

Consequence Management System (CMS)

A predictive model to help **plan**,
inform and **optimize** the response
of government and industry to
intentional and unintentional food
contaminations

Structure of the CMS

- Models the evolution of food contaminations for specific products & agents **geographically** and **in time**
- Analyses and depicts the entire pathway of an outbreak

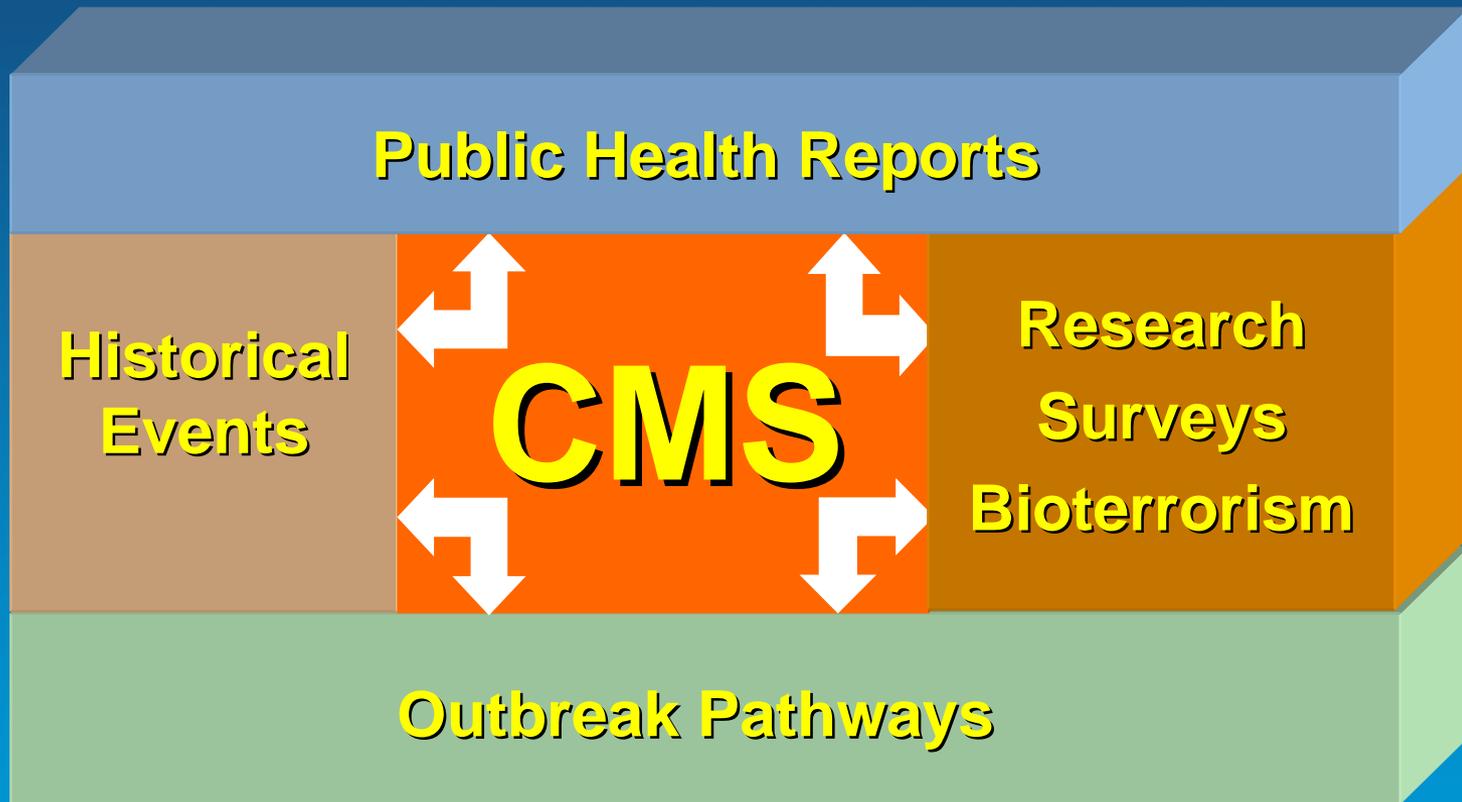


- Quantifies the timing and consequences of events and interventions on Consumers, Hospitals, Businesses, Public, etc.

CMS Integrates Four Perspectives of Outbreaks

Top Down

Retrospective

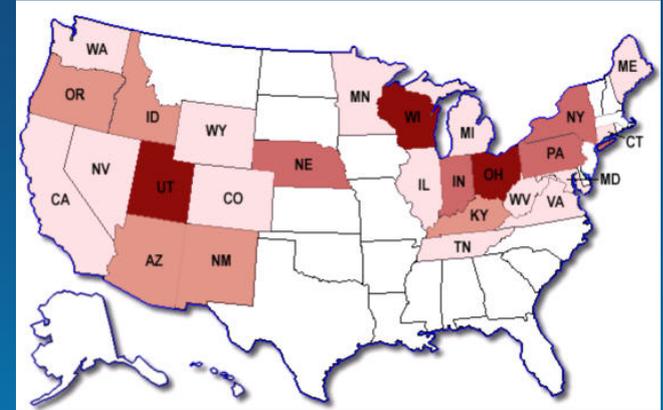


Prospective

Bottom Up

Top-Down, Retrospective Scenario: Large, Multi State Outbreak, Aug-Sept, 2006

- **Source:** Salinas, CA.
- **Product:** Bagged spinach
- **Quantity:** app. 10,000 bags
- **Location:** 26 states
- **Agent:** E. coli O157:H7
- **Impact:** 199 ill; 31 HUS; 3 deaths
- **Data:** Public Health Departments,
Legal, Business



CMS Demonstration Large Interstate outbreak

Consequence Management System is protected
under U.S. Patent No. 6,874,000

Bottom-Up Prospective Scenario: Large, Multi State Outbreak (Simulated Bioterrorist Attack)

- **Product:** Ground Beef
- **Source:** Milwaukee, WI.
- **Quantity:** Approx. 10,000 lbs
- **Agent:** Arsenic Trioxide
- **Location:** 1200 East Coast Grocery Stores
- **Impact:** Unknown
- **Data:** Recall data, Business



CMS Demonstration Large Interstate Bioterrorist Attack

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What issues does CMS address?

- Vulnerable agent/food combinations
 - Agent/food combinations with the greatest risk for scale of outbreak
- Critical control points
 - Where to focus resources in the food distribution/endpoint chain for most benefit
- Intervention effectiveness
 - Helps weigh the effectiveness of various intervention decisions
- Time frames
 - Illustrates the time frames that maximize the effectiveness of policies and actions

How is CMS being used?

- For Policy Decisions:

User: National Biodefense Analysis and Countermeasures Center / Battelle

Use: 2008 Risk Assessment for Food

- For Training:

User: Institute of Food Technology

Use: Numerous Training courses for food companies in 2005 - 2006

Our association with the NCFPD provides broad academic and institution collaboration



The project has received extensive agency involvement



U.S. Food and Drug Administration

CENTER FOR FOOD SAFETY AND APPLIED NUTRITION



Homeland Security



United States Department of Agriculture



Department of Health and Human Services
Centers for Disease Control and Prevention

Minnesota Department of Health
Protecting, maintaining and improving the health of all Minnesotans



MINNESOTA DEPARTMENT OF
AGRICULTURE
FROM THE FARM TO YOUR FAMILY



ECONOMIC RESEARCH SERVICE
United States Department of Agriculture

The Economics of Food, Farming, Natural Resources, and Rural America



Health Services
LOS ANGELES COUNTY



Agricultural Research Service

the in-house research arm of the U.S. Department of Agriculture



Cooperative State
Research, Education, and Extension Service



United States Department of Agriculture
Food Safety and Inspection Service



North Carolina Department of Agriculture & Consumer Services

Iowa

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Kansas Department of Agriculture

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U.S. Food and Drug Administration



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