



United States Department of Agriculture



ANALYTICAL SUPPORT BEFORE/DURING OUTBREAKS OF DISEASE

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Decision Making

Street Calculus

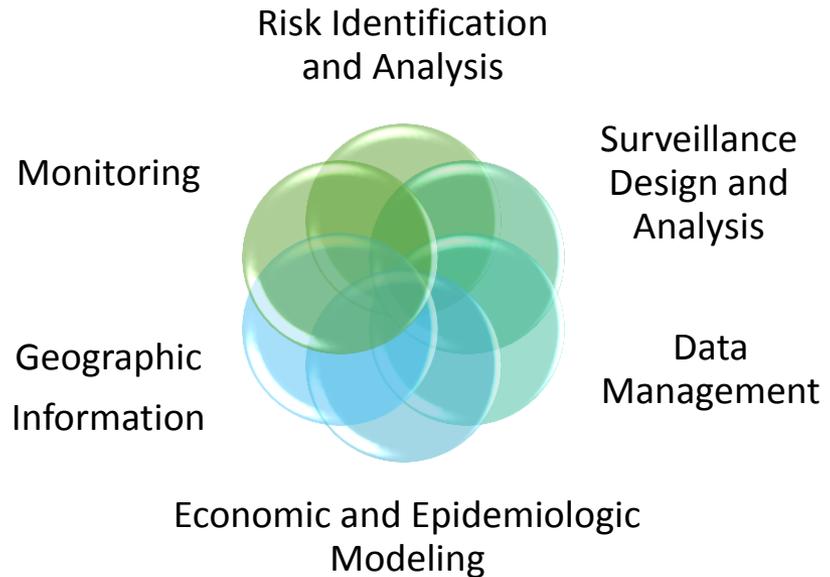


We all have the ability to quickly analyze risk based on our own experiences, but sometimes those calculations are too complex or the data are absent.



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Center for Epidemiology and Animal Health





Our Aims

Strengthen
emergency
preparedness
and response

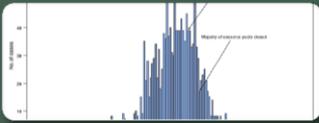
Provide
scientific
support for
decision-
making

Data »»»»»
Information



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Outbreak Investigation



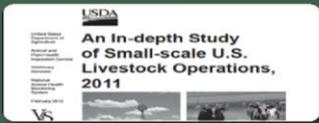
How is disease spreading?



What are the characteristics of the farms or animals being affected?



What are the main risk or protective factors?



What have we seen historically?



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CEAH can help with:



Study design, approvals, sampling, and enrollment

Questionnaire design, review, and administration

Data entry, cleaning, and analysis

Reporting and industry engagement

Example – Vesicular Stomatitis

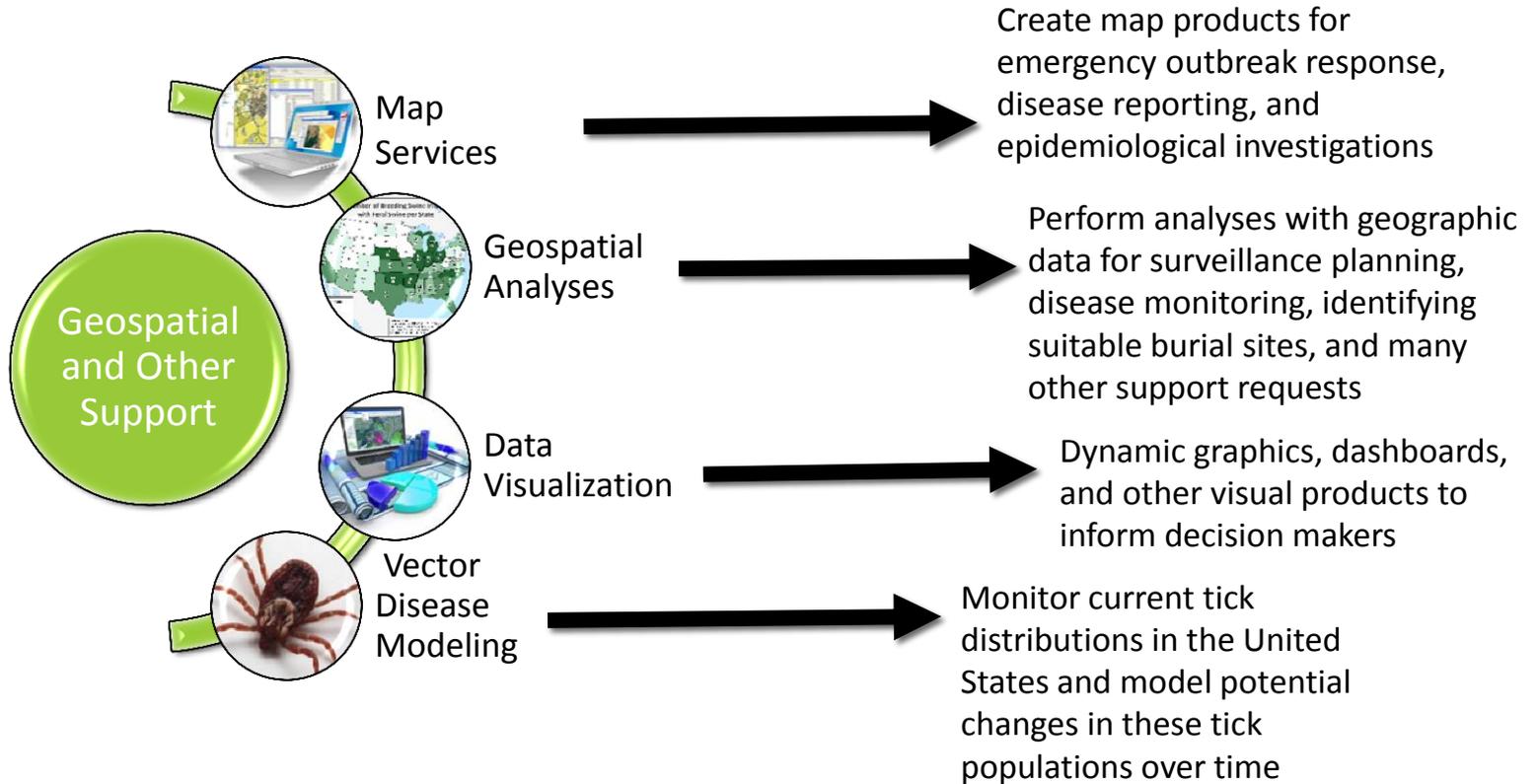
Vesicular stomatitis epidemic in the Rocky Mountain region occurred in 2014–15

- Colorado experienced the largest number of infected premises of all states, with 370 premises in 17 counties quarantined
- A case-control study was conducted in Colorado to evaluate horse- and management-level factors associated with VS
 - Case risk factors: access to pasture (P value <0.001), pregnancy status (P value $=0.002$), and being a tan, buckskin, or palomino colored horse (P value $=0.022$)
 - Exposure risk factors: access to pasture (P value <0.001) and lack of daily insect control (P value <0.001)
 - Exposure in 2014: direct contact with case horses (P value $=0.008$) was the most important factor



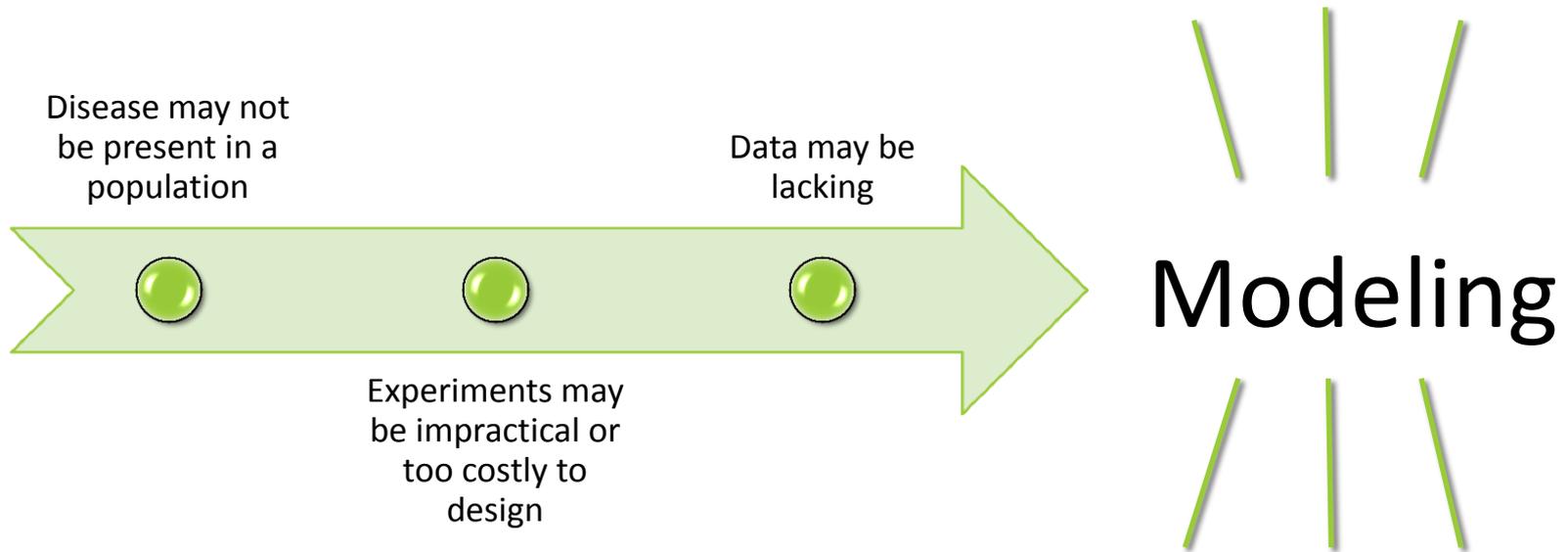
Photo courtesy of Jason Lombard

Other Analytical Support

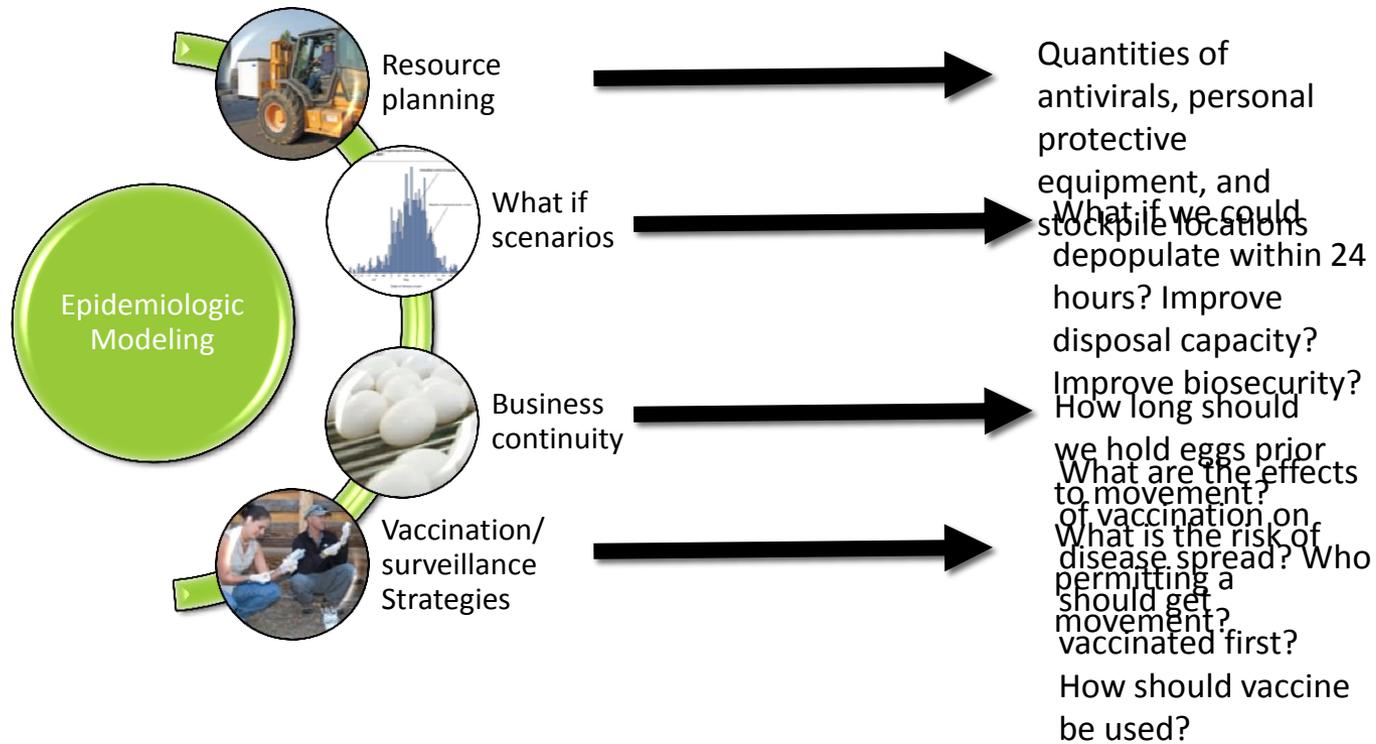




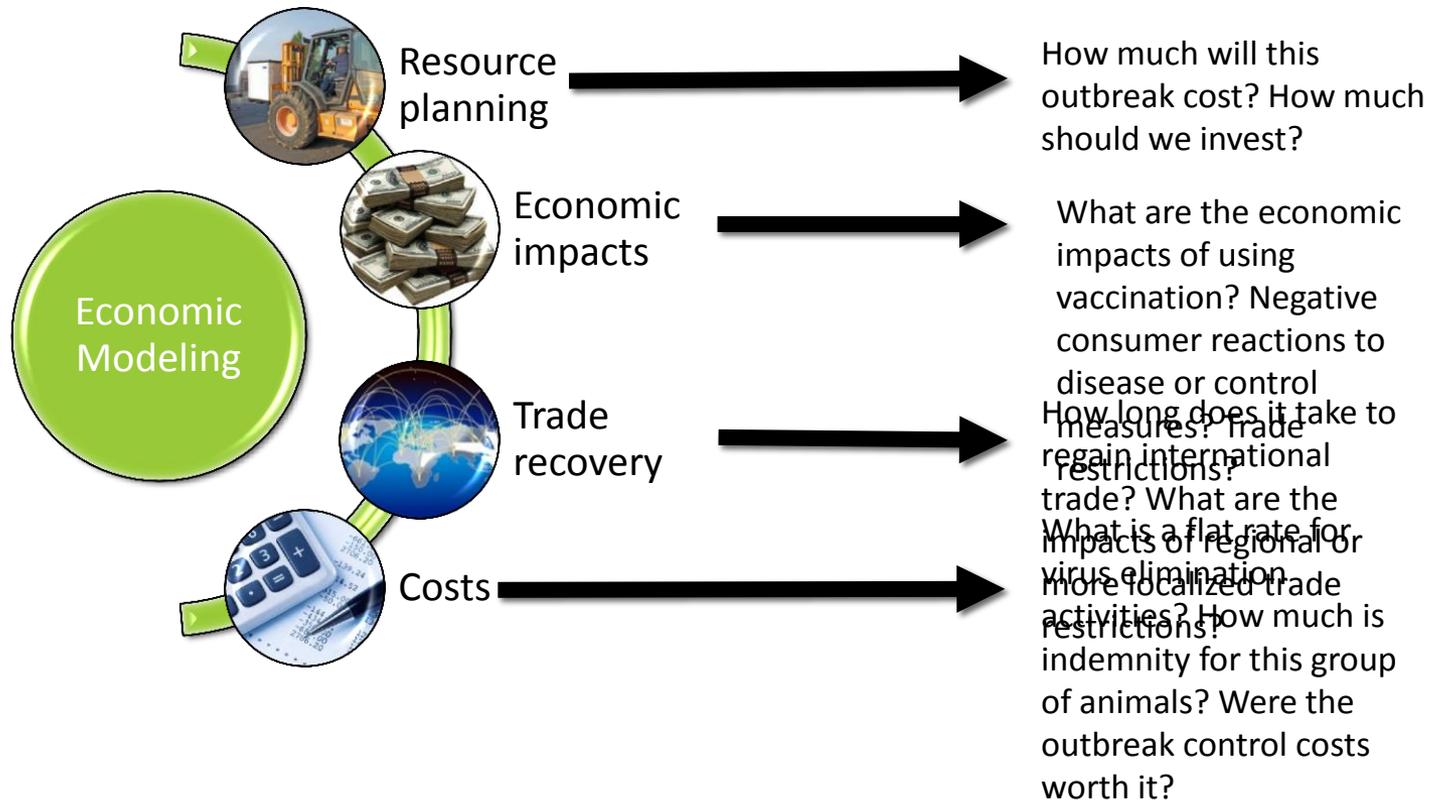
Pro-active Analysis



What can modeling do for you?



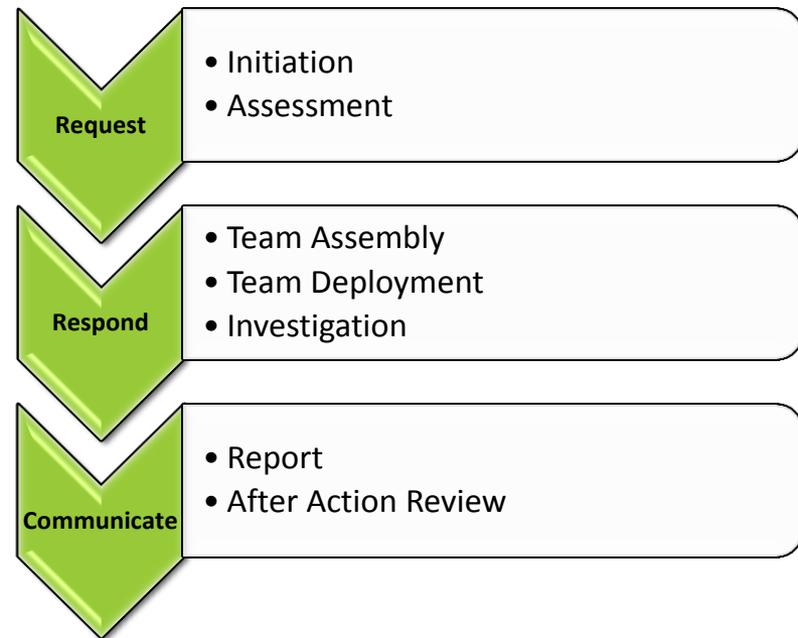
What can modeling do for you?



How to get help

Within VS, there is a mechanism for requesting help with outbreak investigations that aren't covered under established programs or processes.

- Requests can be internal or external
- Internal requests can flow through normal organizational structures
- External requests can come in at many levels
- Requests undergo an assessment and VS leadership coordinate if and how to respond
- Response can engage staff across VS, including field epidemiologists as well as CEAH analysts





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