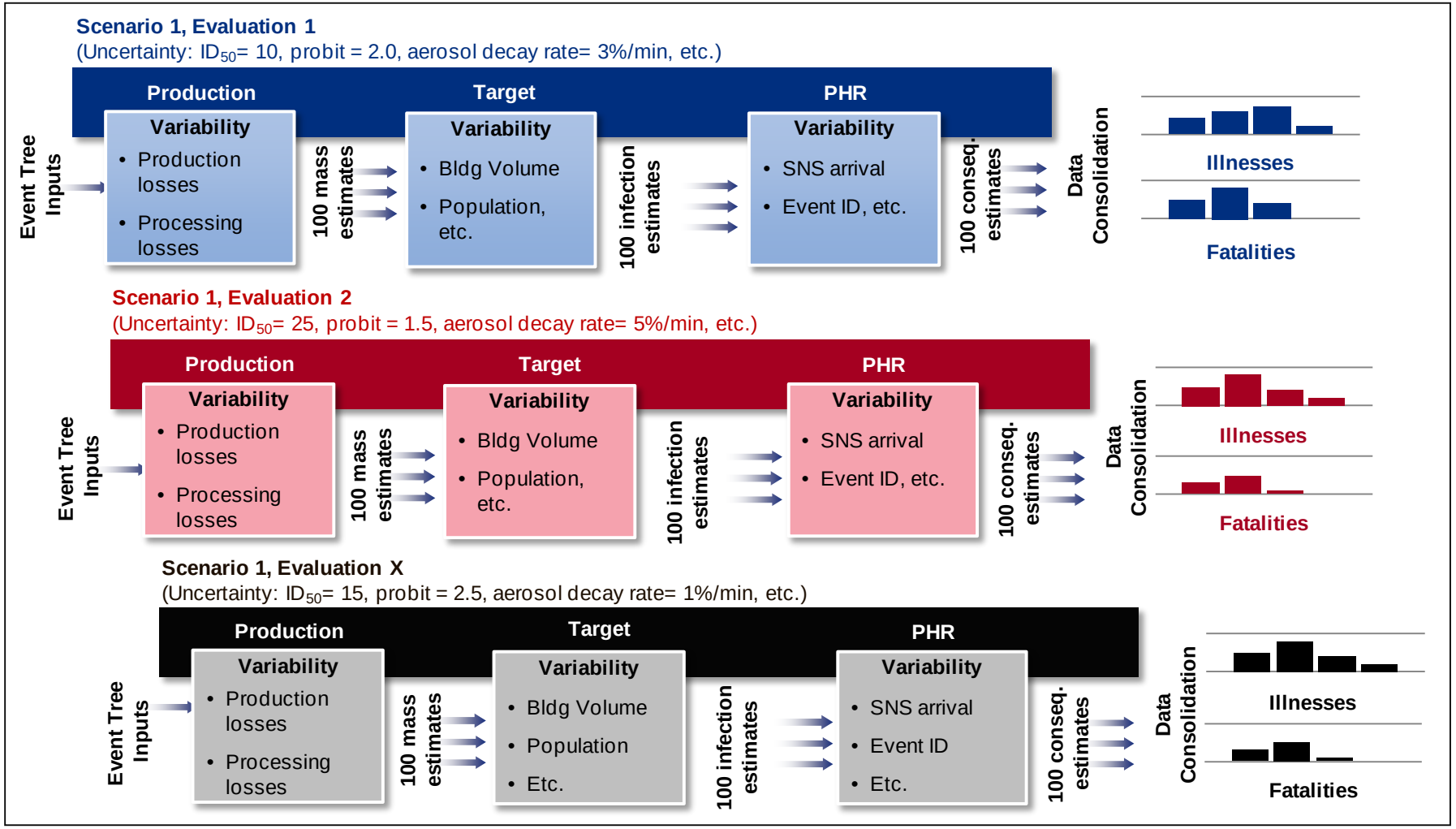
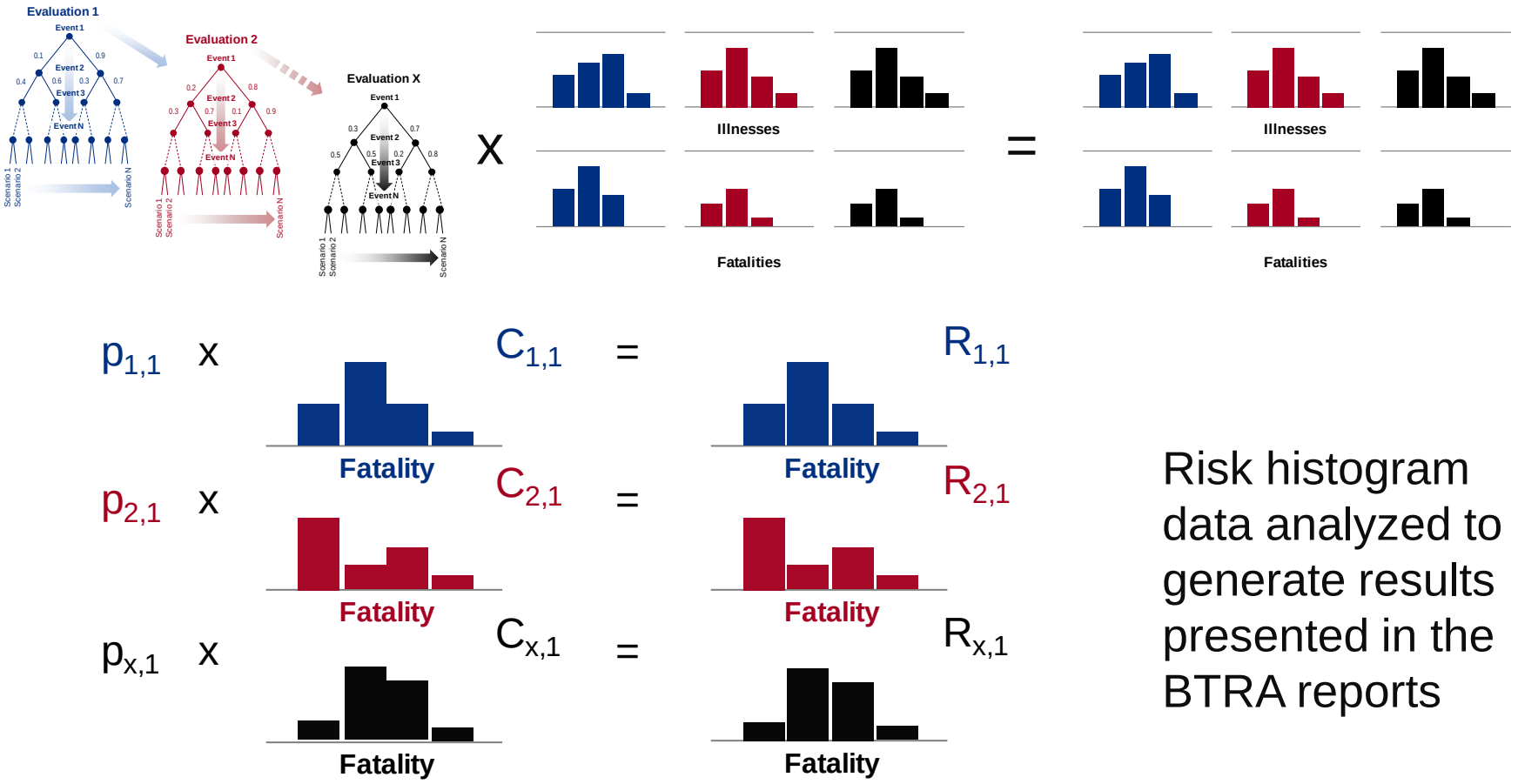
Variability – Consequences

- Consequences estimated multiple times; Monte Carlo samples occur in two stages



Variability – Risk

- Risk for each evaluation calculated; baseline risk includes all evaluations



Risk histogram data analyzed to generate results presented in the BTRA reports

Applying TRA results

- Use the Integrated CBRN Terrorism Risk Assessment (ITRA) to generate several billion biological, chemical, and radiological attack scenarios that represent the risk of terrorism with these agents
- Use the exposure information in these scenarios in models that can predict the ability of the Public Health Response (PHR) system to mitigate the consequences given the dispensing of medical countermeasures (MCM) in the SNS
- Generate other, equal cost, SNS formularies and determine how the dispensing of MCM from these notional formularies mitigates consequences across all scenarios together
    - Recall that risk is defined actuarially as probability x consequences
- The PHEMCE was heavily involved to determine what metrics are used to evaluate the performance of the SNS, and the predicted deployment and use of MCM

MTA to Stockpiling Goals

MTA 2.0	
Unmitigated: # people infected with anthrax	Mitigated: # people needing treatment
1,000,000	TBD
100,000	TBD
10,000	TBD
1,000	TBD
100	TBD

Notional

ESC-approved stockpiling goal based on the need, capacity to use, and other relevant factors

Need-based quantities based on MTA 2.0 results will be a range

MTA 1.0	
Unmitigated: # people infected	Mitigated: # people needing treatment

Requirement

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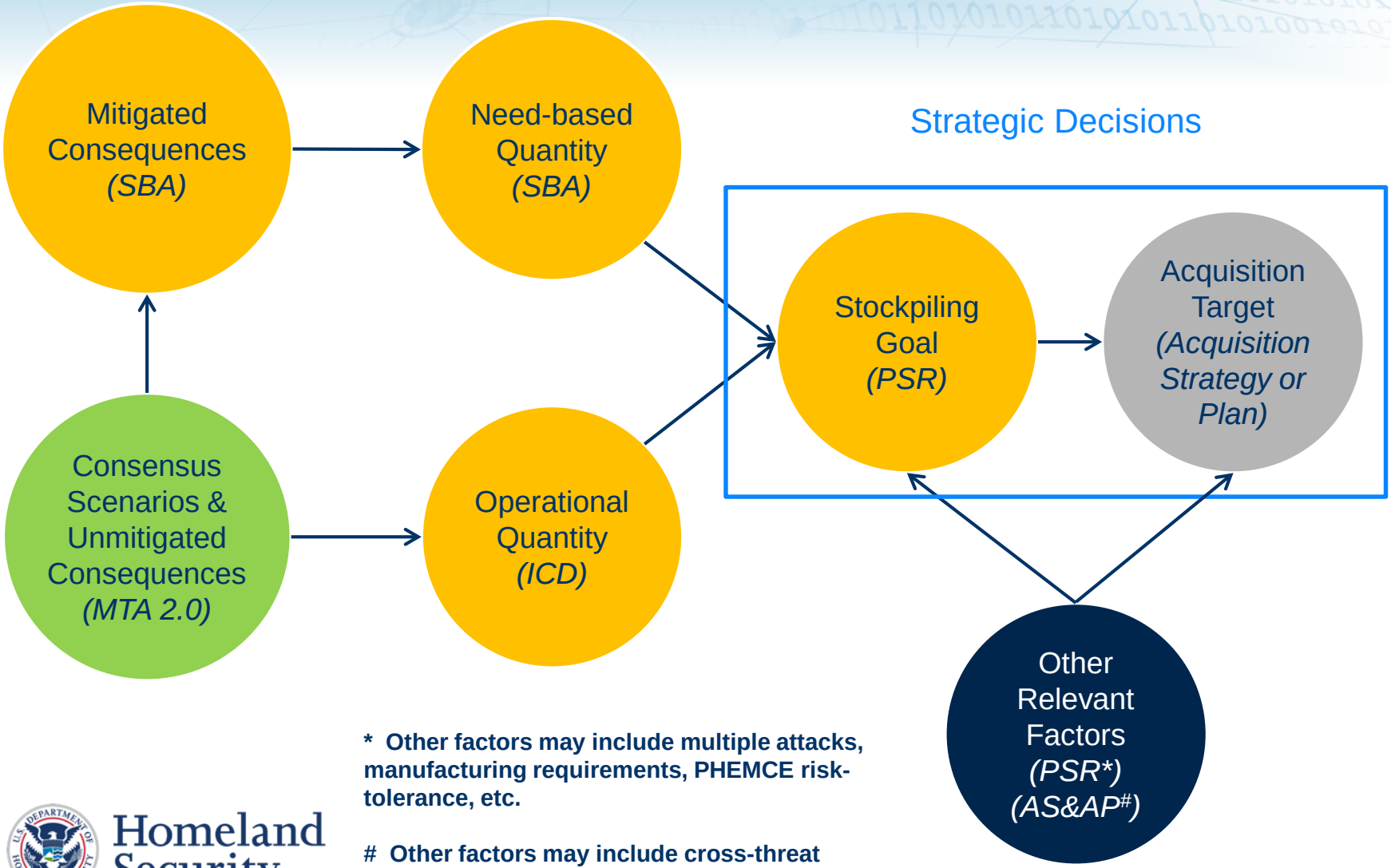
Case Examples



*** Other factors may include multiple attacks, manufacturing requirements, PHEMCE risk-tolerance, etc.**

 # Other factors may include cross-threat prioritization, product cost, market considerations, etc.

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CBRN Examples

Notional

	Unmitigated Consequences (MTA)	Mitigated Consequences (MCA)	Need-based Quantity (SBA)	Operational Quantity (ICD)	Stockpiling Goal (PSR)	Acquisition Target (AS&AP)
Example 1: Antitoxin for Botulism	100,000	10,000	90,000	11,000	20,000	20,000
Example 2: Post-exposure Prophylaxis for Anthrax	300,000	10,000	290,000	35M	44M	24M
Example 3: Antibacterial MCMs for Improvised Nuclear Device	200,000-410,000	90,000-110,000	110,000-300,000	300,000	300,000	300,000

Notional

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Response time vs. disease progression

Optimal mitigation initiated on days 1, 2, 5, and 10

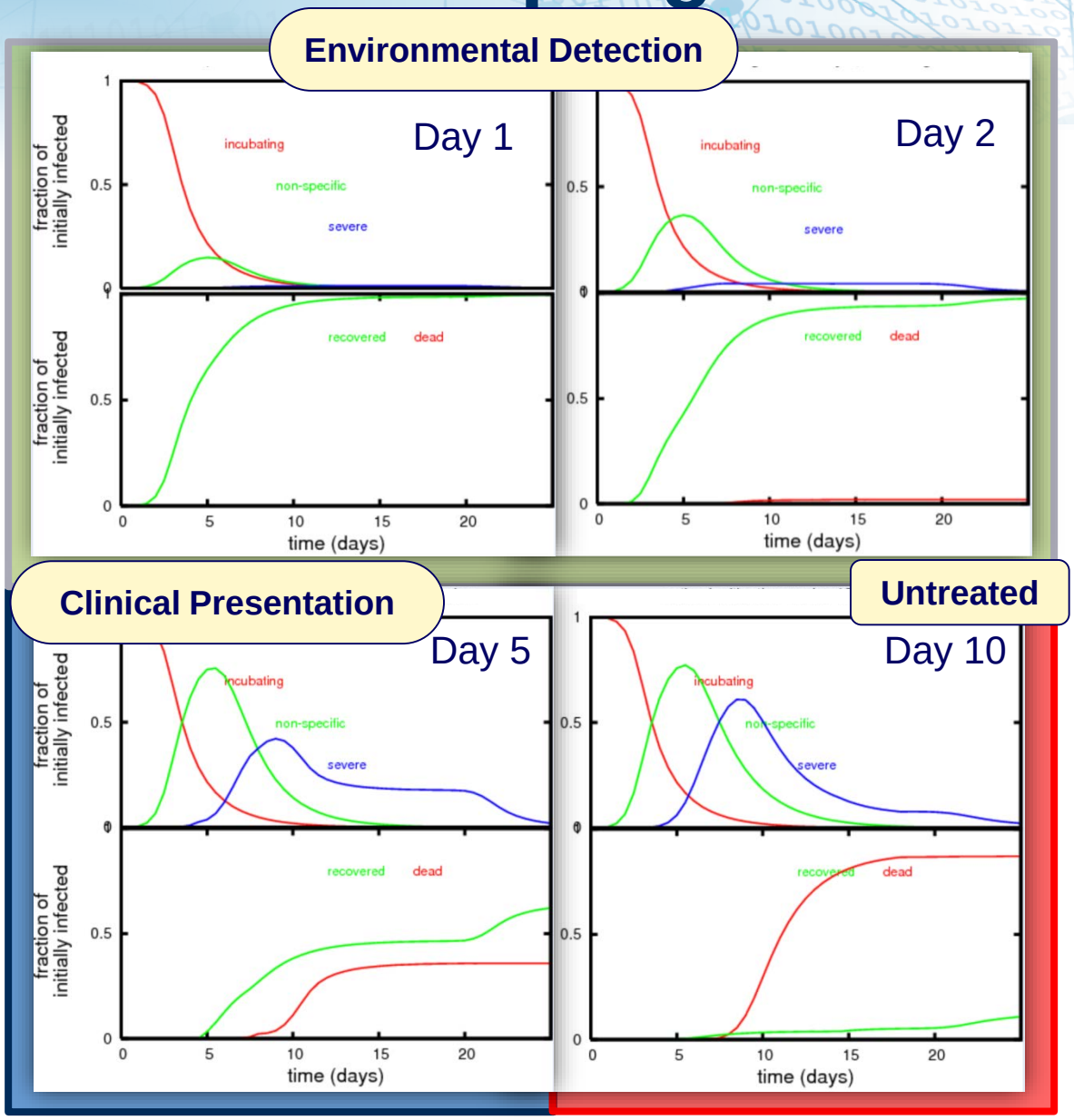
Incubating
Non-specific symptoms
Severe symptoms

Days Post-exposure

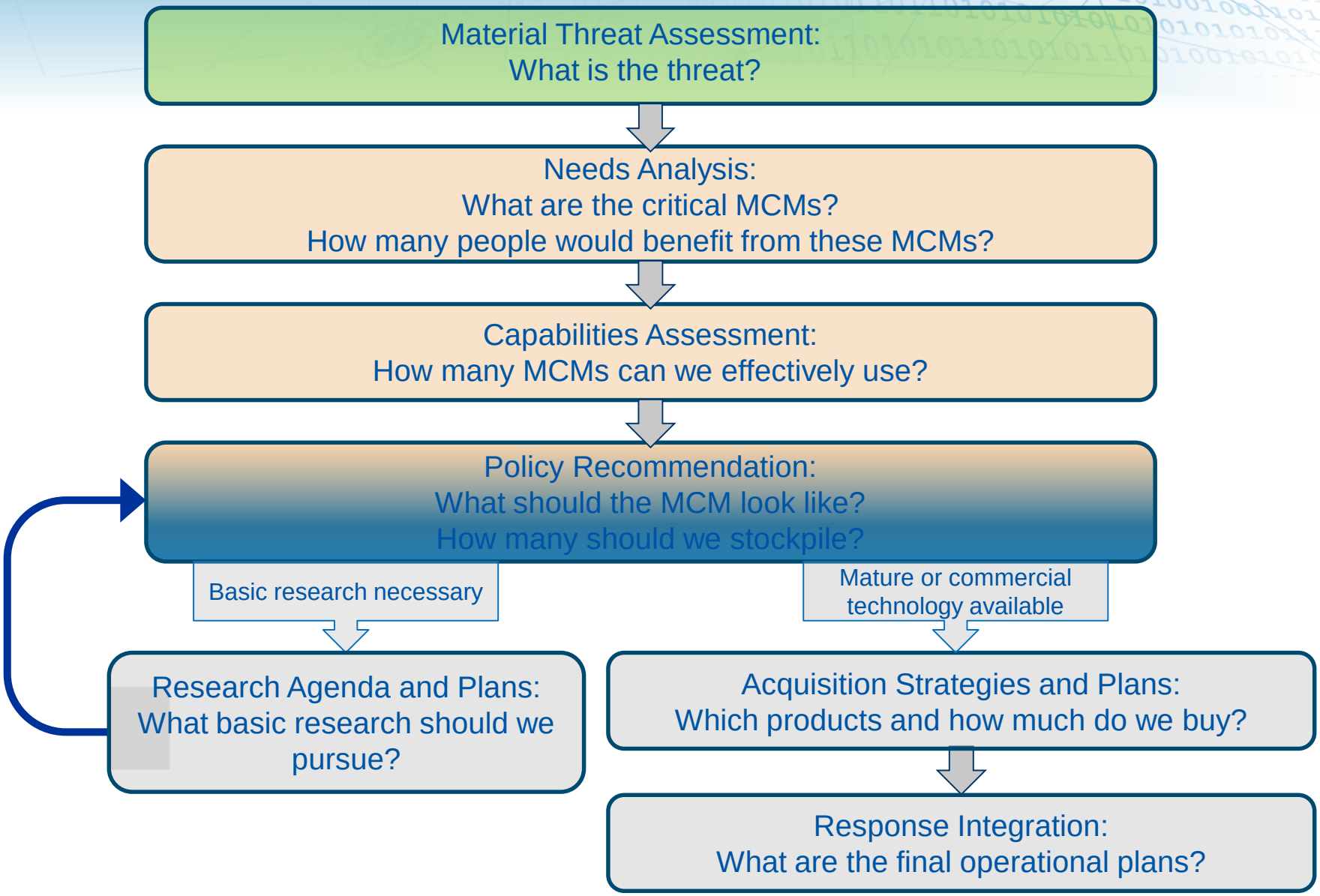
Recovered
Dead

Predicted Outcome

- Non-specific symptoms are “flu-like”, and begin showing up around day 2.
- Severe (disease-specific) symptoms begin showing up around day 2-4.
- “Syndromic surveillance” would likely not trigger a response until around Day 2-4.
- If response is initiated on Day 4, and require an additional day to distribute MCMs, over 30% of infected individuals who *could* have been saved will *die*.



PHEMCE MCM Architecture



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