Early Detection System Requirements for Consequence Management: BioSense Perspective

David Walker

Information Resources

Management Office

Centers for Disease Control and Prevention

Consequence Management Requirements within BioSense

BioSense Background

- BioSense: Analysis and Interpretation within the PHIN model
- BioSense operational aspects
- “Consequence Management” within BioSense

Issues Affecting Interpretation of Results

- Data Source Issues
- Data Receipt and Processing Issues
- Analysis and Visualization Issues

Consequence Management Requirements

- Technical Support
- Analytical Support
- Investigative Support
- Response Support

Public Health Information Network

Early Event Detection BioSense

Surveillance
NEDSS

Secure Communications
Epi-X

Analysis & Interpretation BioIntelligence Analytic Technology

Information Dissemination & KM
CDC Website
Health alerting

PH Response Lab, Outbreak Management, Vaccine administration, etc.

phin
PUBLIC HEALTH INFORMATION NETWORK

Federal Health Architecture & Consolidated Health Informatics

CDC™

BioSense System

National and Regional Data Sources

DoD and VA sentinel clinical data

Over-the-counter drug sales

National labs test requests & results

Nurse Call Line Data

Lab Response Network (including BioWatch)

Regional clinical networks

(others)

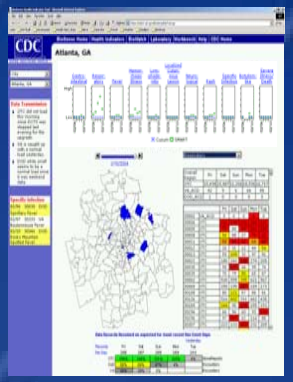
Phase I

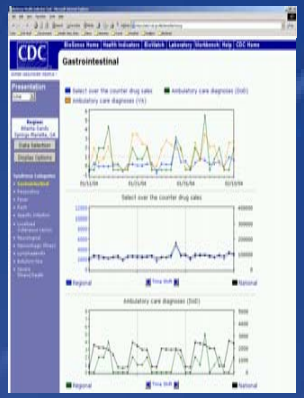
Analysis and Alerts

Phase II

Electronic Investigation

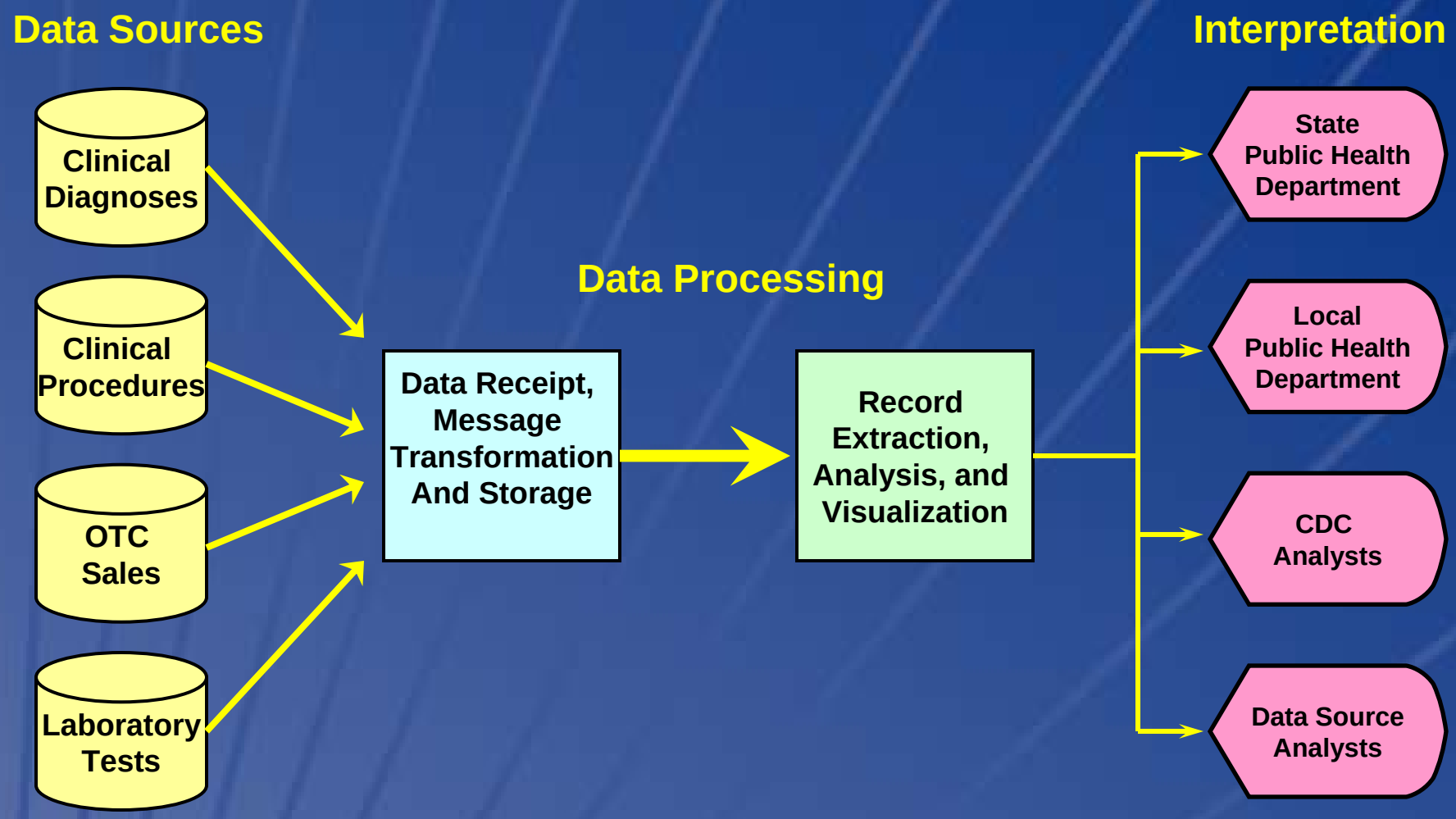
City / State Recipients



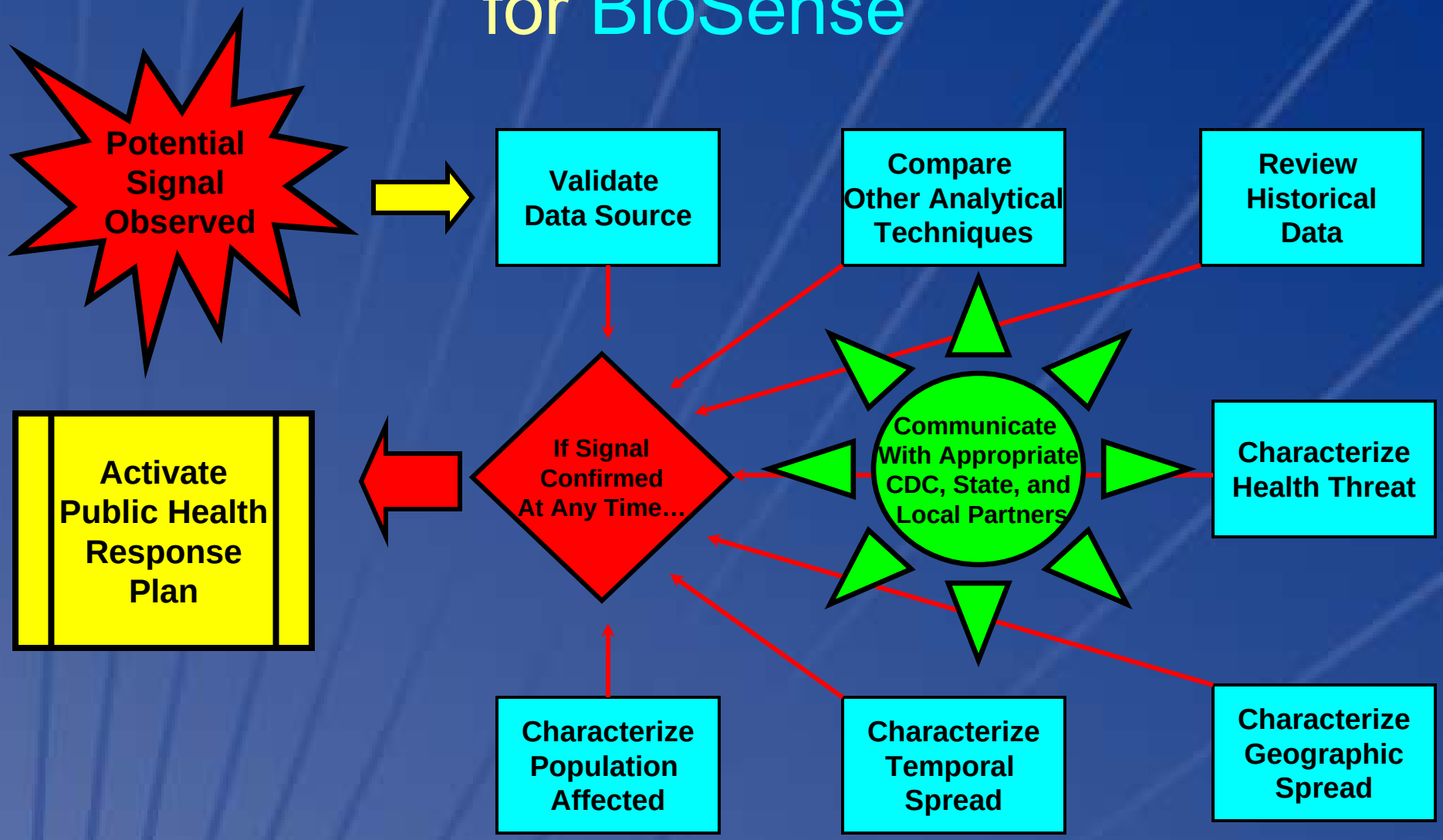


State and Metropolitan Surveillance and Response Systems

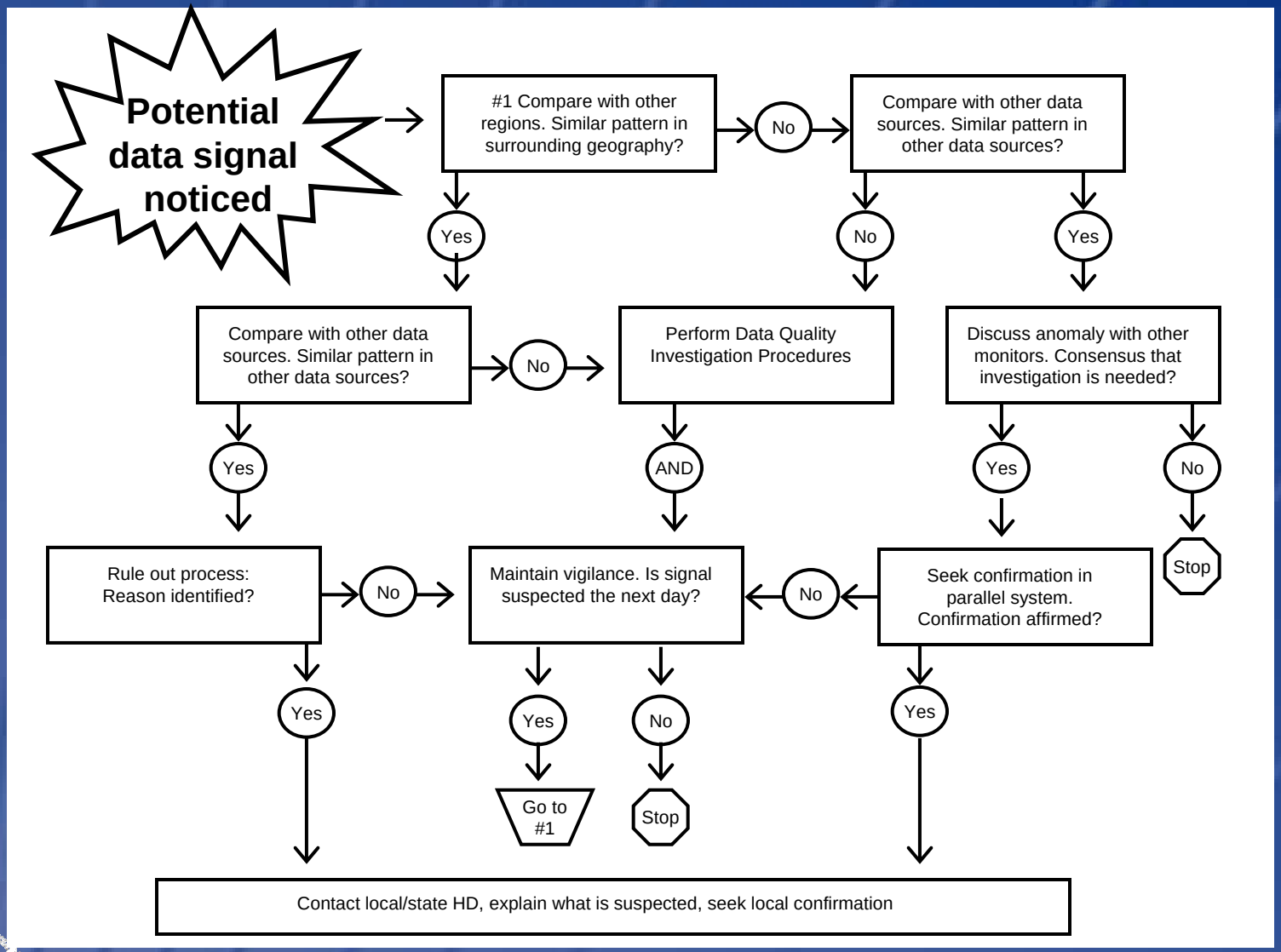
BioSense: Operational Aspects



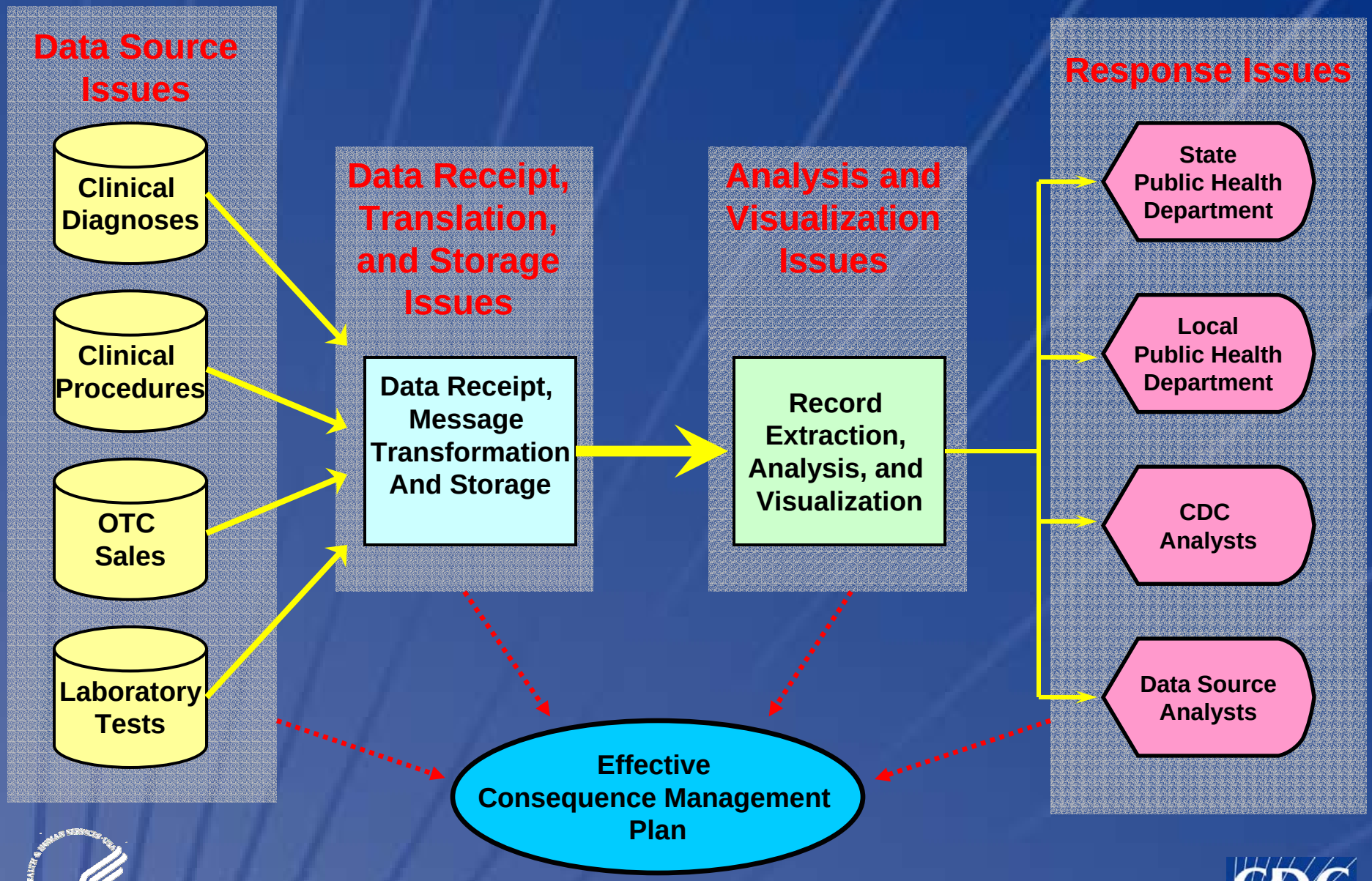
Consequence Management Schema for BioSense



Example: Data Signal Investigation Protocols



Issues Affecting Consequence Management



Issues Affecting Consequence Management
Data Source Issues

Record Selection

- Are records filtered?
- Can the same record be sent multiple times?

Data Content

- How is data content derived?
- Are there unique record identifiers?

Message Structure

- What standards are used?

Data Quality

- How clean is the data?
- Are updated records transmitted?

Issues Affecting Consequence Management Receipt, Translation, and Storage Issues

Data Receipt Processes

- Is the volume of files/records transmitted normal??
- Were there any unusual characteristics of files received?

Message Translation

- Are message standards being followed?
- What vocabularies are used?

Data Quality Assessment

- Is there a large volume of “missing” data elements?
- Do any data elements have an unusual distribution of values?

Processing of Updated Records

- Does the system detect updated records?
- Are replaced records archived for historical investigation?

Issues Affecting Consequence Management: Analysis and Visualization Issues

Record Selection

- How are records selected for analysis?
- Are non-selected records available for analytical comparison?

Data Content

- How are syndromes binned for analysis?
- What geographic or demographic variables are available for characterization of event?

Statistical Adjustments

- Are analytical techniques adjusted for temporal fluctuations?

Data Visualization Capabilities

- How granular are the drill-down capabilities?
- Can syndromes be redefined in the interface?

Issues Affecting Consequence Management: Response Issues

Communications

- How is the Health Alert Network employed in response notification?
- Are appropriate Emergency Operations Centers notified?

Data Availabiltiy

- How is additional data from sources requested/delivered?
- Can clinical sources be put on alert for prioritizing data feeds for additional cases?

Field Response

- Is Epi-Aid requested?
- Has Outbreak Management System been deployed?

Consequence Management Content Areas

BioSense Perspective

Technical Support

- System monitoring
- Interoperability with OMS

Analytical Support

- Result interpretation assistance or confirmation
- Access to “complete” data for event characterization

Response Support

- Alerting / Communications
- Incident Response
- Outbreak Management
- Countermeasure Administration

Consequence Management Requirements: State/Local Public Health Needs

Your turn…