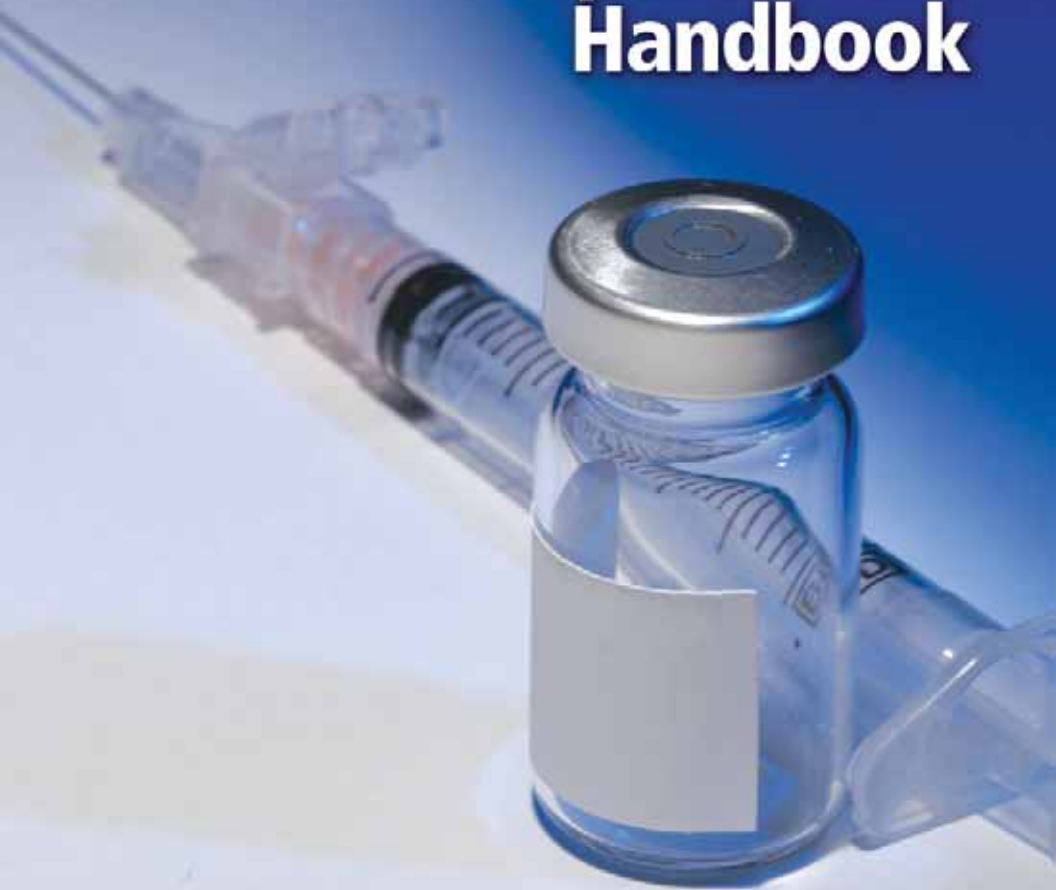


SPECIAL REPORT

Homeland Defense

JOURNAL

The Pandemic Preparedness Handbook



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January 1, 2007

To: Corporate, government and international
emergency response and public health planners

Subject: Pandemic Readiness Handbook

In March, 2002 the Homeland Defense Journal was published as a PDF downloadable magazine. We were in our third month of production. As you may recall we were still in the midst of anthrax breakouts in Florida and Washington, D.C. The nation was deeply concerned. Also in March of that year, we started a three part series written by a team of medical and public health officials in Miami-Dade based on their experiences with anthrax and the development of their response plan.

Response to this series of reports was overwhelming. Over 160,000 people downloaded each issue. The nation's corporate, government and international leaders were seeking information and advice on how they can effectively deal with the potential of such a horrific scenario.


Today, the nation continues to face danger. Naturally occurring pandemic flu or other virus or a terrorist attack using a bio weapon remain a very real threat.

Over the past two years Homeland Defense Journal has sought to add to this public dialogue and awareness through a series of articles, training courses and conferences on medical mass casualty planning and response. We view these efforts as an important part of our mission. Additionally, we have created a handbook for grants writers seeking grants to support their medical planning and response, we have surveyed and reported on state readiness and have created a handbook for pandemic readiness planners.

This Pandemic Preparedness Handbook was created to provide detailed guidance to government, corporate, and international planners charged with the development of their pandemic readiness and response plan. Don Philpott, Senior Editor of Homeland Defense Journal authored this handbook with input from federal, state and local emergency response and public health managers.

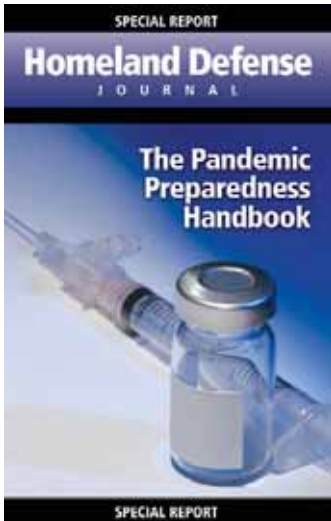
The Homeland Defense Journal will continue its readiness and response planning reporting and training. We encourage your comments and feedback.

Sincerely,



Don Dickson

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PART I

TACKLING THE PROBLEM

“A flu pandemic would cause massive disruptions lasting for months, and cities, states and businesses must make plans now to keep functioning – and not count on a federal rescue.”

– **President George W. Bush,**
May 3, 2006

“I don’t think we have any time to lose. This is the kind of catastrophic thing that has to be on the front burner.”

– **Homeland Security Secretary**
Michael Chertoff

This handbook has been prepared primarily to assist those working in the public health sector and especially those involved in pandemic preparedness planning. However, while the medical and health services will play an important role in preparing for and fighting a pandemic, every sector of society needs to be involved.

A pandemic will impact every aspect of our lives and could cause disruption at home, school, work and play. Businesses have a crucial role to play in pandemic preparedness to ensure continuity of supplies and operations. Families must plan by anticipating sickness, closed schools and cancelled public transportation, as well as job lay-offs and supply shortages. Government at every level must be prepared to step in to keep essential services operating and to ensure that law and order is maintained. Thorough planning will ensure health professionals are prepared to cope with a pandemic and mitigate its effects.

However, it must also be stressed that at no time in history has the global community been better prepared to tackle a pandemic. As President Bush recently said, “By preparing now, we can give our citizens some peace of mind knowing that our nation is ready to act at the first sign of danger, and that we have the plans in place to prevent and, if necessary, withstand an influenza pandemic.

“For the first time in human history, we have a chance to prepare ourselves for a pandemic before it arrives,” said **Dr. Margaret Chan of the World Health Organization.** “It is incumbent upon the global community to act now.”

Introduction

World health experts agree that it is not a question of whether there will be another severe influenza pandemic, but when. The World Health Organization (WHO) warns that such a pandemic is both “inevitable” and “imminent.” While we don’t know whether it is “imminent,” we do know that another pandemic is inevitable if history is our guide. During the 20th century there were four pandemics of varying severity.

In the last year a highly virulent strain of bird flu, which developed in Asia, has steadily spread to the Middle East, Africa and Europe. The fatality rate of this particular strain is more than 50 percent.

Migrating birds and international travelers are all theoretically capable of carrying and spreading the disease, and it is only a question of time before the first avian flu cases are reported in North America.

The morbidity and mortality resulting from a pandemic may far outweigh that caused by a bioterrorist attack. It would strain public health resources to the limit and impact upon every aspect of our lives.

ESTIMATED IMPACT IN THE U.S.

Number of Cases	Doctor Visits	Hospitalizations	Deaths
20-47 million	18-42 million	314,000-734,000	89,000-207,000

Source: DHSS

According to a study by Martin Meltzer of the Centers for Disease Control and Prevention, a flu outbreak similar to the 1968 pandemic where 35 percent of people are attacked by the virus would cost the U.S. alone a total of \$166 billion. He noted that these are “conservative” estimates and do not account for workdays lost due to panic or parents staying home with their children because schools are closed. If the model is based on a 1918-type pandemic “the cost to the world could run into trillions of dollars,” he said. Being prepared for a pandemic and mitigating its effects could save tens of thousands of lives and ensure a speedy return to normality once it is over.

The goal is to slow the spread of a pandemic influenza virus, giving time for the nation to develop protective vaccine. However, the lead-time for producing a new vaccine – up to six months once the

“Coordination at the state and local level is critical and pandemic planning needs to go beyond public health. It needs to address how schools, businesses, public agencies and others participate in pandemic preparedness,”

stressed Department of Health and Human Services Secretary Mike Leavitt.

“Most, if not all, of the medical products or protective-device companies in this country are operating almost at full capacity.

That’s the reality of today’s economy: just-in-time delivery with no surge capacity,”

said Michael Osterholm, Director of the Center for Infectious Disease Research and Policy at the University of Minnesota.

particular strain has been identified – is such that by the time a pandemic is in full swing, there might still not be an adequate supply. It will also be vital to dispense stockpiles of critical medical supplies in order to control the spread of the virus and limit the economic and social disruption that could occur. That is why comprehensive and tested pandemic preparedness planning is essential at the federal, state and local government level.

The devastating impact of Hurricane Katrina proves just how critical preparedness planning is. Federal, state and local government were not prepared and were quickly overwhelmed. Communications were inadequate and failed at every level. Essential equipment and supplies were inaccessible or could not be delivered to where they were needed.

The federal government is committed to expanding national stockpiles of both vaccines and antiviral medications but communities should anticipate that, in the event of multiple simultaneous outbreaks, there might be insufficient medical resources or personnel to augment local capabilities, said Leavitt.

While manufacturers have adequate product to fulfill current demand, there will be shortages if people wait until there is a pandemic before ordering.

What is clear is that, in the event of a large and severe pandemic, while some federal assistance may be available, every community will have to fend for itself with public health officials at the helm. With isolation measures and possibly quarantines and travel restrictions in place, each community will have to rely on the medical supplies and equipment it has managed to stockpile and the personnel it has trained.

How it copes with the pandemic and its aftermath will depend mainly on how thoroughly it has prepared for it. That is why pandemic preparedness planning is so critical and why plans have to be repeatedly tested and reviewed to ensure they effectively meet all needs that may arise.

“You can have all the Tamiflu and respirators in the world, but if you can’t get them to the people who need them, they’re not much good,” said Kim Elliott of the non-profit Trust for America’s Health.

A recent report issued by the Trust for America’s Health (TFAH), a public-health advocacy group in Washington, found that most states are still not prepared to cope with a pandemic flu or other major disease outbreaks.

- 25 states would run out of hospital beds within two weeks of a moderate pandemic flu outbreak
- 40 states face a nursing shortage
- 11 states lack the capability to test for biological threats
- Rates for vaccinating seniors for the seasonal flu decreased in 13 states
- 6 states cut their public health budget last year

Even if supplies can be delivered from the Strategic National Stockpile, only fifteen states and two cities have been granted the government’s “green” status, which means they are “adequately prepared to administer and distribute vaccines and antidotes in the event of an emergency,” said the Trust.

The challenge is twofold. As public health officials, you must have the vaccines and the supplies with which to administer vaccines, such as syringes, etc. There must also be procedures in place to administer vaccines where available and then be able to provide support to the hospitals and healthcare chain once the pandemic occurs. This can be simplified as the vaccination phase and the treatment phase.

Summary

This Handbook focuses on the many elements that you should have already addressed in developing your pandemic preparedness planning. It should be used as a tool to help you implement and fine-tune your plan in order to take it to the next level. This will help save lives tomorrow and enable communities to cope with and survive the pandemic.

Remember:

- You must be prepared at local level – you cannot depend on federal government for support.
- Vaccine manufacturers and industries associated with vaccine delivery are already working at or near to full capacity. You need to plan ahead and order now.

“The nation is nowhere near as prepared as we should be for bio-terrorism, bird flu, and other health disasters.”

Jeff Levi, PhD.

Executive Director, TFAH
December 12, 2006

PART II

FINE-TUNING YOUR PLAN

A. ASSESSING POTENTIAL IMPACT

In order to plan adequately, you must have an idea of the expected impact of the pandemic on the healthcare sector and on all other essential services.

- When developing your plan, did you conduct potential impact assessments?
- How many people could be affected?
- How many hospital beds will be needed?
- How many people will need to be vaccinated?
- What impact will the pandemic have on healthcare staff levels?
- How many potential deaths are likely, and how will these fatalities be handled?

Your pandemic plan must address these and many other issues, but it must have a sound statistical base on which to form planning assumptions.

In Developing Your Plan Did You:

- Conduct modeling studies on the impact of an influenza pandemic based on varying attack rates, and viral virulence and patterns of attack (different risk groups).
- Consider impact measures to estimate number of emergency department visits, outpatient clinic and private physician visits, hospital admissions and deaths.
- Assess the need to address specific groups and cultural issues – i.e. language, religious practices, and legal status – before and during a pandemic. CDC provides free software (FluAid and FluSurge) on their Web site <http://www.cdc.gov/flu/references.htm>.

B. The Plan and Planning Team

You Already Have a Plan and an Ongoing Planning Team, but:

- Does it have support at the highest-possible level?
- Has it analyzed all capabilities and identified all gaps?
- Does it contain a comprehensive plan to augment capabilities and close gaps?
- Does it establish a clear line of authority from top to bottom that is not so rigid as to prevent the free flow of ideas and constructive feedback?

CASE STUDY

Florida, in line with most states, has estimated the impact of pandemic flu. With a population of about 16 million permanent residents, it has estimated that between 1,387,451 and 3,237,387 will need outpatient care, between 33,578 and 78,350 will require hospitalization and that between 8,339 and 19,457 will die.

Florida has also had to take two other major factors into consideration. It has a huge seasonal migrant-worker population and year-round tourist population, and for six months of the year it lies in the hurricane belt. It not only has had to plan for a pandemic, but it has had to plan for a pandemic hitting at the same time as a major hurricane.

Note: Florida's estimates were determined using FluAid 2.0, the specialized software developed by CDC.

It is important to plan for various levels of severity because each has different challenges and will require different solutions.

CASE STUDY

Currently most large hospitals, such as the University of Utah Hospital, carry a 30-day supply of drugs, mainly because it is too costly or wasteful to stockpile more. "The supply chain is horribly thin," said Erin Fox, a drug-information specialist at the Salt Lake City hospital. This not only applies to drugs and medical supplies: many sectors of the economy rely on just-in-time supply delivery in order to reduce inventory costs and wastage. Thus, disruption of transportation mechanisms, manufacturing, timeliness of delivery (food spoilage, for example) may have huge ripple effects on food, water and supplies of all kinds.

Re-evaluate your supply chain process. Start building your "safety stock" early to ensure that supplies are there when you need them.

CASE STUDY

The severe acute respiratory syndrome (SARS) outbreak in 2003 in Canada provides a warning lesson. When SARS hit Canada there was a shortage of N95 masks because much of the available stocks had been shipped to Asia, where the disease hit hardest. These masks may protect against contracting flu by filtering out at least 95 percent of certain airborne materials during normal breathing. Some nurses in Canada had to use less-protective masks when caring for SARS patients, and others were told to save their masks in plastic bags and re-use them from one shift to the next.

Identify essential devices to administer your mass-vaccination campaigns (i.e. masks, syringes, etc.). Consider stockpiling these critical items to ensure availability and accessibility of products.

- Does it spell out the relationship between health and other emergency sectors?
- Does it specify the relationship between national and local or regional sectors?
- Does it include timelines, deliverables and performance measures?
- Does it prioritize who should receive vaccines?
- Does it provide for psychosocial support services for the community?
- Is there effective management of fatalities?
- Does it advocate switching from a 'just-in-time' purchasing system to a 'just-in-case' in order to build a stockpile of essential equipment and supplies?
- Does it spell out the best way to ensure a continuity of government services and other critical services?
- Has the plan been implemented or tested?

Action: If you answered NO to any of the above, take the necessary actions to rectify this, otherwise the plan might fail.

C. Command And Control

Your plan must contain a command-and-control structure which details the decision-making processes of all organizations involved in response to a health emergency.

Does Your Plan:

- Specify the role and responsibilities of everyone involved during a pandemic?
- Include operational plans for each organization?
- Include standard operational procedures for essential functions, such as procedures for alert and outbreak verification, information flows (drafting of situation reports, briefings, backup of information) and political decision-making?
- Set guidelines for getting medical/scientific consensus during a crisis?
- Specify how public and intra-organizational information should be disseminated?

CASE STUDY - CANADA

The Canadian Pandemic Influenza Plan (<http://www.phac-aspc.gc.ca/cpip-pclpci/>) maps out how Canada will prepare for and respond to pandemic influenza. Federal, provincial and territorial governments collaborated on its development.

The Canadian Pandemic Influenza Plan is designed for:

- Federal, provincial and territorial departments of health
- Emergency workers
- Public health officials
- Healthcare workers

The plan includes guidelines and checklists that these groups can use in emergency response planning, and creates a framework that guides the actions of all levels of government in the event of pandemic influenza.

The Plan Covers the Following Activities:

- Prevention activities, such as surveillance programs and the establishment of an infrastructure for manufacturing sufficient vaccines to protect all Canadians at the time of a pandemic.
- Preparedness activities include the preparation of actual plans for a pandemic. The preparedness section addresses key activity areas, such as vaccine programs, surveillance and public health measures in terms of their current status and future requirements.
- Response/implementation activities for controlling the pandemic, minimizing

deaths and any social disruption it causes, including communication activities. Implementation also involves documenting the current activities and outcomes to determine if any changes need to be made to the response.

The plan describes the different phases of a pandemic and the roles and responsibilities for each level of government at each phase. The phases described in Canada's plan are based on the World Health Organization's pandemic phases. These phases are helpful for planning concrete steps under key activity areas for each phase. When put together, the phases provide guidance on what needs to be done as a pandemic unfolds.

Throughout the plan, activities are organized by phases with specific levels defined under each phase. Currently, Canada is in what the plan describes as the "pre-pandemic" phase. The WHO describes this as Phase 0. The three levels in Phase 0 are:

Level 1 - A new virus is identified in humans.

Level 2 - Human infection with the new virus is confirmed.

Level 3 - Human-to-human transmission of the new virus is confirmed.

Canada is currently at Phase 0, Level 2. Work within this pre-pandemic phase focuses on preparation, such as monitoring the evolving situation and sharing of this information, looking at the availability of medical supplies and conducting global surveillance with international organizations, such as the World Health Organization.

The plan also includes a series of annexes that offer detailed guidance on specific areas, such as infection control, clinical guidelines and communications.

The Annexes Cover the Following Topics:

Laboratory Procedures

This describes laboratory testing, surveillance, data collection and the importance of sharing this surveillance data for each pandemic phase, as well as co-operative agreements for emergency backup of critical lab functions. Surveillance in Canada and abroad is essential for giving early-warning signs of new influenza strains.

Recommendations for Pandemic Vaccine Use in a Limited-Supply Situation

This provides technical information about the potential dose and administration of a pandemic influenza vaccine. This annex describes the priority groups for vaccination during a pandemic. The priority list would continually be reviewed during a pandemic and adjusted, based on how the new influenza virus behaves.

Planning Recommendations for the Use of Antiviral Drugs in Canada During a Pandemic

This details technical information on the two types of antiviral drugs known to be effective against influenza A viruses and how these drugs could be used in a pandemic. Like the vaccine annex, it identifies priority groups for the receipt of antiviral drugs if supplies are limited. Again, the priority list would be reviewed depending on the behavior of the new influenza virus.

Infection Control and Occupational Health Guidelines During Pandemic Influenza in Traditional and Non-Traditional Healthcare Settings

The guidelines are designed to assist those responsible for managing pandemic influenza in traditional (e.g., acute-care hospitals, nursing homes, walk-in clinics) and non-traditional (e.g., triage settings, temporary influenza hospitals) healthcare settings. It details infection prevention and control policies and procedures that will be critical to minimize the spread of pandemic influenza within healthcare settings.

Health Services: Clinical Care Guidelines and Tools

It is important to remember that most physicians will not have seen pandemic influenza. This annex gives them guidance on what to look for and how to care for patients. It highlights the clinical presentations of influenza and provides guidelines on patient management.

Resource Management Guidelines for Healthcare Facilities During Pandemic Influenza

This provides guidelines for healthcare providers in planning the management of resources in healthcare facilities and the identification of additional human resources that would be required for the different phases of a pandemic.

Guidelines for Non-Traditional Sites and Workers

A non-traditional site is one that is currently not a healthcare site or is a healthcare site that usually offers a different type or level of care. In a pandemic, a non-traditional site could provide care and support of influenza patients. This annex offers guidelines on how to establish, operate and manage these non-traditional sites.

Communications Annex

The objective of the communications annex is to ensure that Canada's health partners are prepared to respond to the enormous public communications challenges associated with pandemic influenza. It sets out specific activities designed to promote consistent, coordinated and effective public communications of federal, provincial, territorial governments and other health partners.

Federal Emergency Planning Documents

This annex describes Health Canada's emergency response structure. The structure includes five groups responsible for identifying and working on the major steps for responding to an emergency:

Coordination and Operations Group: initiates operations and manages the administrative and communications functions of the emergency response.

Logistics and Support Group: provides security and logistics for supplies, equipment and transportation.

Emergency Communications Group: advises and provides media monitoring and leads public communication.

Technical Advisory Group: develops and analyses scientific and medical information related to the event.

Advance Planning Group: provides risk management and looks ahead to identify issues that could emerge.

The Objectives of the Pandemic Vaccine Program are:

- To provide a safe and effective vaccine program to all Canadians as soon as possible
- To allocate, distribute and administer vaccine as rapidly as possible to the appropriate groups of people
- To monitor safety and effectiveness of vaccination programs

For vaccine program planning purposes it is important to be prepared to immunize 100 percent of the population; however the actual proportion of the population that will voluntarily seek vaccination will depend on public perception of risk and severity of the disease. Therefore, the demand will likely vary between jurisdictions and within each jurisdiction as the pandemic evolves. Previous experience with outbreak-related immunization clinics indicates that it would be prudent to prepare for an initial demand of 75 percent of the target population. It is recommended that planning activities also focus on delivering a two-dose program to ensure that the public health response is ready to deal with this possibility.

The Canadian plan makes the following recommendations for pandemic vaccine use in a limited-supply situation:

Recommended Priority Groups

The estimates of population size made for each group are based on 1998 data. Each jurisdiction is encouraged to develop its own estimates for these priority groups as a part of its pandemic planning activities.

Group 1: Healthcare workers, paramedics /ambulance attendants and public health workers (approximately 600,000).

Rationale: The healthcare and public health sectors will be the first line of defense in a pandemic. Maintaining the health service response and the vaccine program is central to the implementation of the response plan, in order to reduce morbidity and mortality. Health services workers may be considered in the following work settings for vaccine program planning:

- Acute-care hospitals
- Long-term care facilities/nursing homes
- Private physicians' offices
- Home-care and other community-care facilities
- Public-health offices
- Ambulance and paramedic services
- Pharmacies
- Laboratories

Group 2: Essential service providers (approximately one million). **Rationale:** The ability to mount an effective pandemic response may be highly dependent on people, within the groups listed below, being in place to maintain key community services. Those individuals that are essential to the response or to maintaining key community services may vary between jurisdictions. Local plans will likely reflect these differences; however, they are likely to include:

- Police
- Firefighters
- Armed forces personnel
- Key emergency response decision makers (e.g. elected officials, essential government workers and disaster services personnel)
- Utility workers (water, gas, electricity and essential communications systems)
- Funeral service/mortuary personnel
- People who work with institutionalized populations (e.g., corrections)
- People who are employed in public transportation and the transportation of essential goods (such as food)

Vaccine eligibility criteria should be defined based on the work/duties the individual performs, rather than position label.

Group 3: People at high-risk of severe or fatal outcomes following influenza infection. Rationale: To meet the goal of reducing morbidity and mortality, people most likely to experience severe outcomes should be vaccinated. For planning purpose, we have based this priority group in the high-risk groups identified by the National Advisory Committee on Immunization (NACI) for annual vaccine recommendations. Additional groups have also been included based on evidence indicating an elevated risk. For example, during the annual epidemics, young infants experience rates of hospitalization similar to the elderly. Prioritization of the following subgroups within Group 3 would depend on the epidemiology of influenza disease in the time of a pandemic.

- A: People in nursing homes, long-term care facilities, homes for the elderly, e.g. lodges (approximately 200,000)
- B: People with high-risk medical conditions living independently in the community (approximately 7 million)
- C: People over age 65 living independently and not included in 3A and 3B (approximately 1 million)
- D: Children 6 months to 23 months of age (current vaccines are not recommended for children under 6 months of age)
- E: Pregnant women* (approx. 200,000)

*Currently, NACI does not consider pregnant women as a high-risk group in its recommendations for annual influenza vaccination. However, in a pandemic, pregnant women may be at elevated risk.

Group 4: Healthy adults (approximately 8.7 million). Rationale: This group is at lower risk of developing severe outcomes from influenza during annual epidemics, but is the major workforce and represents the most significant segment of the population from an economic-impact perspective. Vaccination of healthy adults would reduce demand for medical services and allow individuals to continue normal daily activities. Simultaneous absence of large numbers of individuals from their site of employment could produce major societal disruption even in non-essential personnel. Medical facilities could also be overwhelmed by demand, even for outpatient services. This might compromise care of those with complications.

Group 5: Children 24 months to 18 years of age. Rationale: This group is at the lowest risk of developing severe outcomes from influenza during annual epidemics, but plays a major role in the spread of the disease. While children's absence from school might not have the direct economic and disruptive impact of illness in adults, it could have that effect indirectly, since care for ill children would be required.

A decision to vaccinate healthy adults and healthy children (Groups 4 and 5) depends on having an adequate supply of vaccine. A much larger amount of vaccine would need to be used to prevent hospitalization and death than for older persons and those with underlying conditions, because of demographic considerations and differences in risks. Consideration was given to prioritizing the family members of healthcare workers, however the decision was made that separating out these individuals would not be logistically feasible or ethically justifiable.

Absolute Requirements

- Facilities to give care: Hospitals may be swamped and additional facilities will be needed for mass vaccination, triage and isolation centers. In areas prone to hurricane damage, flooding or other natural disaster, particular care is needed when selecting alternate facilities.
- Personnel to provide care and security: Medical, first-response personnel and the police may be victims themselves or unable to report in for duty.
- Supplies: There must be adequate supplies and medications to vaccinate the vulnerable and treat the patients.

D. PREPAREDNESS

Preparedness is crucial. It is essential in having the right supplies, equipment and personnel in place. This is especially true in the event of a pandemic when millions of people will need treatment and all resources will be severely restricted. Does your plan contain adequate responses for the following?

Personnel

In the event of a pandemic all medical and medical-support personnel will be needed. Many will be patients themselves, so additional people need to be trained as ancillary support. Large numbers of other personnel will also be required to handle security, crowd control at triage and vaccination centers, and to maintain law and order.

Triage

Triage or queue management is critical if people are to be treated quickly and the spread of the disease contained. This involves trained personnel, support staff (security and crowd control), equipment and adequate transport. Where resources are limited, using scarce resources on patients most likely to survive is essential. This can be very difficult for medical and support personnel, whose instinctive response is to care for those most gravely ill – doing so may rapidly exhaust limited resources.

Pre-Positioning of Medical Supplies, Equipment and Support Materials

Identify what supplies and equipment will be needed and have them purchased, and strategically and spacially placed. This is critical if the emergency is to be handled and contained. Develop realistic timelines for stockpiling and distribution of local, regional and national stockpiles. Practice distribution and identify obstacles ahead of time.

Call Center Equipment, Software and Training

In the event of a pandemic, it is essential that the authorities have the capability to speedily “connect the dots” when cases occur. This means having the right software in place and the right people trained to use it.

Communications

Communications equipment is essential and has to be fully operational across a number of agencies.

Transportation

Vital supplies (i.e., vaccines, syringes) will have to be transported to vaccination centers, and large numbers of patients may need transporting to hospitals or other emergency facilities. At the height of the pandemic, additional transport may be needed to take the dead to makeshift morgues.

E. INVOLVEMENT

1. Working With Business

The private sector will play an integral role in a community response to pandemic influenza by protecting employees' and customers' health and safety, and mitigating impact to the economy and the functioning of society. Because the private sector also owns and maintains approximately 85 percent of the U.S. critical infrastructure – power plants, communications, food manufacturers and distributors, etc. – it is imperative that business continuity plans include procedures to mitigate the potential disruptions caused by an influenza pandemic.

The federal government recommends that government entities and the private sector plan with the assumption that up to 40 percent of their staff may be absent for periods of about two weeks at the height of a pandemic wave. According to DHSS estimates, businesses should also plan to have lower levels of staff absent for a few weeks on either side of the peak. These absences may be due to employees who:

- Care for the ill
- Are under voluntary home quarantine due to an ill household member
- Care for children dismissed from school
- Feel safer at home
- Are ill or incapacitated by the virus

In Developing Your Plan Did You:

- Involve the private sector in your preparedness planning because of the essential goods and services that it provides to the majority of the population on a daily basis, through an employer-employee or vendor-customer relationship: i.e. what arrangements have you made to ensure adequate food supplies in order to feed hospital patients and staff for many days in the event of disruption of supplies?
- Engage critical infrastructure entities in the planning process because of reliance on their services?
- Establish contingency systems to maintain delivery of essential goods and services during times of significant and sustained worker absenteeism?
- Establish mechanisms to allow workers to provide services from home if public health officials advise against non-essential travel outside the home?
- Establish partnerships with other members of the sector to provide mutual support and maintenance of essential services during a pandemic?

Because the movement of essential personnel, goods and services, and the maintenance of critical infrastructure are necessary during an event that spans weeks to months in any given community, effective continuity planning, including protection of personnel during an influenza pandemic, is a “good business practice” that must become part of the fundamental mission of all federal, state, local and tribal governmental departments and agencies, private sector businesses and institutions, and schools and universities.

What You Can Advise Business to do Now

Numerous activities can be conducted now to plan for the potential of a pandemic, while other activities will require a plan for action when more information is available. The aim is to mitigate the effects of the pandemic and ensure that the capability exists to continue essential functions in the event of a disruption to normal operations. Each organization's Continuity of Operations (COOP) planning should:

- Develop, update, exercise and be able to implement comprehensive plans to protect its workforce. Although pandemic influenza will not directly affect the physical infrastructure of an organization, a pandemic will ultimately threaten all operations by its impact on an organization's human resources. The health threat to personnel is the primary threat to continuity of operations during a pandemic.
- Identify, protect and ensure the ready availability of electronic and hardcopy documents, needed to support essential functions.
- Consider cross training and preparing ancillary workforce members (e.g., contractors, employees with other job titles/descriptions, retirees) to maintain daily functionality in the presence of anticipated staffing shortages.

Schools And Universities

The roles and responsibilities of schools and universities in the area of continuity planning and protection of personnel are unique for several reasons. First, although there is no way to know the characteristics of a pandemic virus before it emerges, the planning assumptions, according to CDC and Department of Education, suggest that, in the absence of intervention, influenza illness rates are likely to be highest among school-age children (about 40 percent). Second, protecting and sustaining personnel in the workforce is of primary concern for effective continuity planning in public and private sector businesses and governmental entities. In schools, the focus is primarily on protecting students. Third, universities must consider the potential impact of a pandemic on campus and dormitory closures, including the contingency plans for students who depend on student housing and campus food service. And fourth, schools and universities must also address continuity of instruction as part of continuity planning. Schools and universities (public and private) should review existing emergency response plans consistent with guidance provided by the Department of Education's Office of Safe and Drug-Free Schools, Emergency Response and Crisis Management Guide. Schools and universities should consider elements unique to pandemic influenza in their emergency response and crisis management plans to protect their faculty and students.

F. COMMUNICATIONS

Keeping Everyone Informed

Communication strategies are an important component in managing any infectious disease outbreak and are essential in the event of a pandemic. Accurate and timely information at all levels is critical in order to minimize unwanted and unforeseen social disruption and economic consequences and to maximize the effective outcome of the response.

Does Your Plan:

- Address all levels of operational communications (both internal and external), from exchanging information with international organizations to keeping the public health sector, healthcare sector and the wider population informed of the progress and impact of the pandemic?
- Have a clear chain of responsibility with designated spokespeople?
- Address communications to different target groups (e.g., press, general public, healthcare workers, government, specific risk groups), key messages to be put across, possible materials that are needed (Web sites, leaflets, information in different languages, etc.) and distribution mechanisms to reach the target groups?
- Establish an official influenza pandemic Web site that is linked with national and international information sites?
- Ensure that during events, media briefings are held regularly? Daily briefings will be necessary when the pandemic is established locally, and may also be appropriate sooner.
- Ensure that during a pandemic the materials are regularly reviewed and updated with new (relevant) knowledge that may become available?

G. READINESS

Now that you have your plan, is it workable, what has been overlooked and what can be improved on?

The best way to answer these questions is to keep the plan under constant review and to test it through tabletop exercises and drills.

Tabletop Exercises

It is essential to test the preparedness plan for the healthcare sector (as part of the overall plan) to ensure that it addresses:

- Healthcare of people with influenza during a pandemic
- The legal issues that can affect staffing and patient care
- Continuity of services for other patients
- Protection of the healthcare workforce
- Medical supply contingency plans

Most simulations of pandemic-specific responses, such as converting schools to hospitals or quarantining entire neighborhoods, have largely been “tabletop exercises,” in which officials talk about a response but do not conduct drills.

Exercises serve to identify where plans may need to be refined or modified and, thus, lead to strengthening preparedness. Exercises should be viewed as an integral part of planning activities. While you can develop any desktop scenarios you wish, you should, at the very least, conduct an overview exercise and a surge capacity exercise. These exercises are designed to be general enough to be useful in any area. Users are encouraged to tailor the exercises to meet their needs.

The objectives of these exercises are to:

- Raise awareness about the impact of pandemic influenza on the healthcare system
- Increase understanding regarding the responsibilities of all participating agencies
- Determine whether current plans adequately address anticipated events
- Identify gaps in coordination between agencies
- Promote advance planning between health departments, hospitals and other agencies

Overview exercise: The overview exercise addresses planning issues that will arise during the course of an influenza pandemic over an array of areas, including surveillance, vaccination, antiviral medications,

Tabletop Exercise: Members of the team and others meet in a conference-room setting to discuss their responsibilities and how they would react to emergency scenarios. This is a cost-effective and efficient way to identify areas of overlap and confusion before conducting more demanding training activities.

Walk-through Drill: The team and response teams actually perform their emergency response functions. This activity generally involves more people and is more thorough than a tabletop exercise.

CASE STUDY

New York City has conducted live drills, including one in November 2005 in which it tried to give 250 flu shots an hour at a Chelsea clinic; it fell far short of that rate. It has also taken other steps, such as boxing thousands of syringes for rapid deployment and printing multilingual posters telling citizens to cover their coughs.

communications and emergency response. Participants for the overview exercise will include people who will be involved in planning for and responding to a pandemic, including, but not limited to, staff in the areas of public health, public information, public safety, emergency management and healthcare. The emphasis of this exercise is on the public health response.

Surge capacity exercise: The surge capacity exercise focuses on medical surge capacity issues; these issues are addressed in greater depth than in the overview exercise. Participants for the surge capacity exercise will be from the same groups as for the overview exercise, but more heavily skewed toward representatives of local hospitals and emergency management services. The emphasis of this exercise is on the response of the healthcare system. Issues related to surveillance, vaccination and antiviral medications are not addressed in this exercise.

On-The-Ground Exercises

Walk-through drills: The emergency management group and response teams actually perform their emergency response functions. This activity generally involves more people and is more thorough than a tabletop exercise.

Functional drills: These drills test specific functions, such as medical response, emergency notifications, warning and communications procedures and equipment, though not necessarily at the same time. Personnel are asked to evaluate the systems and identify problem areas.

Evacuation drill: Personnel walk the evacuation route to a designated area where procedures for accounting for all personnel are tested. Participants are asked to make notes, as they go along, of what might become a hazard during an emergency, e.g., stairways cluttered with debris and smoke in the hallways. Plans are modified accordingly.

Full-scale exercise: A real-life emergency situation is simulated as closely as possible. This exercise involves company emergency response personnel, employees, management and community response organizations.

CASE STUDY

North Carolina conducted an exercise over two days, at the end of May 2006, to test its preparedness against the possibility of a pandemic flu outbreak in North Carolina. According to State Health Director Dr. Leah Devlin, Pandemic CIPHER 2006 was a vital training exercise to test the state's preparations for a potential pandemic flu outbreak and to identify gaps in training, preparation and procedures. The goal of the exercise was to overwhelm the state's health system.

"It is the duty and responsibility of the public health community, as well as emergency management, to prepare and train for a day we pray never comes," Dr. Devlin said. "But we can't close our eyes and hope for the best. If a pandemic flu outbreak erupts within our state, we will be prepared to move quickly, firmly and responsibly to meet this most serious threat to public health and safety. Exercises like this one are vital to our preparations."

The N.C. Division of Public Health partnered with the N.C. Division of Emergency Management to conduct the exercise. The State Emergency Operation Center and the Public Health Command

Center, both in Raleigh, were activated as part of the exercise. Field activities took place in the counties of Guilford, Henderson, Lenoir, Pasquotank, Surry and Union.

"Part of our job in Emergency Management is to plan for the worst-case scenario and then test our ability to respond to it," said Doug Hoell, Director of the Division of Emergency Management. "The motto of the exercise was Communication + Cooperation + Collaboration = Integrated Response.

With our partners in the state Division of Public Health, hospitals, and the local public health and emergency management communities – we are doing everything we can to prepare for the possibility that a pandemic flu could happen."

County partners in the exercise included personnel from their emergency management and public health departments, as well as personnel from local hospitals.

It is essential to involve all relevant agencies at local, county, regional and state level.

CASE STUDY

Union County in North Carolina has found a novel way of tackling their syringe problem. It recently put out a request for 325,000 syringes. Pat Beekman, the county's Homeland Security Director, said this figure was calculated on population size times two (i.e., two vaccinations per person). The county had taken this action, he said, because "we are not expecting to get much of anything from the state or federal levels of government given the breadth of such a pandemic. Everything that state and federal are telling us is that we need to be as self-sufficient as possible.

"First, we are trying to use grants to purchase the syringes. We will go to our County Commissioners as a last resort for funding of this out of the general fund. We are working on a plan to recoup the costs. We are looking at entering into agreements with our health department and our local hospital (both are terrific partners in our Pandemic Flu Task Force) that they will buy all their future syringes from this stockpile, and we will replace our stockpile by purchasing more," he said. "This will ensure we do not exceed shelf life of our stockpile. Once the H5N1 threat passes (assuming that we do not have a pandemic), we will continue to sell our stockpile off, but not replace the syringes. It is our hope that in this manner we will be able to return our taxpayer's money back to the general fund over the course of seven years."

Be creative when it comes to supplies acquisition. Work with other agencies for mutual advantage.

RECAP

CHECK YOUR PLAN

Does It Include:

- Discussing the plan with all key stakeholders?
- People Impact Assessment – estimate of outpatients, inpatients and fatalities?
- Personnel Impact Assessment – medical and support personnel needs?
- Facility Impact Assessment – on hospitals, clinics and doctor's offices?
- Supply Needs Assessment – drugs, syringes, vaccines, virals, needles, masks, and so on?
- Pre-positioning of medical supplies, equipment and support materials?
- Criteria for prioritizing who receives vaccines and antiviral medication?
- Communications – internal and external, plus equipment needs?
- Exercises – Is there a regular schedule for drills, exercises and evaluation?

Summary

Be Prepared, Be Ready and Be Flexible

This section is all about fine tuning your plan to ensure you have fully understood the various likely impacts on the healthcare sector and on all other essential services based on varying attack rates and have planned accordingly.

Have you analyzed all your capabilities and identified all gaps. Have you an appropriate pandemic vaccination program? More important, have you developed a comprehensive plan to close all gaps.

The aim of your plan must be to cope with all probable scenarios and eventualities and still be flexible enough to accommodate any late breaking unforeseen circumstances.

PART III

IMPLEMENTING YOUR PLAN

Your plan must indicate the specific response for each phase of a pandemic, and the mechanism for identifying triggers that will instigate them and then change the level of preparedness and response.

The World Health Organization's Five Phases Model is a good one for pandemic preparedness planners to follow.

NEW PHASES

OVERARCHING PUBLIC HEALTH GOALS

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, the risk^a of human infection or disease is considered to be low.

Strengthen influenza pandemic preparedness at the global, regional, national and subnational levels.

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.

Minimize the risk of transmission to humans; detect and report such transmission rapidly if it occurs.

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.^b

Ensure rapid characterization of the new virus subtype and early detection, notification and response to additional cases.

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.^b

Contain the new virus within limited foci or delay spread to gain time to implement preparedness measures, including vaccine development.

Phase 5. Large 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).

Maximize efforts to contain or delay spread, to possibly avert a pandemic, and to gain time to implement pandemic response measures.

Pandemic period

Phase 6. Pandemic: increased and sustained transmission in general population.^b

Minimize the impact of the pandemic.

^a The distinction between **phase 1** and **phase 2** is based on the risk of human infection or disease resulting from circulating strains in animals. The distinction is based on various factors and their relative importance according to current scientific knowledge. Factors may include pathogenicity in animals and humans, occurrence in domesticated animals and livestock or only in wildlife, whether the virus is enzootic or epizootic, geographically localized or widespread, and/or other scientific parameters.

^b The distinction between **phase 3**, **phase 4** and **phase 5** is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include rate of transmission, geographical location and spread, severity of illness, presence of genes from human strains (if derived from an animal strain), and/or other scientific parameters.

ACTION ITEMS

Does Your Plan

- Establish the legal authorities responsible for executing the operational plan, especially those authorities responsible for case identification, isolation, quarantine, movement restriction, healthcare services, emergency care and mutual aid?
- Have a process for requesting, coordinating and approving requests for resources to state and federal agencies?
- Have an Incident Command Structure for the pandemic plan based on the National Incident Management System?
- Have procedures for businesses and other public and private organizations to limit spread in the workplace and in schools, daycare centers, nursing homes and other inpatient facilities?
- Have procedures for maintaining continuity of operations while limiting spread, such as tiering essential and non-essential workers and allowing some to use the Internet and telecommuting by working from home?
- Have procedures for freeing up essential services, such as healthcare, for those most in need, including plans for surge capacity?
- Have plans and procedures for distribution of key medications, vaccines and supplies, such as syringes, masks and so on, in a timely manner?

Does Your Plan Have:

- Scalability – the ability to adapt whatever the magnitude and severity of the pandemic and available resources?
- Targets – a benchmark system that can be used to assess progress in implementation? Define who is responsible for the supervision of progress.
- Provision for desktop review and exercise of the preparedness and response plan, based on imaginary but realistic situation descriptions?
- Detailed simulation exercises, preferably focusing on specific aspects of the response plan?
- Built-in review processes?

Mutual Aid and Interlocal Agreements

Mutual Aid Agreements are general in nature and are basically an understanding that support will be provided, if possible. Interlocal Agreements detail specific services to be provided and are less flexible.

Does Your Plan:

- Coordinate healthcare activities in the community and define responsibilities for each entity during a pandemic?
- Collaborate with HRSA hospital preparedness programs in the state or region?
- Have formal agreements with neighboring jurisdictions and address communication, mutual aid and other cross-jurisdictional needs?
- Have agreement on scheduled, periodic meetings in the absence of a pandemic and urgent, regular meetings in the early-warning phase of a potential pandemic and when a pandemic is developing locally or internationally?

Surveillance Strategies

In order to manage an outbreak most effectively, you must have mechanisms for “real-time” clinical surveillance in domestic acute-care settings, such as emergency departments, intensive-care units and laboratories to provide local, state and federal public health officials with continuous awareness of the profile of influenza and influenza-like illness (ILI) in communities.

Does Your Plan Have:

- Adequate resources to test for animal and human influenza viruses, including possibly a new pandemic virus?
- An early-warning system for influenza-like illness and other diseases to trigger appropriate public health and laboratory investigations?
- Sentinel hospital-based surveillance for individuals with acute respiratory illness on or during admission to hospital?
- Surveillance of unexplained deaths caused by acute respiratory illness, or of clusters of severe acute respiratory illness in the community?

- Surveillance of unexplained deaths caused by acute respiratory illness in healthcare facilities?
- Monitoring sales of antiviral drugs for influenza A viral infection, antimicrobials commonly used for the treatment of acute respiratory infections, and over-the-counter respiratory or antitussive drugs (to relieve or prevent coughing)?
- Laboratory-based surveillance for new or unusual influenza A viruses apart from the usual circulating non-pandemic strains at the time?
- Ways to identify clusters of cases where human-to-human transmission is the likely cause, especially with viruses, such as avian influenza strains, which have not yet shown the ability for widespread human-to-human transmission?

Other Tools You Can Implement:

- Year-round traditional surveillance for seasonal influenza (e.g., virologic, outpatient visits, hospitalization and mortality data), including electronic reporting.
- Improve capacity for rapid identification of unusual influenza strains by working with state and federal partners to enhance laboratory-based monitoring of seasonal influenza subtypes.
- Develop and be prepared to implement enhanced surveillance once a pandemic is detected to ensure recognition of the first cases of pandemic virus infection in time to initiate appropriate containment protocols, and exercise these protocols regularly.
- Link and routinely share influenza data from animal and human health surveillance systems.
- Obtain and track information daily during a pandemic (coordinating with epidemiologic and medical personnel) on the numbers and location of newly hospitalized cases, newly isolated people, and hospitals with pandemic influenza cases. Use these reports to determine priorities for community outreach, and media and other education efforts.
- Institute surveillance for influenza-like illnesses (ILI) among laboratory personnel working with novel influenza viruses.
- Develop and test a plan for surge capacity of public health and clinical laboratories to meet the needs of the jurisdiction during a pandemic.
- Assess regularly the influenza diagnostic-testing proficiency and adherence to biosafety containment and biomonitoring protocols.
- Inform frontline clinicians and laboratory personnel of protocols for safe specimen collection and testing, how and to whom a potential case of novel influenza should be reported, and the indications and mechanism for submitting specimens to referral laboratories.

STOCKPILING AND SUPPLIES

Things You Should Be Doing Now

There is still a lot of uncertainty about what supplies from federal government might be available in a pandemic. Many public health authorities have already taken the view that they cannot rely on outside help and are making their own arrangements to stockpile essential equipment and supplies. In the event of a pandemic there will be two very specific and distinct supply needs – mass vaccination and patient treatment/triage – and both require planning.

“If a pandemic strikes, our country must have a surge capacity in place that will allow us to bring a new vaccine online quickly and manufacture enough to immunize every American against the pandemic strain,”
said President Bush.

“I think we need to look seriously at matching the development of vaccines and antivirals with the means of making sure they can be distributed,”

**said Patrick Libbey, Executive Director
of the National Association of County and City Health Officials.**

Understanding the Pandemic Influenza Challenge

Pandemic influenza threatens to strain many sectors of public life. For health services, two significant areas of concern include mass vaccination and patient treatment:

Mass Vaccination: Public health and government agencies face a significant challenge: how to deliver vaccine to 300 million Americans once it is available. Planning must include process and supply considerations for a mass-vaccination campaign.

Patient Treatment: Hospitals, physicians and clinics face their own set of challenges in planning for pandemic influenza including how to handle a patient surge and how to maintain healthcare continuum if there is a supply disruption. Ensuring critical medical supplies are available when and where they are needed is a crucial part of planning.

Nationwide, millions of people will have to be vaccinated and treated in an attempt to reduce the impact of the pandemic. This will involve the use of both the pandemic influenza vaccine and antiviral medications. Equipment and supplies will be needed to ensure that vaccine can be stored safely and delivered to where it is needed. Supplies will also be required to administer the vaccine – needles, swabs, sharps containers, etc. – and it is essential to have emergency response supplies available for anyone having an anaphylactic reaction to the vaccine. Because much of this treatment may have to be performed in non-traditional settings, (i.e., schools or hotels) additional supplies, equipment and resources will be needed.

ALERT.

The public health challenge during a flu pandemic is to dispense mass vaccinations in a crisis environment. In order to vaccinate 300 million Americans, syringe manufacturers could take up to two years to produce the 600,000,000 syringes that would be required above the current supply.

CASE STUDY

Staffing is another major issue. Marty Fenstersheib, Health Officer for the Santa Clara, Calif., County Department of Public Health, said his community has developed a three-step triage system. Since the county's 2,300 hospital beds would be filled in about three weeks during a serious pandemic, most patients would be treated in their homes, Fenstersheib said. Sicker patients would be sent to "influenza care centers" in places, such as hotel ballrooms. Only the sickest of the sick would get care at the hospital.

"Hospitals have told us to keep people away from our rooms, keep them away from our facilities as best you can," he said.

Fenstersheib said that the California hospitals believe they can use cafeterias, hallways and other space to increase their bed capacity by 10 or 12 percent. They also would send home people scheduled for elective surgery and others who could safely be discharged. "It's still not going to be enough. We'll still need people taken care of at home and at alternative care sites," he said.

Impact of Influenza during a typical season – U.S. and Santa Clara County				
	Population	Clinically Ill (5 - 10%)	Hospitalized (.06 - .13%)	Deaths (.12 - .24%)
U.S.	297.7 Million	15 – 30 Million	200,000	36,000
Santa Clara County	1.8 Million	90,000 – 180,000	1,200	200

Potential Impact of a 1969-like "minor" Pandemic – U.S. and Santa Clara County				
	Population	Clinically Ill (15- 35%)	Hospitalized (.04 - .09%)	Deaths
U.S.	297.7 Million	45 – 104 Million	314,000 – 734,000	89,000 – 207,000
Santa Clara County	1.8 Million	270,000 – 630,000	1,700 – 6,300	600 – 1,900

Potential Impact of a 1918-like "major" Pandemic – U.S. and Santa Clara County				
	Population	Clinically Ill (15 - 35%)	Hospitalized (13.2 – 22%)	Deaths (2.5 – 5%)
U.S.	297.7 Million	45 – 104 Million	9.9 – 16.5 Million	1.8 – 3.7 Million
Santa Clara County	1.8 Million	270,000 – 630,000	61,000 – 143,000	11,250 – 22,500

** Work out all possible scenarios – you can't plan for them unless you know what they are.

For more information about the plan go to <http://www.sccgov.org>, click on 'Handling Emergencies,' then click on 'Public Health Department' and then click on 'Pandemic Influenza.'

Strategic National Stockpile

The Strategic National Stockpile (SNS) has nearly 20 million courses of the antiviral drugs Tamiflu and Relenza. It aims to have 81 million treatment courses by the end of 2008. DHHS will purchase 50 million outright and will subsidize (by 25 percent) the states' purchase of 31 million courses. (A course is the number of doses needed to treat one person – 10 capsules in the case of Tamiflu).

In addition to stocking antivirals, \$162 million is being spent to procure essential medical supplies for a pandemic. Planned purchases in 2006 include 6,000 ventilators, 50 million surgical masks, 50 million N95 respirators, and face shields, gloves and gowns.

The SNS contains antibiotics, chemical antidotes, antitoxins, pharmaceuticals and other medical supplies and equipment, held in 12 undisclosed locations throughout the U.S. The aim is that

supplies can be delivered anywhere in the country within 12 hours, although, in a pandemic, it is unlikely that all calls for assistance could be met.

An expert report by the Trust for America's Health, published in December 2005, found that the SNS "was better suited to limited, situational bioterrorism or accidents and first-aid response than to mass emergencies. In concept the SNS is a critically valuable resource. In operation, the SNS is shrouded in mystery and the worst kind of bureaucracy. Guidance to states on distribution has been anything but helpful," said the Trust.

At this time, there are few local stockpiles of even the simplest precautionary items, such as masks and hand sanitizers, and none of expensive equipment, such as \$30,000 ventilators. Local and regional health authorities are, however, now taking stockpiling seriously.

A Change of Attitude Needed

Currently, most hospitals and healthcare providers order and stock supplies on a “just-in-time” basis. This means they often have only a few days of reserve supplies, equipment and medicines, including many basic protective items, such as masks, gloves, gowns and clean hospital linens, many of which are produced in Asia, which may be the epicenter of a pandemic. Normally fresh supplies can be delivered within days of an order being placed. In the event of a pandemic that will not be possible. That is why steps must be taken immediately to stockpile additional supplies, particularly since during an outbreak, many production and delivery systems for supplies will likely be stalled or even stopped. There must also be close collaboration with key stakeholders to ensure that vaccine procurement efforts include injection devices.

Any pandemic situation will put tremendous strains on the overall healthcare infrastructure, including the availability and proper disposal of injection devices. Therefore, current plans to supply vaccine in multi-dose vials will require the stockpiling of sufficient injection devices, as well as medical sharps containers, to allow for efficient broad-scale vaccination efforts to take place.

Does Your Plan Include

Consumable and Durable Supplies

- Do you have a system for tracking available medical supplies to determine whether it can detect rapid consumption, including items that provide personal protection (e.g., gloves, masks)? You must augment such tracking systems as needed to respond to growing demands for resources during a pandemic.
- Are you stockpiling enough consumable resources, such as masks, for the duration of a pandemic wave (6-12weeks)?
- Have you anticipated the needs for consumable and durable resources, and determined a trigger point for ordering extra resources?

- Have you estimated the need for respiratory care equipment (including mechanical ventilators) and developed a strategy for acquiring additional equipment, if needed?
- Have you discussed with neighboring hospitals how equipment might be shared during a pandemic?
- Have you anticipated the needs for antibiotics to treat bacterial complications of influenza and determined how supplies can be maintained during a pandemic?
- Have you made contingency plans for situations in which primary sources of medical supplies become limited?

Continuation of Essential Medical Services

Does the Plan:

- Address how essential medical services will be maintained for people with chronic medical problems, and have you developed a strategy for ensuring uninterrupted provision of medicines to patients who might not be able to (or should not) travel to hospital pharmacies?

Examples Of Consumable And Durable Supplies Include:

Consumable Resources

Hand hygiene supplies (antimicrobial soap and alcohol-based, waterless hand hygiene products)

Disposable N95, surgical and procedure masks

Face shields (disposable or reusable)

Gowns

Gloves

Facial tissues

Central line kits

Syringes

Morgue packs

Catheters

Durable Resources

Ventilators

Respiratory care equipment

Beds

IV pumps

PUBLIC HEALTH CHECKLIST

Clinic Supply & Equipment Checklist

A. Equipment Needs:

- > Computers
- > Printers
- > Power strips & cables
- > Refrigerator: Thermometer for fridge
- > Water bottles for fridge
- > TVs, VCRs/DVD players
- > Fax machine
- > Copier

B. General Supplies

- > Tables, chairs
- > Portable toilets
- > Pens, pencils
- > Colored markers
- > Clear tape, stapler & staples
- > Paper clips
- > Paper sticky notes
- > Envelopes
- > Paper towels
- > Tissues
- > Trash bags
- > Garbage containers
- > Food & drink
- > ID badges for staff
- > Scissors
- > Standard first aid kit
- > Scale for child weighing
- > Copies of relevant emergency plans
- > Immunization records
- > VISs
- > Disease specific fact sheets
- > Colored tape (for arrows on floor)
- > Signage for each station
- > Rope barriers

- > Duct tape, informational signs (mainly triage, education and post-vaccination)
- > Cleaning supplies
- > Paper towels
- > Education videos/DVDs (+ spares)
- > File boxes, folders, clip boards

C. Vaccine Administration Supplies

- > Cooler
- > Thermometer for cooler
- > Cold packs
- > Vaccine
- > Safety syringes
- > Sharps containers
- > Adhesive bandages
- > Exam gloves
- > Cotton balls
- > Antiseptic (70 percent EtOH or other)
- > Alcohol swabs
- > Paper tape
- > Privacy screens
- > Cots
- > Anti-bacterial gels (hand washing)
- > Gauze, bleach solution (1:10) in sprayers

D. Communication Supplies

- > Cell phones, telephones (land line)
- > Lists of important phone #s
- > 2-way radios (800 MHz or other)
- > Phone cables, Internet access (optional)

E. Emergency Kit

- > Standing orders for emergencies
- > Inhalants (ammonia or similar)
- > Alcohol swabs
- > 2 Epi pens, or 2 ampules epinephrine 1:1000 SQ plus needles (tuberculin syringes with 5/8" needles)
- > 2 ampules diphenhydramine (Benadryl) 50 mg IM with 3cc syringes & 22g-25g 1" and 1.5" needles
- > Tongue depressors, stethoscope, tourniquet
- > Blood pressure gauge, child & adult cuffs for BP gauge
- > 2 thermometers
- > Adult airway, pediatric airway, asthma inhalers
- > Adult pocket mask (1-way valve)
- > Child pocket mask (1-way valve)
- > AED (defibrillator)
- > Aspirin, Tylenol (acetaminophen), Insulin
- > Gurney, blankets, pillows
- > Oxygen tank with tubing IV
- > Electrolytes with tubing
- > Flashlights & batteries
- > Biohazard bags
- > Sharps container
- > Emesis basin

EMERGENCY TRIAGE, VACCINATION AND TREATMENT CENTERS

Does Your Plan:

- Have a strategy for triage, diagnosis and isolation of possible pandemic influenza patients?
- Use phone triage to identify patients who need emergency care and those who can be referred to a medical office or other non-urgent facility?
- Assign separate waiting areas for people with respiratory symptoms?
- Assign a separate triage evaluation area for people with respiratory symptoms?
- Assign a “triage coordinator” to manage patient flow, including deferring or referring patients who do not require emergency care?
- Review procedures for the clinical evaluation of patients in emergency departments and in outpatient medical offices to facilitate efficient and appropriate disposition of patients?
- Review admission procedures and streamline them as needed to limit the number of patient encounters in the hospital (e.g., direct admission to an inpatient bed)?
- Identify a “trigger” point at which screening for signs and symptoms of pandemic influenza in all people entering hospitals will escalate from passive (e.g., signs at the entrance) to active (e.g., direct questioning)? In addition to visual alerts, potential screening measures might include priority triage of people with respiratory symptoms and telephone screening of patients with appointments.

ALTERNATIVE CARE SITES

Does Your Plan Take Into Account:

- Bed capacity and spatial separation of patients?
- Facilities and supplies for hand hygiene?
- Lavatory and shower capacity for large numbers of patients?
- Food services (refrigeration, food handling and preparation)?
- Medical services?
- Staffing for patient care and support services?

- PPE supplies?
- Cleaning/disinfectant supplies?
- Environmental services (linen, laundry, waste)?
- Safety and security?

OCCUPATIONAL HEALTH

Are You Prepared In Your Plan To:

- Protect healthy workers from exposures in the healthcare setting through the use of recommended infection-control measures?
- Evaluate and manage symptomatic and ill healthcare personnel?
- Distribute and administer antiviral drugs and/or vaccines to healthcare personnel, as recommended by HHS and state health departments?
- Provide psychosocial services to healthcare workers and their families to help sustain the workforce?

STAFFING

Does Your Plan:

- Address emergency staffing needs and increased demand for isolation wards, ICUs, assisted ventilation services, and consumable and durable medical supplies?
- Assign responsibility for the assessment and coordination of staffing during an emergency?
- Estimate the minimum number and categories of personnel needed to care for a single patient or a small group of patients with influenza complications on a given day?
- Determine how the hospital will meet staffing needs as the number of patients with pandemic influenza increases and/or healthcare and support personnel become ill or remain at home to care for ill family members?
- Assign patient-care responsibilities to clinical administrators?
- Recruit retired healthcare personnel?
- Use trainees (e.g., medical and nursing students)?
- Use patients' family members in an ancillary healthcare capacity?

- Collaborate with local and regional healthcare-planning groups in an attempt to achieve adequate staffing of hospitals during an influenza pandemic (e.g., decide whether and how staff will be shared with other healthcare facilities, determine how salary issues will be addressed for employees shared between facilities and consider ways to increase the number of home healthcare staff to reduce hospital admissions during the emergency)?
- Increase cross training of personnel to provide support for essential patient-care areas at times of severe staffing shortages?
- Create a list of essential-support personnel titles (e.g., environmental and engineering services, nutrition and food services, administrative, clerical, medical records, information technology, laboratory) that are needed to maintain hospital operations?
- Create a list of non-essential positions that can be re-assigned to support critical hospital services or placed on administrative leave to limit the number of people in the hospital?
- Provide for consultation with the state health department on plans for rapidly credentialing healthcare professionals during a pandemic?
- Provide effective delivery of care in outpatient settings? Appropriate management of outpatient influenza cases will reduce progression to severe disease and, thereby, reduce demand for inpatient care.
- Establish telephone hotlines to provide advice on whether to stay home or to seek care?
- Enable outpatient providers to manage appropriately most people who seek care?

HOSPITAL ACCESS

Has Your Plan:

- Determined the criteria and procedures to be used to limit access to the facility if pandemic influenza spreads through the community?
- Defined “essential” and “non-essential” visitors with regard to the hospital and the population served?
- Developed protocols for limiting non-essential visitors?

- Developed criteria or “triggers” for temporary closing of the hospital to new admissions and transfers and discharge of non-critical patients? The criteria should consider staffing ratios, isolation capacity and risks to non-influenza patients.
- Developed plans for hospital security services to enforce access controls?

LAW, LEGAL AND ETHICAL ISSUES

Does Your Plan Cover:

- Travel or movement restrictions (leaving and entering areas where infection is established)?
- Closure of educational institutions?
- Prohibition of mass gatherings?
- Isolation or quarantine of infected people, or of people suspected of being infected, or people from areas where pandemic strain influenza infection is established?
- Use of new vaccines (immunity issues)?
- State of emergency?
- Liability, insurance and temporary licensing issues for retired healthcare workers and volunteers who may be working in areas outside their training and competence in health and emergency services?
- Liability for unforeseen adverse events attributed to vaccine and/or antiviral drug use, especially where the licensing process for a pandemic strain vaccine has been expedited? Liability issues may affect vaccine manufacturers, the licensing authority and those who administer the vaccine.

ETHICAL ISSUES

In Your Plan:

- Have ethical aspects of policy decisions been considered?
- Is there a leading ethical framework that can be used during the response to an outbreak to balance individual and population rights?
- Have you considered ethical questions related to limiting the availability of a scarce resource, such as rationed diagnostic laboratory testing, pandemic strain influenza vaccine or antiviral drugs?

- Have you considered ethical questions related to compulsory vaccination for healthcare workers and workers from essential services?
- Have you considered the ethical issues related to limiting personal freedom, such as may occur with isolation and quarantine?
- Have you ensured the establishment of an ethical framework for research, especially when this involves human subjects?

MORTUARY ISSUES

Does Your Plan:

- Assess current capacity for refrigeration of deceased people?
- Consider mass-fatality plans with local and state health officials and medical examiners?
- Work with local health officials and medical examiners to identify temporary morgue sites?
- Determine the scope and volume of supplies (e.g., body bags) needed to handle an increased number of deceased people?

TRAINING STAFF AND ANCILLARY SUPPORT

Does Your Plan:

- Assign responsibility for developing a training plan?
- Cover who will be trained?
- Cover who will do the training?
- Cover training activities to be used?
- Cover when and where each session will take place?
- Cover how the sessions will be evaluated and documented?
- Conduct reviews after each training activity?

THINGS YOU CAN DO

Training Activities Orientation and Education Sessions: Organize regularly scheduled discussion sessions to provide information, answer questions and identify needs and concerns. Each health authority and hospital should develop an education and training plan that addresses the needs of staff, patients, family members and visitors.

Hospitals should assign responsibility for coordination of the pandemic influenza education and training program and identify training materials – in different languages and at different reading levels, as needed – from HHS agencies, state and local health departments and professional associations.

Staff Education Identify educational resources for clinicians, including federally sponsored teleconferences, state and local health department programs, Web-based training materials and locally prepared presentations.

General topics for staff education should include:

- Prevention and control of influenza
- Implications of pandemic influenza
- Benefits of annual influenza vaccination
- Role of antiviral drugs in preventing disease and reducing rates of severe influenza and its complications
- Infection-control strategies for the control of influenza, including respiratory hygiene/cough etiquette, hand hygiene, standard precautions, droplet precautions, and, as appropriate, airborne precautions

Hospital-specific topics for staff education should include:

- Policies and procedures for the care of pandemic influenza patients, including how and where pandemic influenza patients will be co-located
- Pandemic staffing contingency plans, including how the facility will deal with illness in personnel
- Policies for restricting visitors and mechanisms for enforcing these policies

- Reporting to the health department suspected cases of infection caused by novel influenza strains during the Interpandemic and Pandemic Alert Periods
- Measures to protect family and other close contacts from secondary occupational exposure

Establish a schedule for training/education of clinical staff and a mechanism for documenting participation.

- Use annual infection control updates/meetings, medical Grand Rounds and other educational venues, as opportunities for training on pandemic influenza.
- Cross-train clinical personnel, including outpatient healthcare providers, who can provide support for essential patient-care areas (e.g., emergency department, ICU, medical units).
- Train intake and triage staff to detect patients with influenza symptoms and to implement immediate containment measures to prevent transmission.
- Supply social workers, psychologists, psychiatrists and nurses with guidance for providing psychological support to patients and hospital personnel during pandemic influenza.
- Provide psychological-support training to appropriate individuals who are not mental health professionals (e.g., primary-care clinicians, leaders of community and faith-based organizations).
- Develop a strategy for “just-in-time” training of non-clinical staff who might be asked to assist clinical personnel (e.g., help with triage, distribute food trays, transport patients), students, retired health professionals, and volunteers who might be asked to provide basic nursing care (e.g., bathing, monitoring of vital signs); and other potential in-hospital caregivers (e.g., family members of patients).
- Develop a plan for distributing information to all people who enter the hospital. Identify staff to answer questions about procedures for preventing influenza transmission.

RECAP

Does Your Plan:

- Have clear mechanisms for identifying triggers to instigate different phases of your plan?
- Have a process for requesting state and federal resources?
- Have scalability – the ability to be readily adapted?
- Have mutual aid and interlocal agreements?
- Have effective surveillance strategies?
- Have provisions for emergency triage, vaccination and treatment centers?
- Have provisions for stockpiling supplies? If so, have you started to assemble the stockpile?
- Have training and orientation provisions and have these been implemented?

Summary

In order to implement your plan you must have appropriate surveillance strategies in order to trigger different phases of your plan. You must have stockpiles and supplies, especially of safety syringes in order to implement your pandemic vaccination program. You must have stockpiles of consumable and durable supplies and have addressed all staffing, legal and ethical issues. Above all, you must have implemented training programs and exercises to ensure that your plan is comprehensive, scalable and effective.

PART IV

THE FUNDING LANDSCAPE

The two biggest problems facing public health officials tasked with pandemic preparedness planning is lack of information about what supplies might be available to them and how to fund it.

There are a number of funding sources for emergency medical supplies and equipment, and communications equipment training.

Public officials have identified the following needs:

- Grants to acquire supplies and equipment and ensure personnel receive the appropriate training and facilities to store them
- Grants to develop data mining and probability software to scan all incoming calls and flag up major emergencies (ultimately software can be developed that operates on a national level)
- Grants for communications equipment, training and reliable back-up systems
- Grants for training and provision of multiple triage centers and for equipping back-up locations
- Grants for vehicles, equipment, training, evacuation planning and control
- Grants for development of asset-management models and training skilled personnel to manage and control resources

Working Funding Sources

Finding sources of grant funding is a time-consuming and tedious process because of the number of agencies involved at federal and state level. Use tools, such as INPUT (www.input.com), and establish a protocol to:

1. Discover which agencies provide grants for your specific areas of activity
2. Obtain current and previous program plans
3. Create a 'Daily Check' folder on your computer to monitor targeted agency Web sites
4. Understand the grant cycles
5. Keep a calendar of when grants should be announced
6. Get on the mailing list
7. Learn everything you can about those grants, especially funding priorities, application procedures and submission deadlines

8. Make contact with the person responsible for the grant at the funding agency and build a rapport
9. Develop partnerships to increase grant eligibility

The Following Agencies Provide Funding for Homeland Security Related Medical Responses.

Note: This is not a definitive list of all grants available but an overview of major funding agencies and the grants they offer in this and associated areas of security-type medical responses.

Department of Health and Human Services

• Pandemic Preparedness Planning Grants & Funding

All 50 states, seven territories, the Commonwealth of Puerto Rico and the District of Columbia will receive grants from the U.S. Department of Health and Human Services (HHS) totaling \$100 million. Each state will receive a minimum of \$500,000, with the rest of the funds allocated by population. States and municipalities will use these funds to accelerate and intensify current planning efforts for pandemic influenza and prepare to exercise their plans. This funding is part of the \$350 million included in the recent emergency appropriation for combating pandemic influenza passed by Congress in December. The remaining \$250 million from the appropriation will be awarded later this year in accord with guidance that will require progress and performance.

For more information, especially about allowable costs, visit: <http://www.bt.cdc.gov/planning/coopagreement/pdf/phase2-panflu-guidance.pdf>

Health Resources and Services Administration

• Bioterrorism Training And Curriculum Development Program (BTCDDP)

This program supports development of new and enhanced models of undergraduate/graduate curricula and continuing education and training for health

Note: Many critical tasks that are relevant to pandemic influenza planning, exercise and response can be found in the greater PHEPCA and NBHPP cooperative agreements. New supplies and equipment, such as personal protective equipment, safety syringes, ventilators, etc., are allowable purchases. Costs associated with Pandemic Influenza Summits conducted prior to the award are allowable expenses and should be coordinated with the NBHPP to avoid duplication and costs. While these funds may be used to either retain staff or expand staff resources, applicants are reminded that these are emergency supplemental funds.

professionals that equip them to prepare for and respond to emergencies, including bioterrorism, other forms of terrorism (such as the use of chemical, explosive, incendiary or nuclear agents against civilian populations), natural disasters and catastrophic accidents.

- **National Bioterrorism Hospital Preparedness Program (NBHPP)**

The purpose of the program is to prepare hospitals and supporting healthcare systems, in collaboration with other partners, to deliver coordinated and effective care to victims of terrorism and other public health emergencies.

<http://www.hrsa.gov/bioterrorism/overview.htm>

- **Delta States Rural Development Network**

The purpose of the Delta States Rural Development Network (Delta) Grant Program is to support community organizations in the development and implementation of projects to address local healthcare needs in the rural Delta Region (Alabama, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee). This will be achieved by awarding a single grant to one organization within each of the eight Delta States.

- **Rural Health Network Development Planning Grant Program**

These grants provide support to entities that need assistance to plan, organize and develop a healthcare network because they do not have a significant history of collaboration and are not sufficiently evolved to apply for a three-year Rural Health Network Development Grant.

National Institutes of Health

- **Technology Development for Biomedical Applications**

Grants for innovative applications for the development of new and improved instruments or devices, the development of new methodologies using existing instruments, and the development of software related to instrumentation.

Department of Homeland Security (DHS)

Medical Supplies and Limited Pharmaceuticals are listed as allowable equipment categories under the 2006 Homeland Security Grant Program (HSGP), under the following consolidated components:

- **Homeland Security Program (SHSP)**

The FY 2006 Homeland Security Grant Program (HSGP) integrates the State Homeland Security Program (SHSP), the Urban Areas Security Initiative (UASI), the Law Enforcement Terrorism Prevention Program (LETPP), the Metropolitan Medical Response System (MMRS), and the Citizen Corps Program (CCP). The HSGP program provides funding for planning, organization, equipment, training, exercises, and management and administration to prevent, protect against, respond to and recover from terrorist attacks, major disasters and other emergencies. The Homeland Security Program funding for FY 2006 is estimated at \$2.5 billion.

The Homeland Security Program includes:

- **Metropolitan Medical Response System (MMRS)**

The MMRS Program began in 1996 and currently is funded by the DHS. The primary focus of the program is to develop or enhance existing emergency preparedness systems to effectively respond to a public health crisis, especially a weapons of mass destruction (WMD) event. Through preparation and coordination, local law enforcement, fire, HAZMAT, EMS, hospital, public health and other “first response” personnel plan to more effectively respond in the first 48 hours of a public health crisis. The FY 2006 MMRS program provides funding to designated localities to assist in writing plans, developing training, purchasing equipment and pharmaceuticals, and conducting exercises to achieve the Target Capabilities necessary to respond to a mass-casualty event, whether caused by a WMD terrorist act, epidemic disease outbreak, natural disaster, or HAZMAT accident, during the crucial first hours of a response until significant external

MMRS Target Capabilities

- Planning
- Community Preparedness and Participation
- Communications
- Information Gathering and Recognition of Indicators & Warnings
- CBRNE Detection
- Epidemiological Surveillance & Investigation
- Public Health Laboratory Testing
- Citizen Protection: Evacuation and/or In-Place Protection
- Isolation & Quarantine
- Critical Resource Logistics & Distribution
- Urban Search & Rescue
- Emergency Public Information & Warning
- Responder Health & Safety
- Triage & Pre-Hospital Treatment
- Public Safety & Security Response
- Medical Surge
- Medical Supplies Management & Distribution
- Environmental Health
- Mass Prophylaxis
- Mass Care
- Firefighting Operations/Support
- Fatality Management
- WMD/Hazardous Materials Response & Decontamination

assistance can arrive and become operational. Recognizing that MMRS is inherently multi-jurisdictional, funds must be expended to support the regional MMRS to establish and sustain enhanced local capabilities. States are encouraged to pass through 100 percent of grant funds, but may retain 20 percent to facilitate strategy assessment and capability integration between the State and MMRS jurisdictions. States must have written concurrence between the SAA and MMRS Steering Committee Chair to use funds to:

- Support regional MMRS Operational Areas overall
- Advise and assist MMRS jurisdictions in awareness of, and in providing input to, State and Urban Area Homeland Security Assessments and Strategies
- Ensure that MMRS-related mutual aid agreements conform to statewide and state regional resource management requirements and capabilities
- Advise and assist MMRS jurisdictions with HSPD-8 preparedness assessments and reporting

Note: The period of performance for MMRS is 24 months from the award date. A portion of this period overlaps with deliverable schedules under FY 2004 and FY 2005 MMRS grants. Grant recipients, to the greatest extent possible, should correlate the funding from FY 2006 MMRS Program with the ongoing activities funded by the previous year's vehicles to determine the best allocation of funds between ongoing and new initiatives.

Revised Capability Focus Area (CFA)

This CFA links to the Medical Surge Target Capability. MMRS jurisdictions are strongly encouraged to develop, in conjunction with state and urban area officials, altered standards of care authorities and guides, based on the information provided in the AHRQ report, "Altered Standards of Care in Mass Casualty Events" (pub. No. 05-0043, April 2005).

Elements of the MMRS baseline capabilities apply to this area, including the WMD CBRNE plans and

Local Hospital and Regional Healthcare Systems Plan. The provisions of FY 2004 and FY 2005 CFA 2, “ensure operational viability of mass care shelters and medical treatment facilities” are incorporated into this CFA:

- Revise or update current plans to include the provision of hazardous/toxic substances portal and point detection and monitoring, decontamination and public safety support to mass care shelters and medical treatment facilities by designated personnel and equipment.
- Consider the establishment of reception centers, which consolidate monitoring, triage, decontamination and registration of affected people.
- Identify agent antidotes by types and dosage volumes and planning for storage, dispersal and dispensing, and awareness of how agent antidote dosages may impact the health of vulnerable populations (e.g., immune-suppressed individuals, children).
- Ensure that alternate medical treatment facilities have immediately available electric power, water and sewer, environmental controls and other necessary infrastructure support to become operationally viable on short notice.

- **Citizen Corps Program (CCP)**

The CCP was created to help coordinate volunteer activities that make our communities safer, stronger and better prepared to respond to any emergency situation. It provides opportunities for people to participate in a range of measures to make their families, their homes and their communities safer from the threats of crime, terrorism and disasters of all kinds. Coordinated nationally by the Office of Domestic Preparedness grants are available to:

1. Bring together the appropriate leadership to form and sustain a Citizen Corps Council
2. Develop and implement a plan for the community to engage all citizens in homeland security, community preparedness and family safety, and incorporate citizen participation in existing plans and activities

3. Conduct public education and outreach in order to inform the public about their role in crime prevention, mitigation, emergency preparedness for all hazards, public health measures, including bio-terrorism, and to encourage personal responsibility and action
4. Develop and implement Citizen Corps programs offering training and volunteer opportunities to support emergency management and emergency responders, disaster relief organizations, and community safety efforts, to include: Community Emergency Response Teams (CERT), Neighborhood Watch, Volunteer in Police Service (VIPS), Medical Reserve Corps (MRC), Fire Corps, and Citizen Corps affiliates
5. Enable citizens to participate in exercises and receive training and equipment

- **Urban Areas Security Initiative (UASI)**

This program provides financial assistance to address the unique planning, equipment, training and exercise needs of large urban areas, and to assist them in building an enhanced and sustainable capacity to prevent, respond to and recover from threats or acts of terrorism. The intent of the UASI program is to create a sustainable national model program to enhance security and overall preparedness to prevent, respond to and recover from acts of terrorism. States must ensure that the identified urban areas take an inclusive regional approach to the development and implementation of the UASI Program and involve core cities, core counties, contiguous jurisdictions, mutual aid partners, port authorities, rail and transit authorities, state agencies, Citizen Corps Council(s) and MMRS steering committees.

- **Law Enforcement Terrorism Prevention Program (LETPP)**

The LETPP program provides funding for the following categories:

- **Planning:** Planning activities associated with information sharing; vulnerability assessments; and development or review of security plans

- **Organizational Activities:** Overtime personnel costs to participate in information, investigative and intelligence sharing activities specifically related to homeland security
 - **Equipment:** Purchasing of specialized equipment to improve information sharing and intelligence activities; make vulnerable targets more resistant to attack, removal or damage; further recognize the potential or development of a threat; enhance capabilities to prevent domestic terrorism incidents; and ensure interoperable communications between and among law enforcement agencies and other emergency service disciplines
 - **Training:** Training activities associated with building information sharing capabilities; methods of target hardening; improving the skills of security personnel; recognition of CBRNE threats; surveillance techniques; and other activities
 - **Exercise:** Exercise activities to plan for, design, develop, conduct and evaluate exercises that train homeland security preparedness, prevention and response personnel, evaluate prevention and response plans, policy, procedures and protocols and assess the readiness of jurisdiction to prevent and respond to terrorist attack
 - **Management and Administration:** Costs associated with the management of the LETPP and implementing State Homeland Security Strategy

Other DHS Grants and Training (G&T) programs with medical supplies as allowable equipment include the:

- **Emergency Management Performance Grant (EMPG) Program** (which was released as a stand-alone application earlier in the fiscal year). The State Administrative Agency (SAA) is the only state body that can apply for and administer these grants which are provided to improve mitigation, preparedness, response and recovery capabilities for all hazards.

- **Assistance to Firefighters Grant (AFG) Program**

Grants are limited to fire departments and emergency medical services (EMS) organizations that are not-for-profit and not affiliated with a hospital. They are awarded to enhance their abilities with respect to fire and fire-related hazards. The program funds activities, such as purchasing firefighting, EMS and personal protection equipment, training, vehicles and firefighter/first responder safety projects. The grant program for FY 2006 is worth \$539.55 million.

CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)

- **National Public Health Performance Standards Program**

The NPHPS Program is a National Partnership initiative that has developed National Public Health Performance Standards for state and local public health systems and for public health governing bodies. The vision, mission and goals of the NPHPS Program are provided below.

This site (www.cdc.gov) provides information on the NPHPS Program, the National Partners, and the resources available to support performance assessment and systems improvement. NPHPS Program and National Partner staffs offer technical assistance, performance assessment analysis reports and systems planning services to users of our assessment instruments. Priority for our technical assistance services is given to locations undertaking coordinated statewide assessments.

- **Cooperative Agreement Guidance for Public Health Emergency Preparedness**

Grants to upgrade and integrate State and local public health jurisdictions' preparedness for and response to terrorism and other public health emergencies with Federal, State, local and tribal governments, the private sector and Non Governmental Organizations (NGOs).

DEPARTMENT OF JUSTICE

• COPS Interoperable Communications Technology Program

The program provides funding to help communities develop effective interoperable communications systems for public safety and emergency services providers. Interoperable Communications Technology grants fund projects that explore uses of equipment and technologies to increase interoperability among the law enforcement, fire service and emergency medical service communities. These projects are the result of thorough planning, and demonstrate how new technologies and operating methods can help communities achieve interoperability.

RURAL UTILITIES SERVICE

• Distance Learning and Telemedicine Loan and Grant Program

There are three categories of eligible purposes: The first includes acquiring eligible equipment. Examples: Computer hardware and software, Audio and video equipment, Computer-network components, Terminal equipment, Data terminal equipment, inside wiring, Interactive audio/video equipment. The second provides for acquiring instructional programming (including the purchase or lease of instructional programming already on the market). The third includes technical assistance and instruction for using eligible equipment, including any related software; developing instructional programming (including the development and modification of an existing instructional programming package); and providing engineering or environmental studies relating to the establishment or expansion of the phase of the project to be financed with the grant.

AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

• Program to Conduct and Coordinate Site-Specific Activities

Funds are available for cooperative agreement programs to conduct and coordinate site-specific activities. The purposes of the program are for recipients to 1) identify pathways of exposure to hazardous waste sites and releases, and 2) identify,

implement and coordinate public health interventions to reduce exposure to hazardous substances at levels of health concern.

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

• Occupational Safety and Health

Education and Research Programs

Grants applications are invited from Education and Research Centers (ERC) that are focused on occupational safety and health.

For more information about medical grants and how to apply for them visit www.itsecuritymagazine.com/grants_medical.htm.

RECAP

You need funding for supplies and equipment as well as training and ongoing planning. You need funds to establish data bases and surveillance programs develop probability software and install back-up systems. Don't forget your communication needs, the cost of additional facilities, vehicles and personnel.

Summary

The two biggest problems facing public health officials tasked with pandemic preparedness planning is lack of information about what supplies might be available to them and how to find it. However, there are a number of funding sources at federal and state level to assist with planning, training and acquisition of equipment.

Set up a dedicated grants team to identify funding sources and apply for them.

Check out the PHEPCA and NBHPP agreements which list a wide range of supplies and equipment, such as personal protective equipment, safety syringes, and ventilators and so on, that are allowable purchases.

CONCLUSIONS

There have been three pandemics in last 100 years. The catastrophic 1918 pandemic brought terror and loss around the world. As a result, the threat of a new pandemic is being taken very seriously and nowhere more so than in the United States.

The government has made significant investments in vaccines, antivirals and research. The goal is to develop a library of live vaccine candidates against all known influenza strains with pandemic potential. To increase the capacity and speed of vaccine production, the government recently awarded more than \$1 billion in contracts to develop cell-based technology for vaccines against both seasonal and pandemic influenza. The government is also stockpiling antivirals and, by the end of the year, should have more than 21 million regimens of Tamiflu capsules.

The government has developed a new, more rapid diagnostic test for H5 strains and is looking at mitigation strategies should a pandemic break out, through social distancing and other techniques. However, as Health and Human Services Secretary Mike Leavitt has repeatedly stressed, preparedness is primarily a local and state responsibility. Any community that fails to prepare with the expectation that the federal or state government will rescue them will be tragically mistaken.

“We are in a race. We are in a race against a fast-moving virulent virus with the potential to cause a pandemic. It is only a matter of time before we discover H5N1 in the Americas. The migration patterns of birds make its appearance here almost inevitable. The arrival of the first H5N1 bird should not be cause for alarm or panic. It does not mean that a pandemic is on our doorstep. It should, however, motivate us to pick up the pace, to renew pandemic preparedness on every front, at every level and in every nation,” said Leavitt.

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Department of Homeland Security
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Institute of Medicine
National Academy of Sciences
National Association of County and City
Health Officials
New York City Department of Health
North Carolina Division of Public Health
Santa Clara County Department of
Health, CA
Trust for America's Health
Union County Department of Homeland
Security, NC
Veterans Administration
White House
World Health Organization

RESOURCES

American Public Health Association
(APHA)
<http://www.apha.org/ppp/grants.htm>

D.H.S. Office for Domestic Preparedness
<http://www.ojp.usdoj.gov/odp/>

Agency for Toxic Substances and
Disease Registry
<http://www.atsdr.cdc.gov/>

American College of Emergency Physicians
<http://www.acep.org/>

CBS News Disaster Links
<http://www.cbsnews.com/digitaldan/disaster/disasters.shtml>

CDC (Centers for Disease Control
and Prevention)
<http://www.cdc.gov/other.htm>

CDC Environmental Health Services
(Emergency and Terrorism Preparedness)
<http://www.cdc.gov/nceh/ehs/ETP/default.htm>

CDC Public Health Practice
Program Office
<http://www.phppo.cdc.gov/>

Center for Nonproliferation Studies at the
Monterrey Institute of International
Security Studies
<http://cns.miis.edu/>

Chemical and Biological Arms
Control Institute
<http://www.cbaci.org/>

Chemical Stockpile Emergency
Preparedness Program
<http://www.fema.gov/preparedness/csepp.shtml>

Council of State and Territorial
Epidemiologists
<http://www.cste.org/>

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<http://ruralhealth.hrsa.gov/funding/Delta.htm>

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<http://www.fema.gov/>

Grants.gov
<http://www.grants.gov>

Health Physics Society
<http://hps.org/>

Homeland Security, U.S. Department of
<http://www.dhs.gov/dhspublic/>

Homeland Security Institute
<http://www.homelandsecurity.org/>

Hospital Quality Initiative of HHS's C.M.S.
<http://www.cms.hhs.gov/quality/hospital>

Lessons Learned Information Sharing
(DHS-MIPT Web site with secure data;
registration required)
<https://www.llis.dhs.gov/>

National Association of County and City
Health Officials
<http://www.naccho.org/>

National Institute for Occupational Safety
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<http://www.cdc.gov/niosh/topics/emres/>

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<http://www.mipt.org/>

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<http://www.hhs.gov/>

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U.S. Department of Veterans Affairs,
Veterans Health Administration, Emergency
Management Strategic Healthcare Group
<http://www.va.gov/emshg>

U.S. Fire Administration
<http://www.usfa.fema.gov/>

U.S. Food and Drug Administration
<http://www.fda.gov/>

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Homeland Defense Journal, Inc., Suite 1003,
4301 Wilson Boulevard, Arlington, Virginia 22203
Phone: 301-455-5633