

Session 3:

Forecasting, Surveillance, and Early Warning



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I WATCH

PREVENTATIVE MANAGEMENT

Human infection has not been detected, but infection sources are present.

Management efforts aimed at preventing spillover from latent sources.

ANALYTICS

- Disease risk mapping
- Data mining
- Statistical modeling



RISK ■■■■■■

DATA

HUMAN POPULATION

- Census data
- Business data
- Transportation data (e.g., road, networks, airline flows)
- Mobility (e.g., call data records)
- Resistance



ANIMALS

- Wild animal testing
- Livestock surveillance



ENVIRONMENT

- Climate/weather



HUMAN DATA

ORGANISMAL DATA

ENVIRONMENTAL DATA

SOCIETAL CONDITIONS (e.g. poverty)

II WARNING

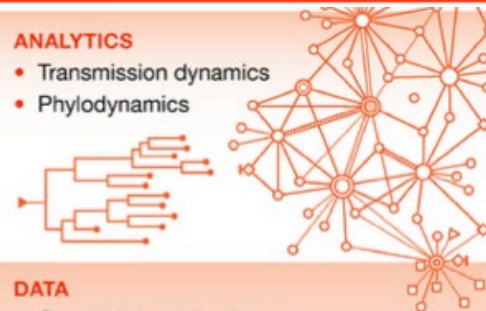
INTERVENTION AND CONTAINMENT

Spillover infection has occurred. Human disease has been verified.

Management focused on human intervention.

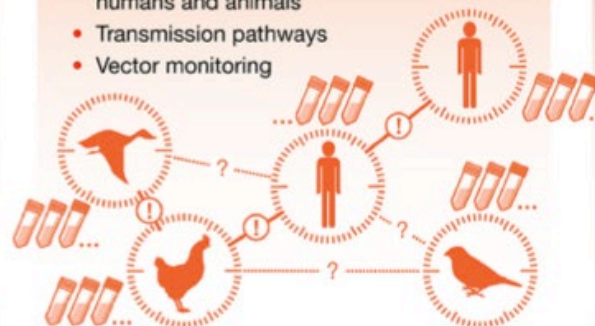
ANALYTICS

- Transmission dynamics
- Phylodynamics



DATA

- Outbreak investigations
- Seroprevalence surveys in humans and animals
- Transmission pathways
- Vector monitoring



III EMERGENCY

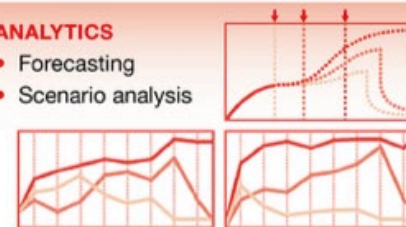
CONTAINMENT AND DAMAGE CONTROL

Disease outbreak threatens to overrun existing efforts to control spread and have the potential to exact high levels of human morbidity and fatality.

Emergency responses are mounted for damage control.

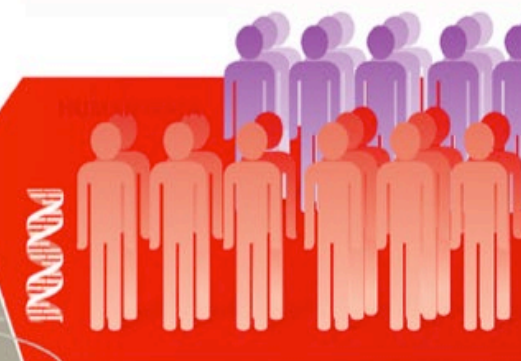
ANALYTICS

- Forecasting
- Scenario analysis



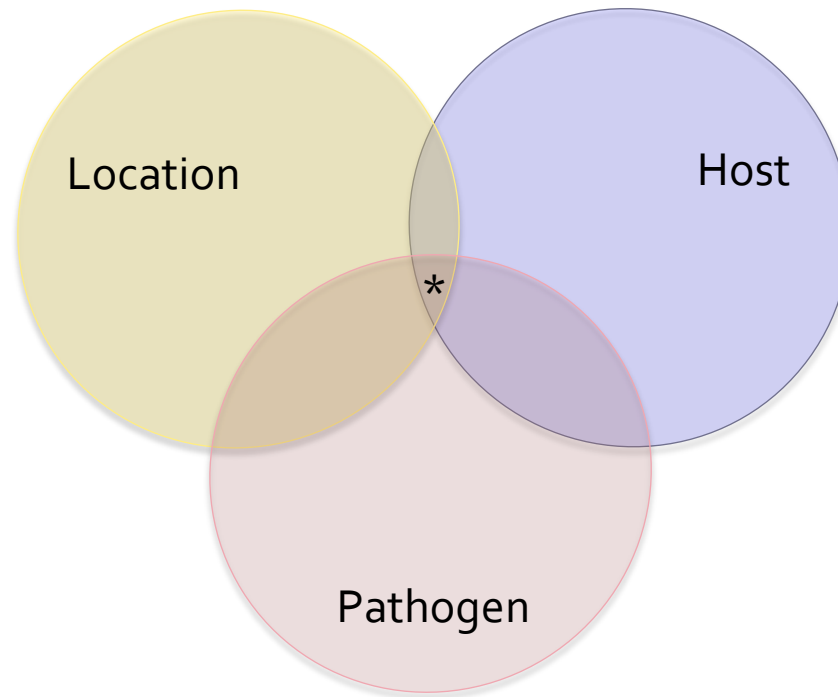
DATA

- Interventions
- Case counts
- Genetic sequences (e.g., CTACTGCCGTACC)
- Resources (e.g., staffing, trained personnel, equipment, lab facilities, etc)

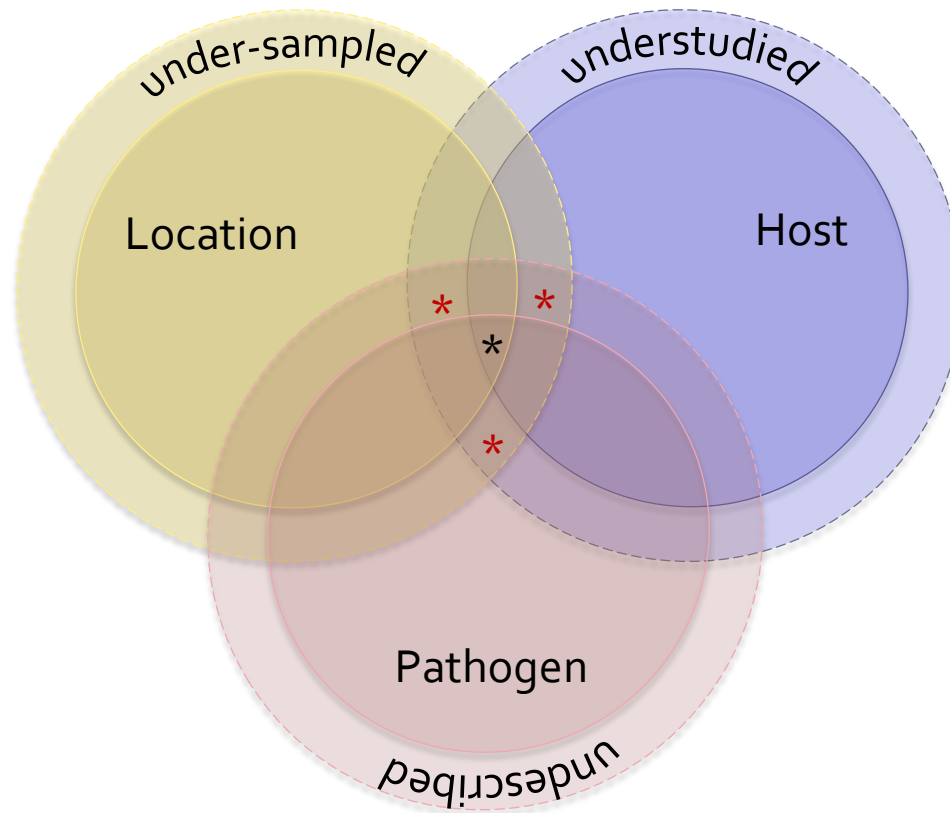


SOCIETAL RESPONSES

Predicting unknown unknowns



Predicting unknown unknowns



Predicting unknown unknowns

