PanViz

Mission Need

On November 1st, 2005 the National Strategy for Pandemic Influenza was issued as a guide for our nation’s preparedness and response to an influenza pandemic with the intent of (1) stopping, slowing or otherwise limiting the spread of a pandemic to the United States; (2) limiting the domestic spread of a pandemic, and mitigating disease, suffering and death; and (3) sustaining infrastructure and mitigating impact to the economy and the functioning of society. In order to help public health officials better understand these charges, we have developed the PanViz toolkit. Through the application of the Indiana State Pandemic Influenza Planning Tool developed by partners at the Pacific Northwest National Laboratory, we simulate a pandemic outbreak originating in Chicago, IL with attack and mortality rates similar to the 1918 pandemic. Our PanViz tool allows officials to track the spread of influenza across the state of Indiana and implement various decision measures at any time during the pandemic. These decision measures can be toggled on and off to allow users to better understand their effects on different county populations. Demographic filtering is also available for various age ranges, and interactive manipulation of model parameters allow users to create various levels of pandemic severity in order to assess various situations. By using this tool, officials can analyze resources and decision outcomes in order to prepare more effective measures for potential pandemics.

Benefit: PanViz technology provides public health officials with a suite of visual analytic tools for analyzing the spread of a pandemic influenza based on our ISPIPT model. This tool allows officials to analyze various decision points (school closure, media reports and SNS release) and their impact on the spread of influenza.

Collaborators:
• Indiana State Department of Health (ISDH)
• Purdue Homeland Security Institute (PHSI)
• Pacific Northwest National Laboratory

Funded by:
• Indiana State Department of Health
**Indiana State Pandemic Influenza Planning Tool (ISPIPT)**

The ISPIPT tool was designed in conjunction with the PanViz toolkit as a modeling software for simulating the first wave of a pandemic influenza. Spread vectors based on the point of origin and distance traveled per day are calculated, and effects on different age groups and population densities are taken into effect. The effects of potential decision measures are also taken into effect. All model assumptions and parameters are easily adjustable through an interactive spreadsheet. While most of these model parameters and controls are available in the PanViz toolkit, ISPIPT also provides finer granularity controls allowing users to adjust parameters on a county by county basis and to display more detailed graphical results on disease impacts over time as shown below.

**Technology Delivery**

Through PanViz and the ISPIPT model, our system provides a visual analytic toolkit that allows users to analyze the effects of decisions made during a pandemic. A current version of our software was delivered to the Indiana State Department of Health for use in their planning and preparedness exercises directed by the Purdue Homeland Security Institute.

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**For more information, contact:**

Dr. David S. Ebert, ebertd@purdue.edu

http://www.purvac.org