public health services that would be required to care for patients in the event of a large-scale public health emergency or disaster.
- Needed resources include:
 - Beds.
 - Personnel to staff the beds.
 - Equipment.
 - Ability to transport victims and personnel
 - Ability to provide ongoing care.

Surge Capacity: How will LTC facilities be involved?

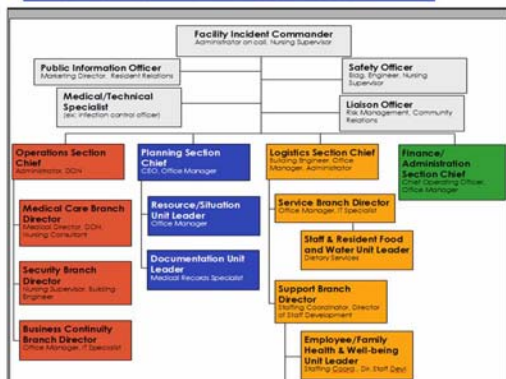
- National Hospital Available Beds for Emergencies and Disasters System (HAvBED)
 - National real-time hospital-bed tracking system to address surge and transfer of patients
 - Testing in Academic Centers nationwide
- Reopening Shuttered Hospitals
 - AHRQ investigating how to use a closed or partially closed facility to expand capacity
 - Development of a surge toolkit and facilities checklist
 - <http://www.ahrq.gov/research/shuttered/>
- Rocky Mountain Regional Care Model for Alternative Care
 - Allows state and local officials to quickly locate alternative care sites
 - Particularly important for LTC facilities
- Project XTREME
 - Interactive cross-training program to teach non-respiratory therapy professionals how to provide basic respiratory care in a public health emergency

Incident Command System

- Used for the command, control, and coordination of resources during an emergency at any SEMS level



WORKSHEET XVI: MODIFIED HICS ORGANIZATIONAL CHART—INCIDENT MANAGEMENT TEAM FOR LTC



Principles in Risk Communication

- Messages should be accurate, relevant, simple, fast, frequent and consistent
- Develop a communications plan before the pandemic
- Work with local public health (before and during) to ensure consistency
- Be the first source of information about what is happening in your facility

Principles in Risk Communication

- Express empathy early and often
- Show competency and expertise
- Be honest and open
- Use the same spokesperson (or a minimum # of spokespeople) throughout
- Schedule regular briefings even when there is little new information

Additional Resources

- www.cahf.org/public/dpp/cahf_dpp.php - Download a copy of The "Pandemic Influenza Workbook for Long Term Care" and other disaster planning resources
- ahrqpubs@ahrq.hhs.gov - Order a copy of the Emergency Preparedness Atlas for US Nursing Homes and Hospital Facilities (a CD available through the Agency for Health Research and Quality).
- www.who.int – Updates on H1N1
- www.flu.gov – LTC Checklist for preparedness

Thank you!

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