United States Department of Health & Human Services
Office of the Secretary
Office of Public Health Emergency Preparedness (OPHEP)

Medical/Public Health Consequence Modeling

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Medical Consequence Modeling: Purpose

As stated in the Federal Register, July 6, 2006:

"OPHEMC undertakes public health modeling of population exposures to assist in determining requirements and assessing deployment and utilization strategies, supports late-stage medical countermeasure research and development to address prioritized requirements for addressing the health effects of naturally-occurring infectious diseases and deliberately released biologic, and chemical and radiation threats that could cause a public health emergency…"

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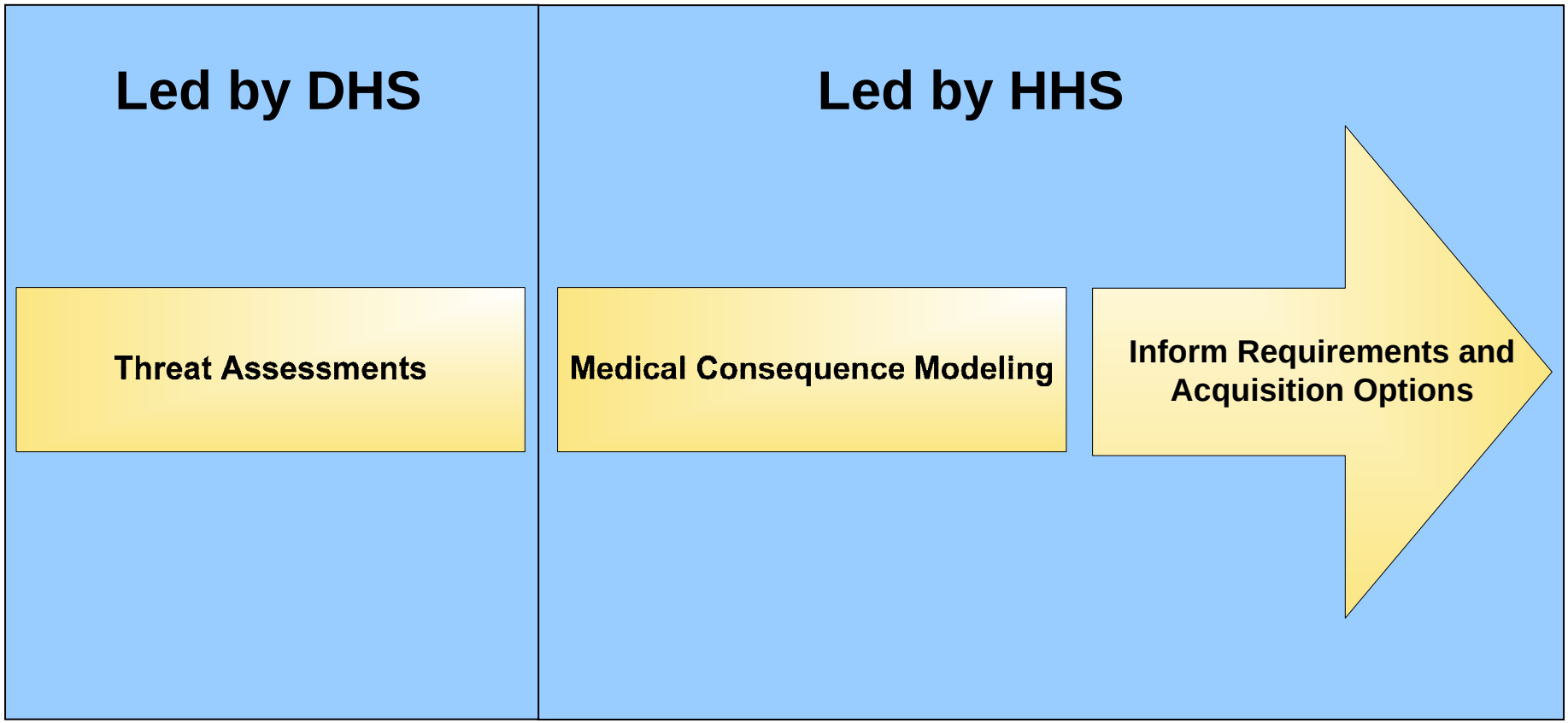
Medical Consequence Modeling: Process Flow



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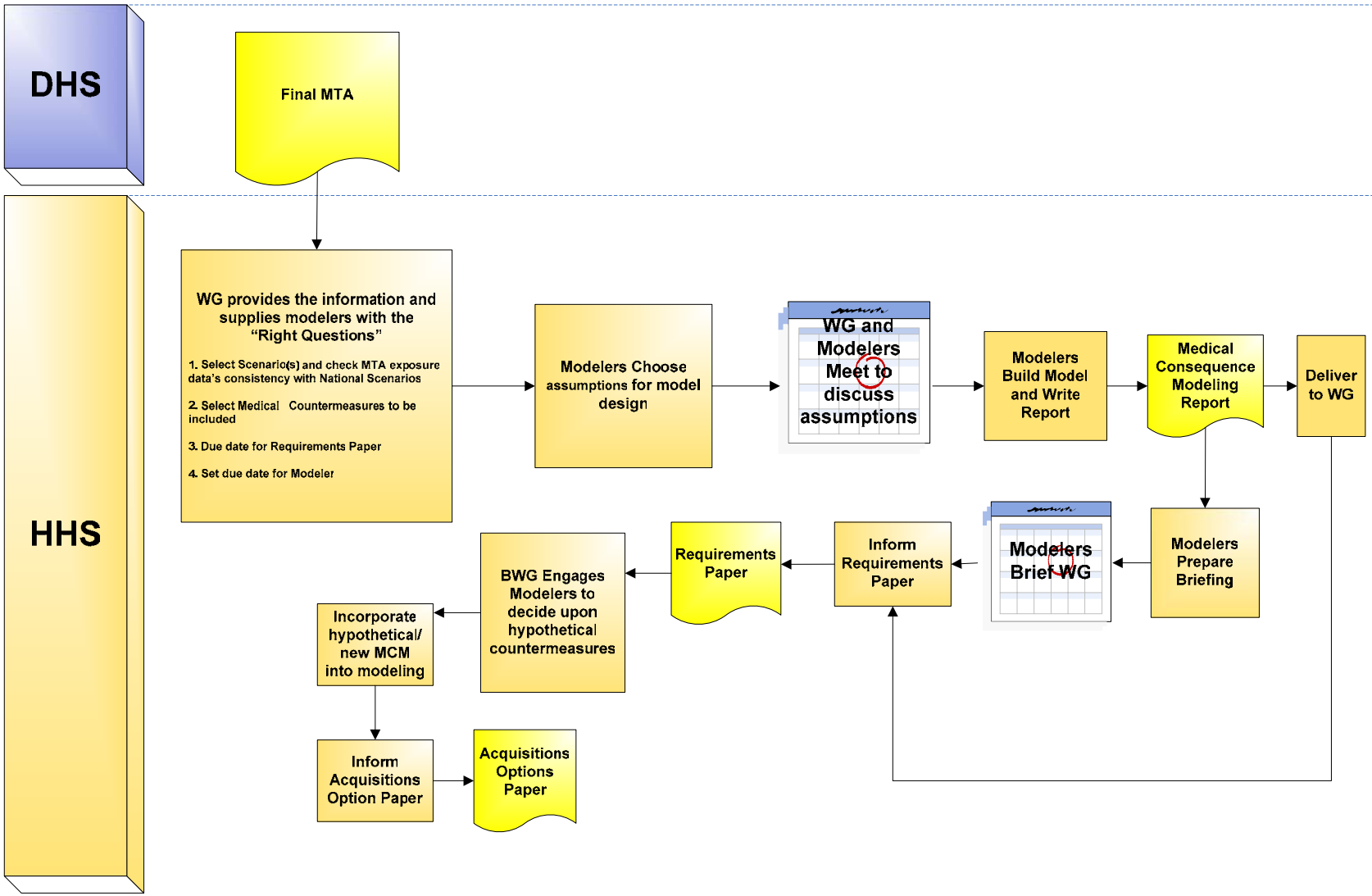
Medical Consequence Modeling: Process Flow



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Medical Consequence Modeling: Key Points of Coordination

- DHS provides our modelers with exposure numbers via the MTA, special projects, and other arrangements.
- The interaction of modelers with the Working Groups and with Subject Matter Experts are vital.

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Medical Consequence Modeling: What questions are being answered?

Models simulate the DHS scenario to answer health questions following an event in a civilian context.

- How many people will become infected or ill?
- How many people will die?
- What difference can be made with existing or potential future medical countermeasures?
- What response times are necessary for the administration of medical countermeasures?
- What if the countermeasures do not work as well as we think they will?

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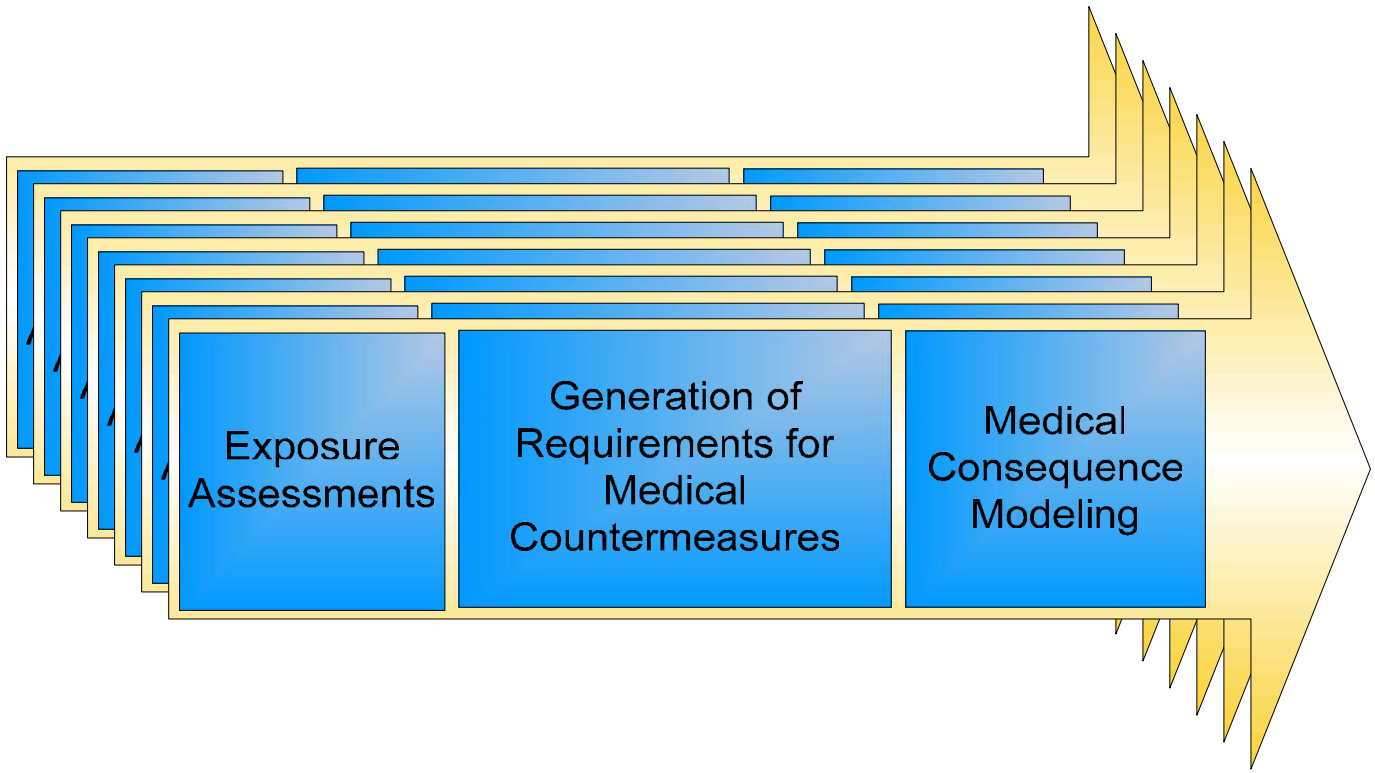
Medical Consequence Modeling: Timeline

- Multiple threat assessments and medical consequence modeling are ongoing at the same time.



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Medical Consequence Modeling: Challenges

- There are multiple scenarios, a diverse array of agents (including biological, chemical, radiological and nuclear) and several countermeasure options to be considered in each medical consequence model.
- In order to ask the right questions, effective communication is required between modelers, working groups, and policy makers.
- Assessing the costs and benefits of acquiring a particular combinations of medical countermeasures.

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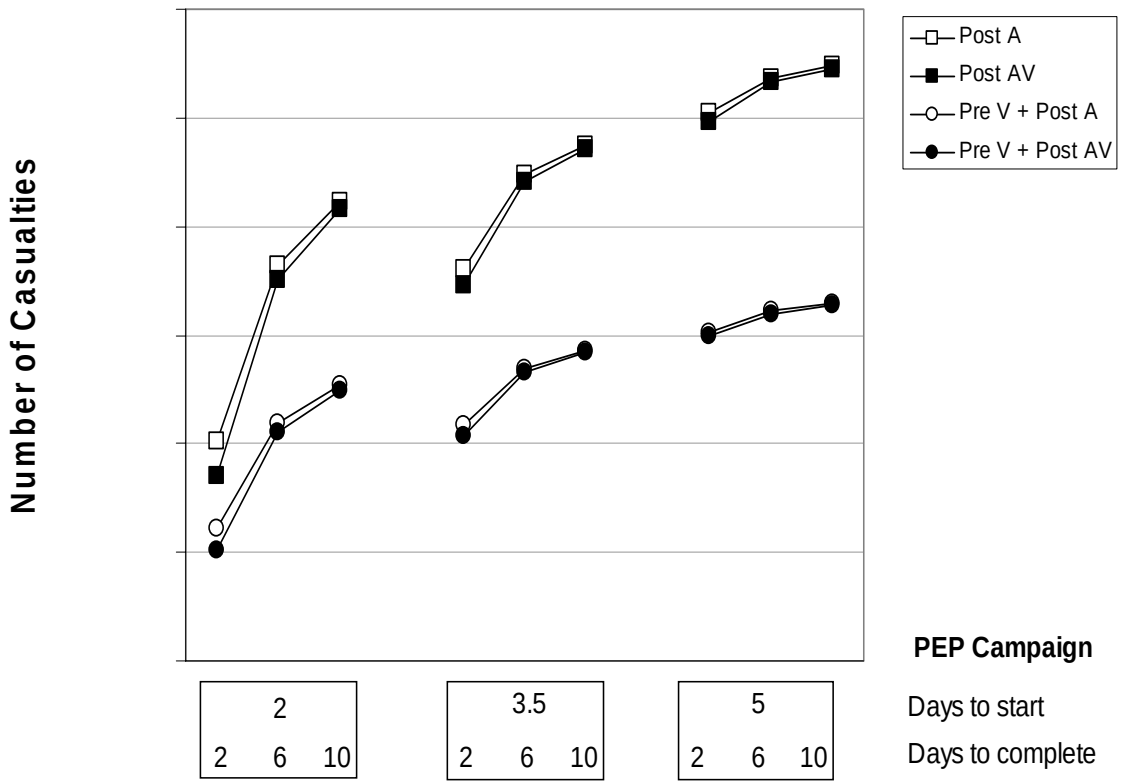
Medical Consequence Modeling: Anthrax Model Analysis and Conclusions

- PEP needs to be started and completed rapidly in order to be effective.
- Addition of PEP vaccination does not save many additional lives.
- Pre-exposure vaccination can greatly lower the number of casualties.
- Pre-exposure vaccination can buy time in the case of a slow PEP campaign.



*PEP: Post-Event Prophylaxis

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Medical Consequence Modeling: Path Forward

As called out in the National Plan for Pandemic Influenza:

HHS is responsible for coordinating with DOD and DHS to establish a "real-time epidemic analysis and modeling hub" that will "explore and characterize response options as a support to policy and decision makers…"