H1N what?: Planning for the Next Pandemic Influenza Outbreak in Maryland

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The Maryland Department of Health

First formed in 1969 and includes the Office of Preparedness and Response [1]

Mission: to maintain the health and safety of all residents through disease prevention, access to care, and quality management [1].

Objectives [2]:

1. Monitoring and improving public health services to Maryland residents
2. Assisting residents with addictions and psychiatric disorders to recover
3. Coordinating a service delivery system to provide appropriate services to residents with developmental and intellectual disabilities
Project Overview

1. Complete preparatory courses online provided by FEMA to get familiarized with the Incident Command System (ICS)

2. Assist in the facilitation of the OP&R Pandemic Influenza planning workgroup by preparing meeting materials and gathering recommendations and feedback from successive meetings

3. Present an updated draft of the Maryland Pandemic Influenza Plan that is consistent with federal, state, and local planning and recommendations
What is an Influenza Pandemic?

● Influenza (flu) is a very contagious viral infection that attacks a person’s respiratory system [3].

● An Influenza pandemic is a “global outbreak of a new influenza A virus that is very different from current and recently circulating human seasonal influenza A viruses” [3].

● 3 documented cases of a pandemic influenza outbreak, with the most severe one caused by Spanish flu pandemic of 1918 (H1N1 virus) [4].
The 1918 Spanish Flu Pandemic

- **Deadliest** pandemic in history [5]
- **500 million people** globally were infected (⅓ of the entire world) [5]
- **50 million people died, including 675,000 US Americans** [5]
- Hospitals did not have any effective treatments or a vaccine, so efforts to contain the pandemic were only limited to public health procedures (quarantine, good hygiene, and disinfection of public spaces)
- All procedures were inefficient due to the lack of a proper preparedness plan [4]
During the first 6 months of each pandemic...

244k Deaths from COVID-19 [6]

25 Million Deaths from the Spanish Flu [7]
Public Health Significance

1) **Prepares** local organizations to stop the spread of a deadly Influenza virus, saving the lives of numerous individuals

2) **Prevents** collateral damage to the economy, schools, or government

3) **Promotes** primary prevention where organizations such as supermarkets and universities offer free flu vaccines to the community and spread awareness
Methods

1. **Review and understand** current Pandemic Influenza and Infectious Disease Response plans

2. Conduct **literature reviews and crosswalk tables** about the influenza virus and preparedness programs of other states

3. **Suggest modifications for the updated draft** of Pandemic Influenza Plan while assisting in the facilitation of the OP&R planning workgroup
<table>
<thead>
<tr>
<th><strong>MD Pandemic Flu Plan</strong></th>
<th><strong>HHS Pan Flu Plan 2017 Update</strong></th>
<th><strong>Similarities</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>The introduction presents facts about the Influenza virus and its effects on patient mortality, morbidity and productivity in Maryland as well as the significant economic burden it has on society.</td>
<td>This introduction does not focus on the economic effects of the Influenza virus, but on the morbidity and history of the Influenza virus as well as the accomplishments of the HHS Plan and vaccine development.</td>
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<tr>
<td><strong>Purpose</strong></td>
<td>To provide operational guidance for DHMH and other supporting agencies and partners in the event of an Influenza Pandemic.</td>
<td>Both introductions mention the history of the virus and emphasize on the H5N1 as being the next possible threat.</td>
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<td><strong>Goals</strong></td>
<td>1) Stopping, slowing or otherwise limiting the spread of a pandemic to the State; 2) Limiting the spread of a pandemic, and mitigating disease suffering and death; 3) Sustaining infrastructure and mitigating impact to the economy and the functioning of society.</td>
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<td></td>
<td>1) Ensure that all reasonable measures are taken to limit the spread of an outbreak within the State's borders; 2) Establish comprehensive and credible preparedness and response plans that are exercised on a regular basis; 3) Integrate non-health entities in planning for a pandemic, including law enforcement, utilities, political leadership, businesses, schools, and others; 4) Establish state and local stockpiles of supplies and distribution systems to support a pandemic response; 5) Identify key spokespersons and ensure a coordinated crisis communications plans; 6) Provide public education campaigns on pandemic influenza and public and private interventions.</td>
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<td><strong>Objectives</strong></td>
<td>1) Increase capability to gather better, timelier data</td>
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<td>Objective 1.1 – Provide continued state support for surveillance, epidemiology, and lab capability by ensuring there is adequate staff and supplies to meet the increased demands of a pandemic event. Objective 1.3 – Improve the ability to describe influenza disease and conduct epidemiologic studies to direct pandemic response efforts. Objective 2.1 – Improve public awareness and implementation of non-pharmaceutical interventions to prevent and slow the spread of influenza by establishing a communication team that will develop user friendly messages for a wide range of audiences. Objective 2.2 – Provide updated guidance for public health officials on the use of non-pharmaceutical interventions (NPIs) by the general public and in key community settings (schools, child care settings, workplaces, mass gatherings), and improve communication to these key community settings. Objective 2.3 – Maintain support of multi-disciplinary partners local public health officials preparing for, and utilizing non-pharmaceutical interventions during, a pandemic influenza response. Objective 2.4 – Ensure that travelers’ health messages and border health measures taken at US ports of entry to slow the introduction or exportation of influenza are based on best available data and aligned to the severity and stage of the influenza pandemic. Objective 3.6 – Monitor the clinical safety and effectiveness of vaccines and other MCMs through enhanced data collection and analysis capabilities. Objective 4.1 – Ensure access to appropriate care,</td>
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<tr>
<td>Objective (HHS Plan)</td>
<td>Key Action/Activity</td>
<td>Goal (MDH Plan)</td>
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<td>1.1</td>
<td>HHS will increase US and global capacity to use genetic sequencing for better and timely surveillance and development of MDVs. HHS will more broadly implement whole-genome, next generation sequencing, with its unprecedented throughput, to provide more genetic information to more rapidly detect and characterize viruses and select viruses for vaccines. Data generated from these capabilities will be available to HHS stakeholders to rapidly inform vaccine and therapeutic development.</td>
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<tr>
<td>1.1</td>
<td>HHS, through the IPR, will further improve the time from research production to distribution to domestic and international laboratories to improve the timeliness of development of MDVs.</td>
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<tr>
<td>1.1</td>
<td>HHS will further enhance the capacity of global surveillance and response by bolstering laboratory and epidemiologic resources. In particular, HHS will continue to collaborate with international partners to assess and build national sentinel and laboratory-based surveillance capabilities, including developing interoperable, interconnected electronic reporting systems.</td>
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<td>1.1</td>
<td>HHS will leverage “Big Data” to improve its ability to monitor and describe influenza disease and conduct epidemiologic studies. HHS will use supplemental data sources (such as electronic health records, social media, or big-data repositories) to better monitor and characterize potential pandemic influenza activity in as close to real time as possible. It will utilize innovative data sources and models to better forecast disease emergence and patterns.</td>
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<td>1.1</td>
<td>HHS will validate and fully implement Right Side tools in all state public health labs to ensure efficiency in specimen processing and reduce bottlenecks of testing for improved surveillance systems.</td>
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<td>1.1</td>
<td>HHS will improve laboratory identification of novel influenza viruses by supporting development of innovative detection tools and methods, as well as distributing diagnostic reagents using the IPR.</td>
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<td>1.1</td>
<td>HHS will leverage trends in personal health monitoring, including possibilities of at-home diagnostic and treatment, to prevent and control further spread of disease during pandemics.</td>
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<td>1.1</td>
<td>HHS will develop and implement systems to track effectiveness of pandemic influenza vaccines, alone or in combination with seasonal influenza vaccines.</td>
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<tr>
<td>1.1</td>
<td>HHS will double the number of domestic sentinel sites used for annual VE determination and coordinate data and processes for VE determination with international VE processes to improve the alignment of VE data. HHS will also implement an annual process for VE determination by vaccine manufacturers to inform vaccine development and optimization.</td>
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<td>1.1</td>
<td>HHS will work closely with partners in agriculture to improve surveillance of influenza viruses in birds, swine, and other animals, and will improve tools and processes for monitoring workers engaged in responding to influenza outbreaks in animals.</td>
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<td>2.2</td>
<td>HHS will continue to collect data on the effectiveness of specific or combination NPIs in reducing the spread of influenza virus. These data will be published in public health journals, and clear communication materials will be developed to assist in community implementation of effective NPIs.</td>
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<td>2.1</td>
<td>HHS will continue to update and translate into multiple languages the public information on NPIs as new data are generated on NPI effectiveness.</td>
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<td>2.1</td>
<td>HHS will integrate behavioral health, organizational and resilience research in communications about NPI and community mitigation.</td>
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<td>2.1</td>
<td>MDH will work closely with partners in biotechnology, to provide screening tests for Baltimore/Washington International (BWI) Thurgood Marshall Airport and Martin State Airport. MDH will also work with adjacent states Pennsylvania, Delaware, Virginia, West Virginia, and Washington D.C. to ensure that safety protocols for travelers are also being taken.</td>
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General Planning Process Overview

December 10, 2019

Goals, Objectives, Assumptions

January 28, 2020

Activity Checklists

February 18, 2020

Final Plan Review

March 19, 2020 (cancelled)
Major Findings

A) The Most Prepared States
- Most prepared state for a possible outbreak is Massachusetts [9]
- Maryland ranks second, proven to be a highly equipped state
- Evaluation Indicators include:
  1. Funding commitment
  2. Number of hospitals that meet the criteria for antibiotic resistance and flu vaccines
  3. National Health Security Preparedness Index influenced by preparedness plans [10].

B) The Importance of Communication
- Usage of common language among team members
- Poor communication with the public drastically decreases the effectiveness of a preparedness plan (as seen in today’s COVID-19 pandemic) [11].
- Poor communication could lead to a “loss of trust” in the government’s ability to protect the nation in the future” [11].
Limitations and Challenges

1. Pace of a government job
2. Government processes and procedures
3. Incident Command System terms
Reflection and Lessons Learned

1. Really **enjoyed** working with my preceptors and task force
2. A much better understanding of **government work and processes**
3. Reinforcement of **significance of a state’s department of health**
4. The experience of **being part of a task force**
5. The importance of **proper communication**
6. **Patience** goes a long way
References


Acknowledgements

My preceptors and mentors:

- **Jessica Acharya**, Career Epidemiology Field Officer (CEFO), Centers for Disease Control and Prevention (CDC)

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- **Veronica Black**, Deputy Director, Office of Preparedness & Response, Maryland Department of Health
Questions?

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