

Pandemic Influenza Planning

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Introduction

An influenza pandemic occurs when a new strain of influenza virus to which humans have little or no immunity is introduced to the global population. The disease spreads around the globe in recurring waves and infects healthy people just as readily, or even more so, than others. In contrast to seasonal influenza, in which young and old people and those with pre-existing medical conditions are more likely to have complications and a poor outcome, during in a pandemic these characteristics may reverse.

The Centers for Disease Control developed a modeling tool known as the Pandemic Severity Index (PSI), to help plan for pandemics and drive prevention and preparedness activities. As with hurricanes, the PSI rates pandemics from 1 to 5, most mild to most severe, based on the anticipated case fatality ratio (CFR). The 1918 Pandemic is a category 5 on the scale, with a CFR equal to or greater than 2%. At current U.S. population levels, that equates to nearly 2 million deaths. Add to that number an expected illness rate of 30% of the population over the course of 12-24 months and the impact on our society begins to become clear. The medical system alone, which typically operates at 95% of capacity within the U.S., would be overwhelmed in a very short time. Add to that the estimated 40% (to include those infected, those not infect but worried they might be, those afraid to become infected, and care givers) absentee rate and imagine the impact on societies and critical infrastructure around the world. The second and third order effects could easily cascade into complete paralysis of modern social structures.

The 1918 PI outbreak had a detrimental effect on the U.S. military's ability to prosecute World War I. More troops died as a result of the disease than died of combat-related injuries. One of the lessons learned from the 1918 Pandemic was that the Army Staff's failure to act on advice from the Army Surgeon General had devastating effects. Spread of the disease was increased in troops due to close quarters and transit time from Continental United States (CONUS) to the European Continent. In the face of a future pandemic, advance planning will establish lines of authority, support and coordination to provide for the protection and continuing operability of the force.

In March 2006, the United States Navy was tasked with developing a pandemic influenza instruction or plan. In addition, each military service was ordered to develop a pandemic influenza plan and all of these pandemic plans were to be synchronized. Working in concert, the different military services developed an installation-based pandemic influenza template and required every installation to develop a pandemic influenza plan using the template. The

rationale being that if an influenza pandemic occurred, in order for the Department of Defense to mitigate the effects, it would be necessary for all the military services to work together.

The Navy's PI instruction is separated into six sections: Purpose, Situation, Mission, Execution, Administration and Logistics, and Command and Control. The Situation section covers the background, higher level guidance, impact, threat and planning assumptions of an influenza pandemic. The Mission section describes the Navy's primary responsibility during a pandemic. The Execution section provides a detailed list of responsibilities for Navy component commands to meet in order to comply with the Navy's PI instruction. The last two sections provide detailed information on Administrative and Logistics and Command and Control authorities during an influenza pandemic.

For purposes of this article and audience, the majority of the discussion will focus on the execution section. The execution section goes into the specifics of assigning responsibility for specific requirements when planning for an influence pandemic.

DOD Global CONPLAN to Synchronize Response to PI Phases (Response, Virus and Geography Driven)		Federal Government Response Stages (Geography Driven)		WHO Phases (Virus Driven)		
INTER-PANDEMIC PERIOD						
0	No new influenza subtypes have been detected in humans.	0	New domestic animal outbreak in at-risk country.	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. If present in animals, the risk of	
				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.	
PANDEMIC ALERT PERIOD						
1	Receipt of information of human infections with a new viral subtype, but no human-to-human spread, or at most rare instances of spread to a close contact.	1	Suspected human outbreak from animals overseas	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.	
				2	Receipt of information of small cluster(s) with limited human-to-human transmission, but the spread is highly localized suggesting the virus is not well adapted to humans.	
				2	Confirmed human outbreak overseas	
2	Receipt of information of small cluster(s) with limited human-to-human transmission, but the spread is highly localized suggesting the virus is not well adapted to humans.	3	Confirmed human outbreak overseas	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.	
3	Indications and warnings identify large cluster(s) of human-to-human transmission(s) in an affected region.	3	Confirmed human outbreak overseas	5	Larger 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 PI risk).	
PANDEMIC PERIOD						
4	Receipt of information that a highly lethal pandemic influenza virus is spreading globally from human-to-human signaling a breach in containment and failing interdiction efforts.	3	Widespread human outbreaks at multiple locations overseas	6	PI phase, increased and sustained transmission in general population	
				4		First human case in North America
				5		Spread throughout the United States
RECOVERY PERIOD						
5	Receipt of information that case incident is decreasing, indicating the slowing of the pandemic wave. Reconstitution of DOD assets and conditions established to return to a previous	6	Recovery and preparation for subsequent waves			

Diagram 1

Diagram 1 aligns the critical elements of the World Health Organization (WHO) and the United States Government (USG) to align portions of these plans with the Department of Defense (DoD) synchronization concept as appropriate. The Department of Defense phases, depicted on the left of this diagram, is the phase structure that the Department of the Navy will use in their planning efforts.

The potential 30-40 percent absenteeism projected by current models, due to illness, caring for the sick, or unwilling to risk exposure, would have tremendous impact on the Navy's ability to execute current plans. It can be assumed that military movements will be constrained and host countries may limit or prevent freedom of movement or transit of sick personnel through their country. Navy plans must focus on remaining dominant across the full spectrum of military operations, preserving combat capabilities in order to engage adversaries in any theater around the world.

The primary characteristics of the threat during an influenza pandemic are the virus' ability to reproduce within a host, its relatively indiscriminate attack rate and ability to exploit the abundant natural hosts, its ability to mutate quickly, and its ability to easily transmit from human-to-human. The high transmissibility and rapid onset of severe morbidity can result in large numbers of people becoming sick or absent simultaneously.

In order for planning to proceed in a meaningful way it is paramount to make some assumptions about the nature of a pandemic influenza. Without basic planning assumptions, planners have no concrete areas to begin their planning efforts. The DOD developed over 30 planning assumptions for an influenza pandemic. The following are examples of DOD pandemic influenza planning assumptions:

- (1) Pandemics travel in waves; not all parts of the world will be affected at the same time or affected to the same degree (i.e., multiple waves).
- (2) An influenza pandemic outbreak will last between 6 to 12 weeks in one location with multiple PI waves following for a period of 12 to 24 months.
- (3) A vaccine (PI specific strain) will not be available for distribution for a minimum of 4 to 6 months after the laboratory confirmation of sustained human-to-human PI transmission. Once a vaccine is developed, current production capability is limited to 1 percent per week of the total U.S. vaccine required. Foreign manufacturers are not expected to support U.S. demand. Prioritization will be required.
- (4) If an influenza pandemic starts outside the United States, it will enter the United States at multiple locations and spread quickly to other parts of the country.
- (5) PI in the United States will result in 30-40 percent of the population being absent, 3 percent of those infected being hospitalized, and a case fatality rate of 0.2 to 2.0 percent over the course of the pandemic.
- (6) Military treatment facilities will potentially be overwhelmed by DoD patients, dependents and beneficiaries, necessitating outsourcing and alternate care facilities after outsourcing. DoD

treatment of military personnel and other beneficiaries may be prioritized, with changes in priorities and altered standards of medical care during an influenza pandemic.

Once planning assumptions have been established, planners can begin planning for an event and preparing accordingly. For example, if one of the assumptions is 40% of the employees are going to be absent due to absenteeism, due to illness, caring for the sick, or unwilling to risk exposure how will that many employees being absent affect the operations.

During the planning process the Navy has linked certain actions to the specific phases that are outlined in Diagram 1. As the phases change, so do the requirements. The overall planning process occurs during the 6 USG phases. Examples of decisions made during the USG phases are:

- (1) Phase 0 – Realign essential supplies.
- (2) Phase 1 - Allocate resources for PI planning.
- (3) Phase 2 – Distribute and preposition anti-virals, Personal Protective Equipment (PPE) and medical treatment equipment for containment.
- (4) Phase 3 – Targeted release of anti-virals.
- (5) Phase 4 – Close entry level training facilities/ movement of Service members at their Projected Rotation Date (PRD).
- (6) Phase 5 – Re-open entry level training facilities

In order to ensure the Navy and the Department of Defense are synchronized, each installation was provided a template, which walked each installation pandemic influenza planner through setting up a local installation pandemic influenza plan. The key is to make sure that decisions points in your plans are tied to the Phases or Stages illustrated in Diagram 1. Examples of tasking for each phase are listed below:

Phase 0 – SHAPE PHASE

Establish/maintain communications with local, state, federal/host nation, military and public health officials/providers and other agencies/organizations as appropriate.

Identify installation requirements for essential supplies and personnel.

Identify any PI-unique modifications required for the installation incident command and response structure.

Phase 1 – PREVENT PHASE

Identify key installation tasks.

Refine, expand, evaluate and exercise existing PI plans, guidance and programs.

Hold PI-related educational and informational sessions for health/medical and other response personnel.

Identify alternate medical treatment facilities.

Phase 2 – CONTAIN PHASE

Prepare to receive DoD established stockpiles. Ensure adequate security to prevent loss or pilferage.

Prepare to provide mass immunization and care for potentially large numbers of patients.

Develop and establish volunteer networks. Include planning for training, security access, and communications with volunteers.

Phase 3 – INTERDICT PHASE

Conduct screening of installation personnel, to include transiting forces. Direct isolation and/or quarantine of personnel, as required.

Stand-up the installation Emergency Operations Center to enhance installation situational awareness and monitor PI preparations.

Finalize and review installation guidance/SOPs for implementation of social distancing measures, isolation and quarantine.

Validate final list of essential personnel; prepare and disseminate related notification documents.

Phase 4 – STABILIZE PHASE

Prepare and notify of impending cancellation/ suspension of non- essential events and services, or alternate availability/access to essential goods and services.

Activate, as needed, operation of volunteer networks to support operations.

Direct social distancing on all forms of mass transit (limit seating to every other seat and wearing of PPE, IAW CDC).

Distribute masks, gloves, provide training/fit testing IAW CDC.

Phase 5 – RECOVERY PHASE

Expect gradual return to normal operation as situation dictates.

Evaluate effectiveness of FHP measures for use in future waves/pandemics.

Continue to monitor and assess for follow on waves.

An effective pandemic influenza plan is going to be different for each organization. The organization's size, population demographics, location, mission, etc, will affect how the pandemic influenza plan is written. The one constant among all organizations is making sure your pandemic influenza planners are intimately familiar with the resources that are available. Information and guidance are always being updated, and the pandemic influenza planner needs to be vigilant in their duties with staying current.