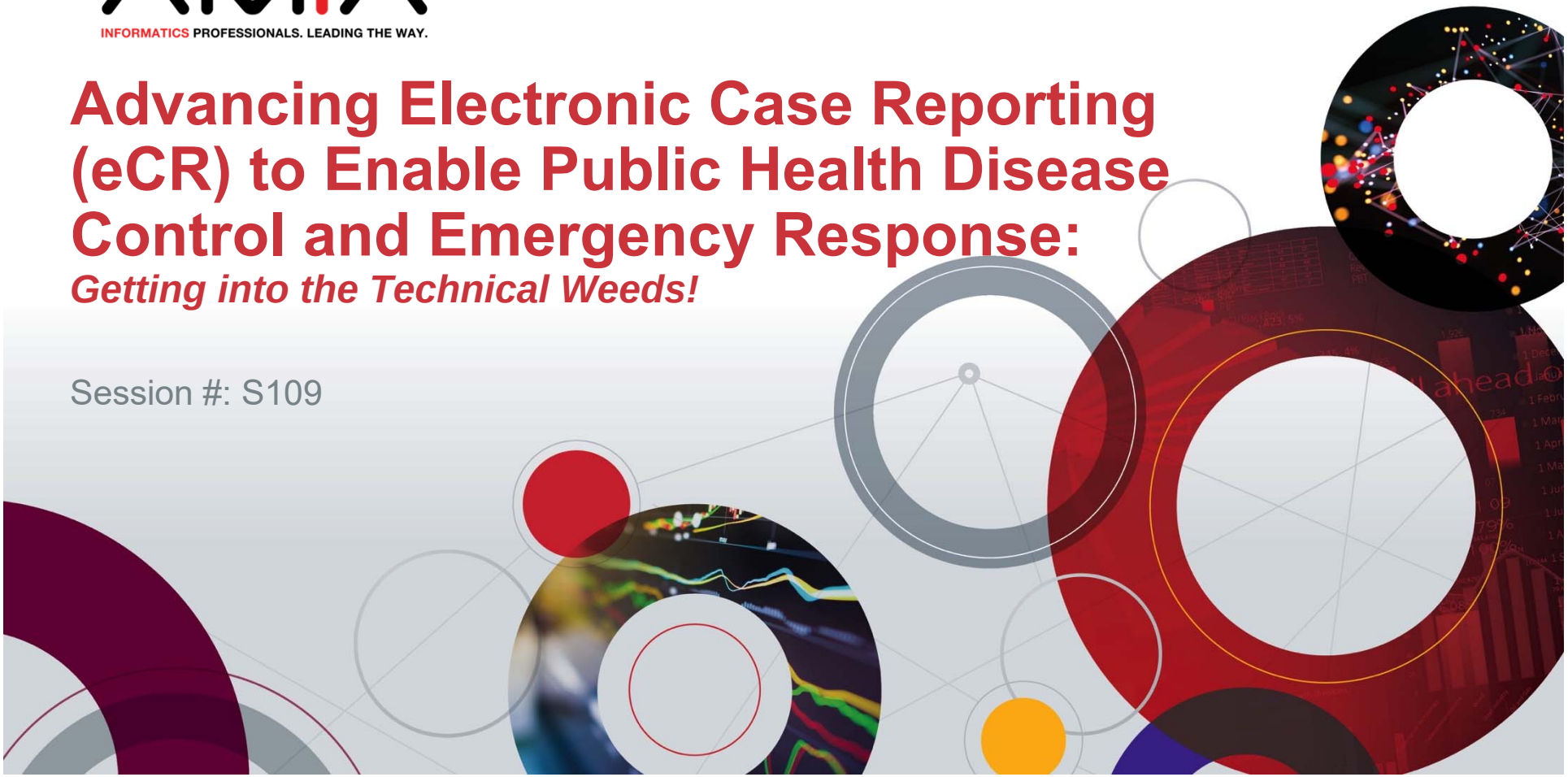
INFORMATICS PROFESSIONALS. LEADING THE WAY.

Advancing Electronic Case Reporting (eCR) to Enable Public Health Disease Control and Emergency Response:

Getting into the Technical Weeds!

Session #: S109



Panelists

- Catherine Staes, BSN, MPH, PhD
  - Faculty, Department of Biomedical Informatics, University of Utah; Consultant to CSTE
- Noam H. Arzt, PhD
  - President, HLN Consulting LLC
- Patina Zarcone-Gagne, MPH
  - Director of Informatics, Association of Public Health Laboratories (APHL)
- John W. Loonsk, MD, FACMI
  - CMIO & Vice President, CGI Federal
- Moderator: John Stinn, MA
  - Managing Director, Deloitte Consulting

Electronic Case Reporting (eCR)

Electronic case reporting is:

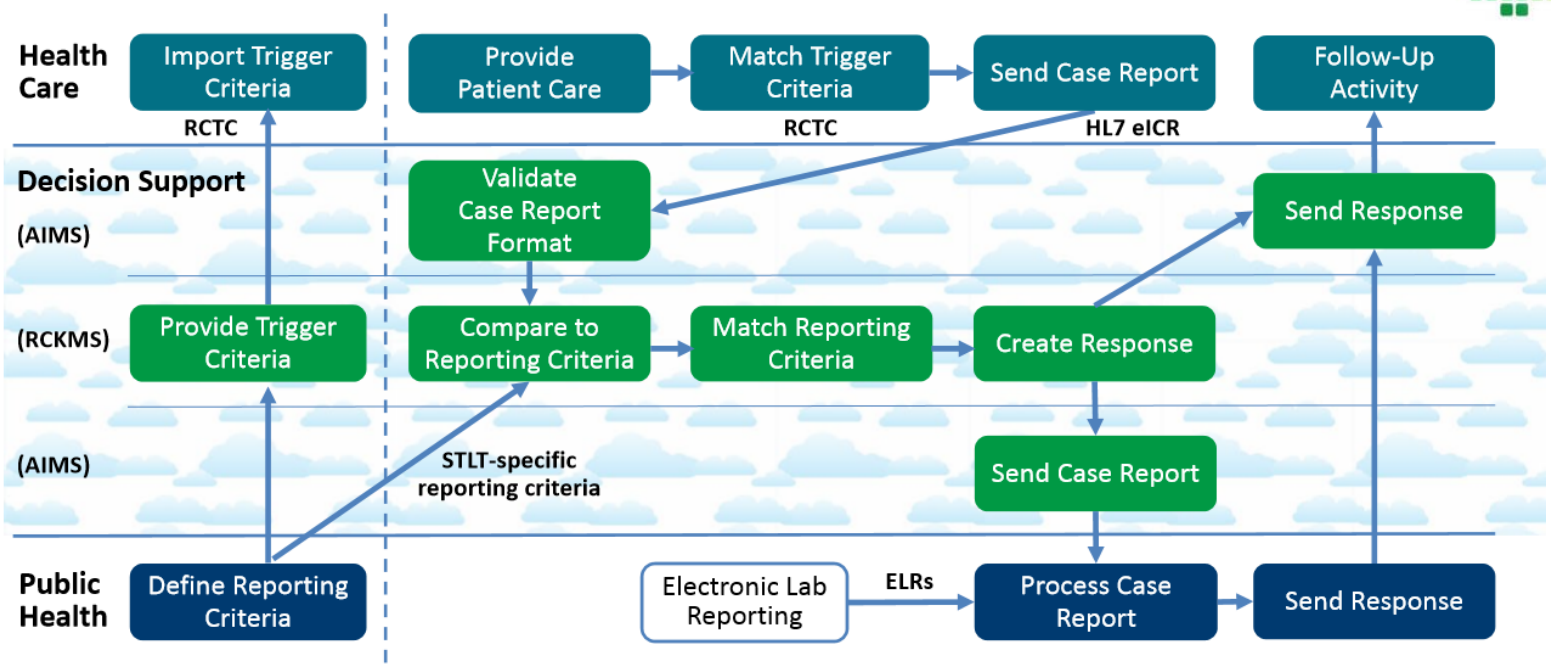
the automated generation and transmission of case reports from the electronic health record (EHR) to public health agencies for review and action

Learning Objectives

After participating in this session the learner should be better able to:

- Describe need for a scalable, flexible strategy for eCR that meets both routine and emergency reporting needs
- Describe the infrastructure, decision support services, and HL7 document standards that support bi-directional communication for eCR
- Explore strengths and limitations of the current eCR strategy

Current eCR Strategy



 Source: Digital bridge. http://www.digitalbridge.us/db/wp-content/uploads/2017/03/DigitalBridge_eCR_MidLevelDiagram_20170213.pdf

Session Outline

1. Framing the problem addressed by electronic case reporting (eCR)
2. Defining a long-term public health clinical decision support (CDS) strategy
3. Building the ecosystem on a scalable, flexible services platform
4. Establishing standards for bi-directional exchange to support eCR
5. Audience discussion

Please hold questions for the discussion

Disclosures

The presenters disclose the following relationships with commercial interests:

- Catherine Staes: Staes Consulting, LLC is a paid consultant to CSTE to support RCKMS and related standards efforts
- Noam Arzt: HLN Consulting, LLC is a paid consultant to CSTE for the development and support of RCKMS and related services
- John Loonsk: CGI Federal is a paid consultant to APHL to work on eCR standards
- John Stinn: Deloitte Consulting, LLP, is a paid consultant to the Robert Wood Johnson Foundation and the de Beaumont Foundation for the Digital Bridge Initiative

Acknowledgements

Council of State and Territorial Epidemiologist (CSTE)

Centers for Disease Control and Prevention (CDC)

Robert Wood Johnson Foundation (RWJF)

DeBeaumont Foundation

Public Health Informatics Institute (PHII)

Association of State and Territorial Health Officials (ASTHO)

Public health agencies, vendors, and health systems participating in the Digital Bridge initiative

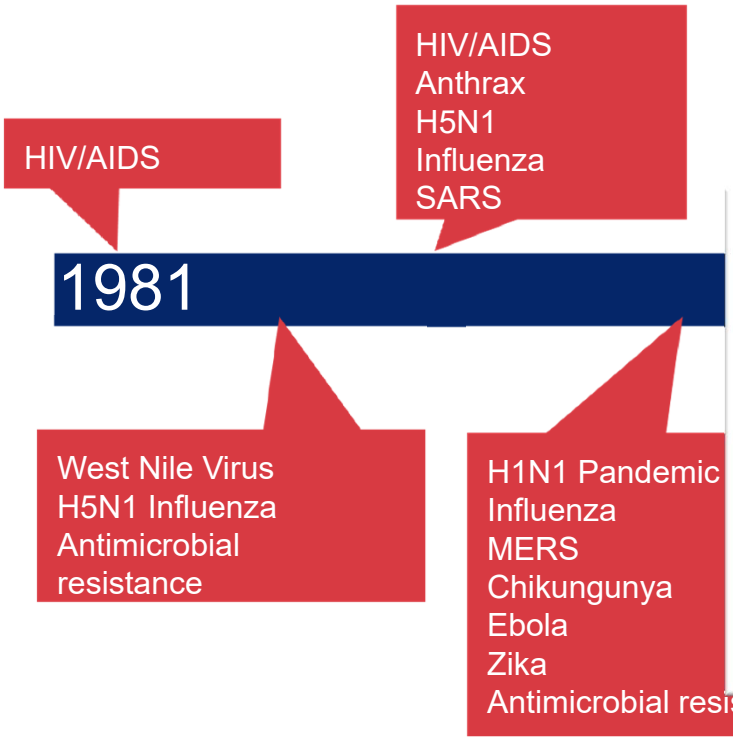
Northrup Grumman and CACI in support of the RCKMS project

Framing the Problem addressed by eCR

Catherine Staes, BSN, MPH, PhD

Dept. of Biomedical Informatics, University of Utah

Emerging and routine infectious public health threats



HEALTH / HEPATITIS A

Hundreds Infected in Deadly Hepatitis Outbreak in California

16 people have died

NEWS PUERTO RICO CRISIS OCT 26 2017, 2:44 PM ET

Puerto Ricans at Risk of Waterborne Disease Outbreaks in Wake of Hurricane Maria

by DANIELLA SILVA

Waterborne illnesses are on the rise in Puerto Rico in the wake of Hurricane Maria — and health professionals fear the storm's aftermath could unleash an epidemic on the devastated island.

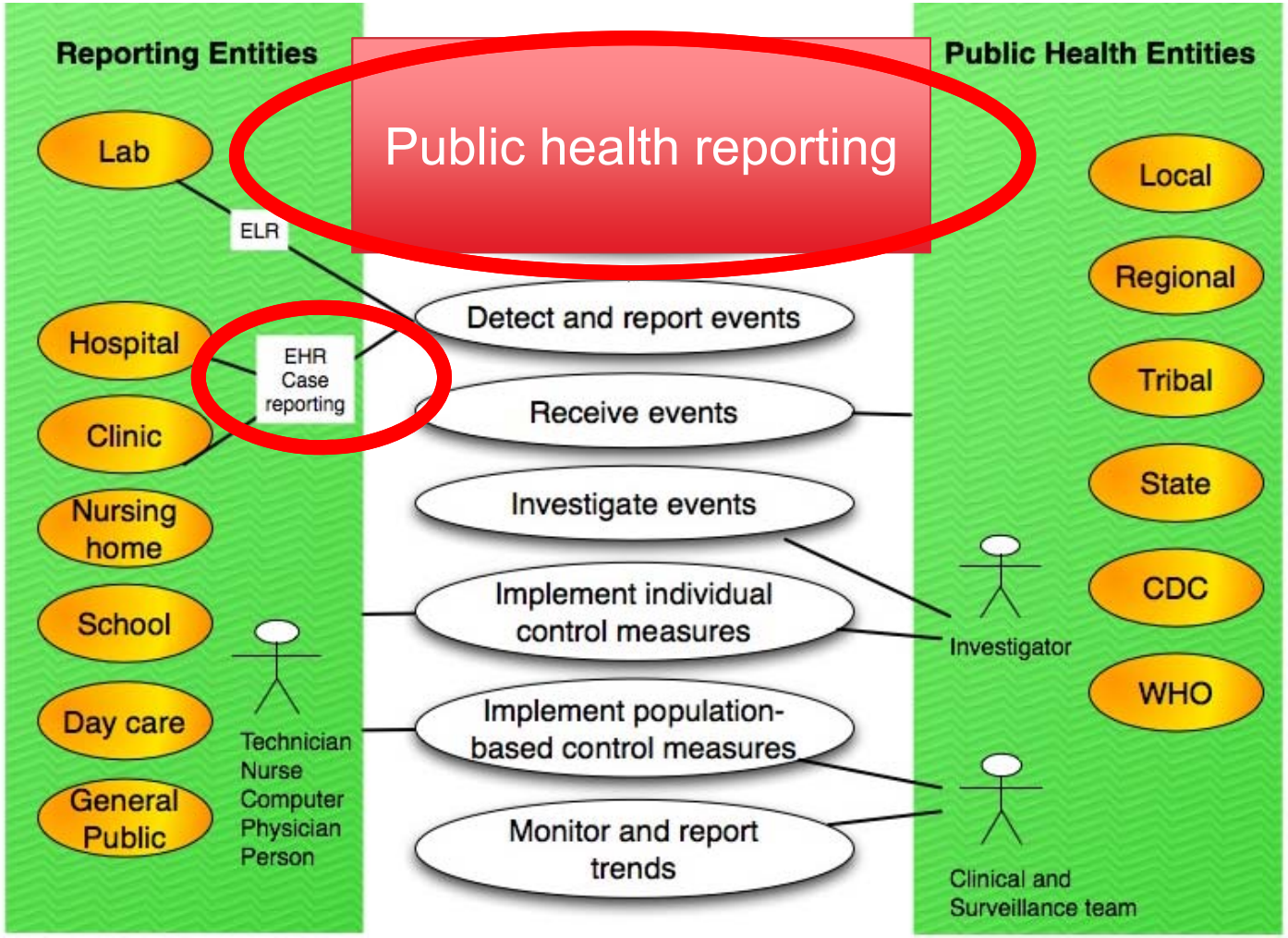
The death toll from the storm rose to 51 on Tuesday, with the two latest victims dying of leptospirosis, a bacterial disease usually spread by contact with contaminated water, Puerto Rico Public Affairs Secretary Ramon Rosario told The Associated Press.

Authorities are investigating an additional 74 suspected cases of the infection as well, he said, and at least one previous death was attributed to the disease.

http://www.healthaffairs.org/do/10.1377/hblog20170209.058678/full/

Problem from public health perspective

- Public health threats evolve:
  - new conditions emerge
  - ‘old’ conditions re-emerge
  - Populations at risk change over time
- Threats vary by region and over time
- Timely and accurate reporting required for effective control
- During an outbreak, existing communication channels must be leveraged!
  - Very difficult to implement *new* communication and IT strategies

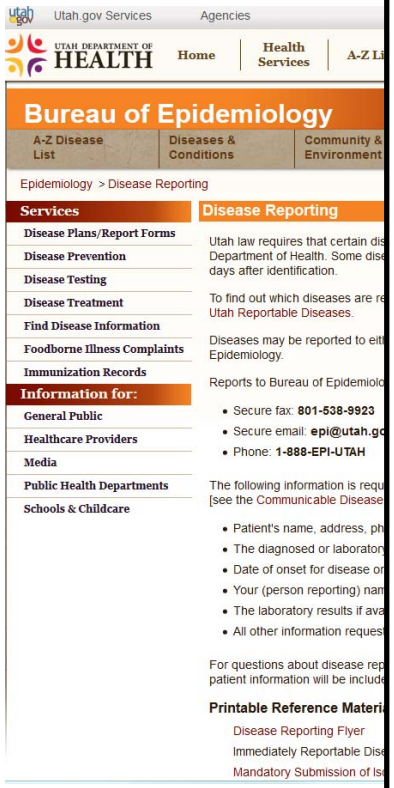

Reporting Entities
Public Health Entities
Public health reporting
Lab
ELR
Hospital
EHR
Case
reporting
Clinic
Nursing
home
School
Day care
General
Public
Technician
Nurse
Computer
Physician
Person
Detect and report events
Receive events
Investigate events
Implement individual
control measures
Implement population-
based control measures
Monitor and report
trends
Investigator
Clinical and
Surveillance team
Local
Regional
Tribal
State
CDC
WHO

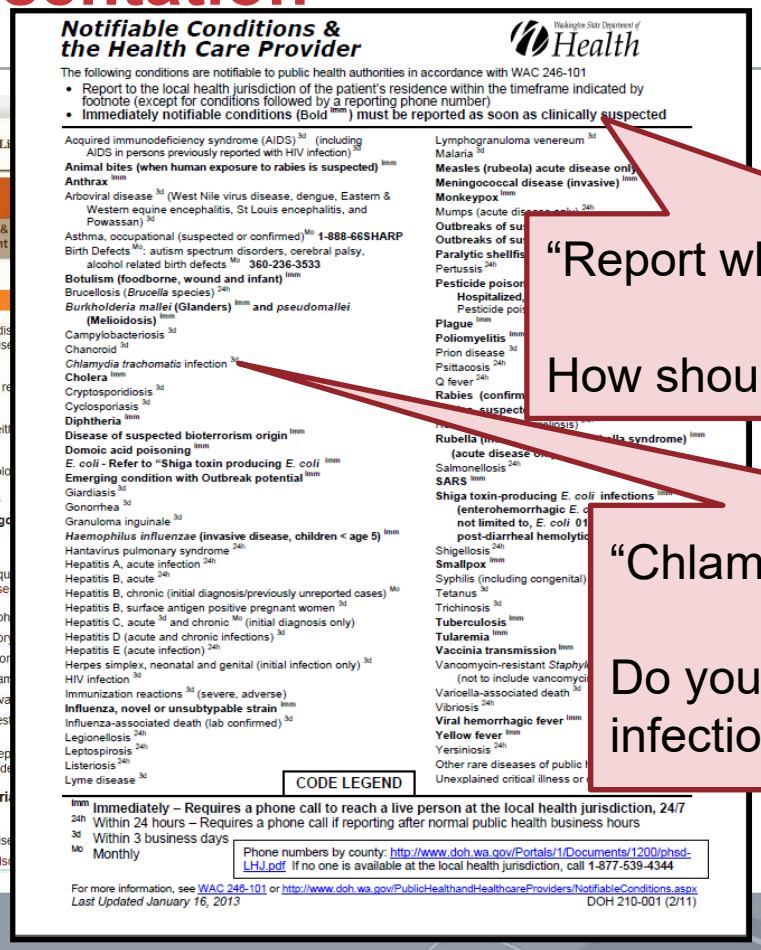
Key features of Case Reporting?

- Report *personal identifiers and clinical information* for investigation, case management, surveillance
- Legally mandated
- Sometimes should occur when *illness is suspected, prior to confirmation* of illness
- Currently, usually a paper-based process

Source: CSTE Position Statement: http://c.ymcdn.com/sites/www.cste.org/resource/resmgr/2016PS/16_SI_02.pdf

Typical Presentation





Notifiable Conditions & the Health Care Provider

Washington State Department of Health

The following conditions are notifiable to public health authorities in accordance with WAC 246-101

- Report to the local health jurisdiction of the patient's residence within the timeframe indicated by footnote (except for conditions followed by a reporting phone number)
- **Immediately notifiable conditions (Bold [Imm]) must be reported as soon as clinically suspected**

Acquired immunodeficiency syndrome (AIDS) [3d] (including AIDS in persons previously reported with HIV infection) [3d]
Animal bites (when human exposure to rabies is suspected) [Imm]
Anthrax [Imm]
Arboviral disease [3d] (West Nile virus disease, dengue, Eastern & Western equine encephalitis, St Louis encephalitis, and Powassan) [3d]
Asthma, occupational (suspected or confirmed) [Mo] **1-888-66SHARP**
Birth Defects [Mo]: autism spectrum disorders, cerebral palsy, alcohol related birth defects [Mo] **360-236-3533**
Botulism (foodborne, wound and infant) [Imm]
Brucellosis (*Brucella* species) [24h]
***Burkholderia mallei* (Glanders)** [Imm] **and *pseudomallei* (Melioidosis)** [Imm]
Campylobacteriosis [3d]
Chancroid [3d]
Chlamydia trachomatis infection [3d]
Cholera [Imm]
Cryptosporidiosis [3d]
Cyclosporiasis [3d]
Diphtheria [Imm]
Disease of suspected bioterrorism origin [Imm]
Domoic acid poisoning [Imm]
E. coli* - Refer to "Shiga toxin producing *E. coli [Imm]
Emerging condition with Outbreak potential [Imm]
Giardiasis [3d]
Gonorrhea [3d]
Granuloma inguinale [3d]
***Haemophilus influenzae* (invasive disease, children < age 5)** [Imm]
Hantavirus pulmonary syndrome [24h]
Hepatitis A, acute infection [24h]
Hepatitis B, acute [24h]
Hepatitis B, chronic (initial diagnosis/previously unreported cases) [Mo]
Hepatitis B, surface antigen positive pregnant women [3d]
Hepatitis C, acute [3d] and chronic [Mo] (initial diagnosis only)
Hepatitis D (acute and chronic infections) [3d]
Hepatitis E (acute infection) [24h]
Herpes simplex, neonatal and genital (initial infection only) [3d]
HIV infection [3d]
Immunization reactions [3d] (severe, adverse)
Influenza, novel or unsubtypable strain [Imm]
Influenza-associated death (lab confirmed) [3d]
Legionellosis [24h]
Leptospirosis [24h]
Listeriosis [24h]
Lyme disease [3d]
Lymphogranuloma venereum [3d]
Malaria [3d]
Measles (rubeola) acute disease only
Meningococcal disease (invasive) [Imm]
Monkeypox [Imm]
Mumps (acute disease only) [24h]
Outbreaks of su
Outbreaks of su
Paralytic shellfis
Pertussis [24h]
Pesticide poison
Hospitalized,
Pesticide poi
Plague [Imm]
Poliomyelitis [Imm]
Prion disease [3d]
Psittacosis [24h]
Q fever [24h]
Rabies (confirm
suspect
Rubella (
(acute disease o
Salmonellosis [24h]
SARS [Imm]
Shiga toxin-producing *E. coli* infections [Imm]
(enterohemorrhagic *E. c*
not limited to, *E. coli* 01
post-diarrheal hemolytic
Shigellosis [24h]
Smallpox [Imm]
Syphilis (including congenital)
Tetanus [3d]
Trichinosis [3d]
Tuberculosis [Imm]
Tularemia [Imm]
Vaccinia transmission [Imm]
Vancomycin-resistant *Staphyl*
(not to include vancomyci
Variceila-associated death [3d]
Vibriosis [24h]
Viral hemorrhagic fever [Imm]
Yellow fever [Imm]
Yersiniosis [24h]
Other rare diseases of public
Unexplained critical illness or

CODE LEGEND

[Imm] **Immediately – Requires a phone call to reach a live person at the local health jurisdiction, 24/7**
[24h] Within 24 hours – Requires a phone call if reporting after normal public health business hours
[3d] Within 3 business days
[Mo] Monthly

Phone numbers by county: http://www.doh.wa.gov/Portals/1/Documents/1200/phsd-LHJ.pdf If no one is available at the local health jurisdiction, call 1-877-539-4344

For more information, see WAC 246-101 or http://www.doh.wa.gov/PublicHealthandHealthcareProviders/NotifiableConditions.aspx
Last Updated January 16, 2013
DOH 210-001 (2/11)

"Report when clinically suspected":

How should that be operationalized?

"Chlamydia trachomatis infection":

Do you want Conjunctivitis (eye infections) as well as other sites?

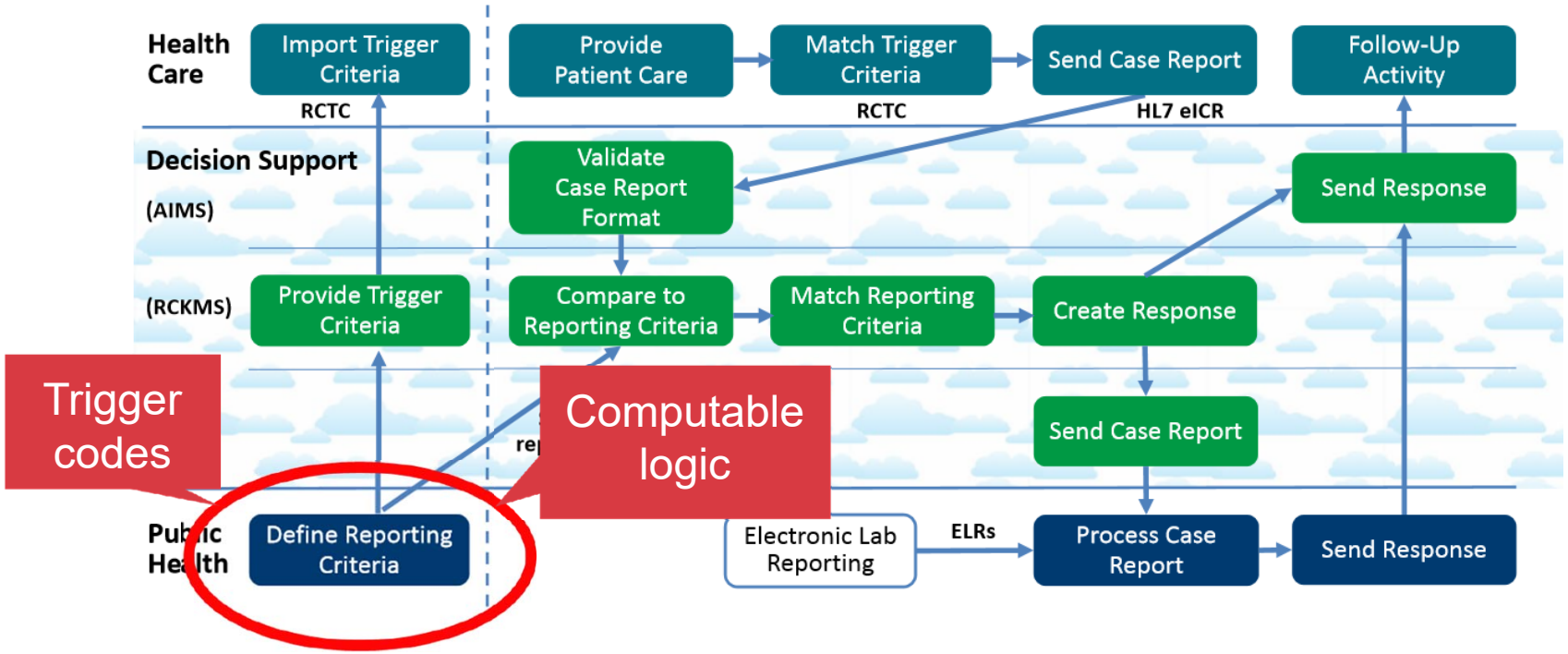
Problem from health care perspective

- What conditions must be reported?
  - ~ 200 conditions are reportable somewhere in the US
  - change over time, differ by jurisdiction
- What logic should be used to identify reportable events?
  - Confirmed or suspected cases? Diagnoses or lab orders?
- What information should be included in a case report?
- What actions should be taken in the clinical setting?
- What occurs after a case is reported to Public Health?

Goal

- Public health communicates 'what they want to receive' without requiring others to translate the requirements or read their mind
- Health care providers and systems access reporting requirements in a manner that enables efficient and accurate compliance to meet legal mandates and support public health disease control efforts
- Community benefits from resources activated by reporting, investigation, and disease control efforts

Step #1: Define Reporting Specifications



Source: http://www.digitalbridge.us/db/wp-content/uploads/2017/03/DigitalBridge_eCR_MidLevelDiagram_20170213.pdf

Knowledge Development

- Effort led by Council of State and Territorial Epidemiologist (CSTE), with support from CDC
- Reportable Conditions Knowledge Management System (RCKMS) *Project* (*Knowledge + Tooling)*
- Community engagement & content vetting
  - 2015-16: focused on breadth of logic required for reportable conditions
  - 2016-17: focused on refinement, implementing logic for Digital Bridge pilots
  - 2017-18: focusing on refining all reportable conditions
  - Goal: Define default logic & identify needed optional logic

CSTE Zika Position Statement

VI. Criteria for case identification

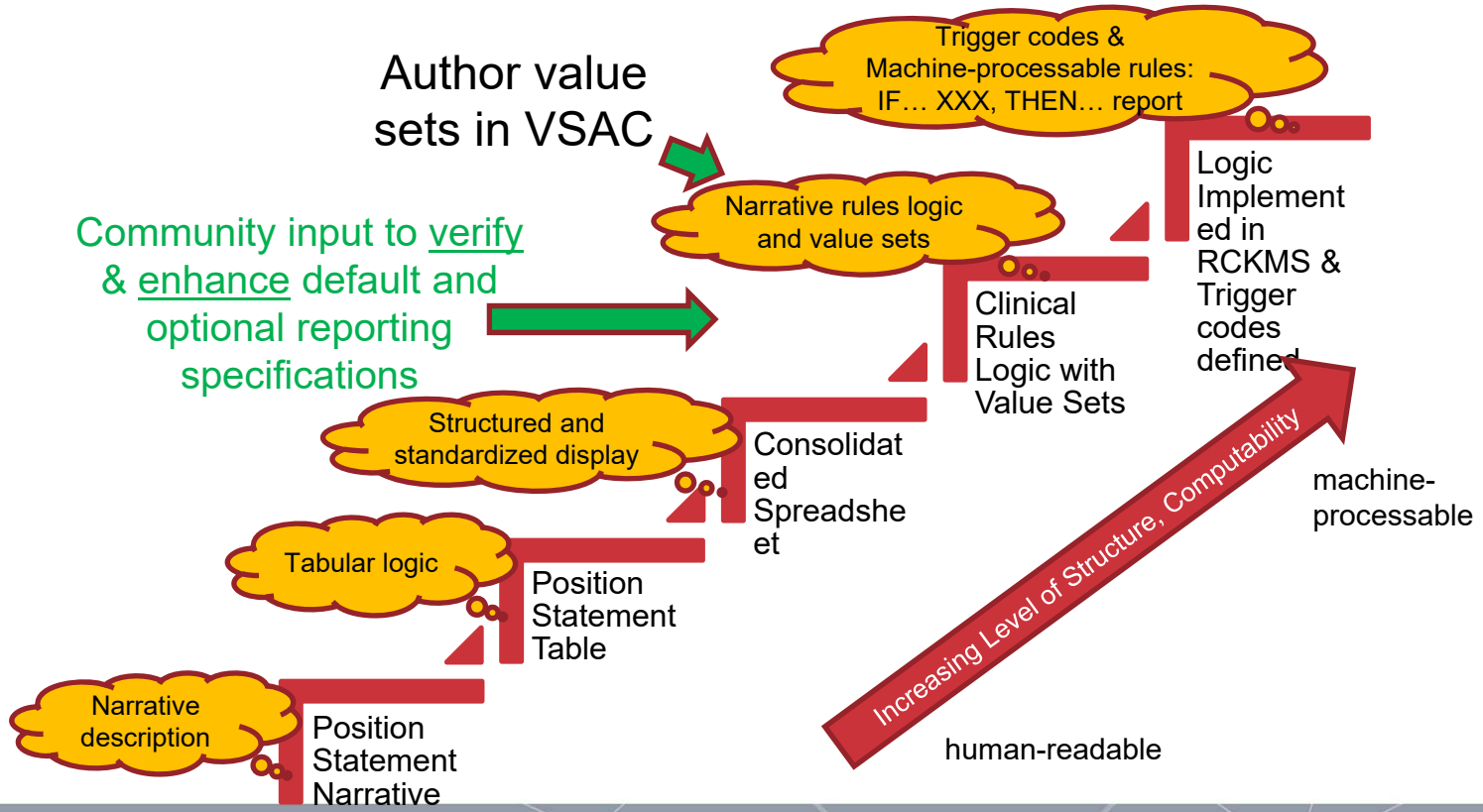
A. Narrative: A description of suggested criteria for case ascertainment of a specific condition.

Report any illness or laboratory finding to public health authorities that meets any of the following criteria:

- Any person with a clinically compatible illness for ZIKV infection that includes one or more symptoms of acute fever (reported or measured), rash, arthralgia, or conjunctivitis; OR Guillain-Barré syndrome or other neurologic manifestations; AND potential ZIKV exposure:
  - Residence or travel to an area with ongoing ZIKV transmission within 2 weeks of symptom onset; or
  - Epidemiologic link to a person with laboratory evidence of recent ZIKV infection.
  - Recipient of blood products, or tissue or organ transplantation within previous 30 days.
- Any person with laboratory evidence of recent ZIKV infection as indicated by:
  - Culture of ZIKV from blood, body fluid, or tissue
  - Demonstration of ZIKV-specific antigen or RNA in serum, cerebrospinal fluid (CSF), tissue, or other specimen (e.g., amniotic fluid, umbilical cord blood, urine, semen, saliva)
  - ZIKV-specific immunoglobulin M (IgM) antibodies in CSF or serum
- A fetus or infant with congenital microcephaly (4), congenital intracranial calcifications, structural brain or eye abnormalities, or other congenital central nervous system-related abnormalities including defects of clubfoot or multiple joint contractures:
  - Whose mother lived in or traveled to an area with ongoing ZIKV transmission during the pregnancy; or
  - Whose mother had sexual contact with a confirmed case of Zika virus infection; or
  - Whose mother had evidence of ZIKV or unspecified flavivirus infection during the pregnancy.
- Any person whose healthcare record contains a diagnosis of a ZIKV infection

http://www.cste.org/?page=PositionStatements

Knowledge Development



Organized by reporter type

Default logic:

Lab reporting (ELR)

Case reporting

Vital records

	Lab Reportin	Provider / Facility		Vital Records
The patient record being evaluated contains evidence of:		(1) LAB	(2) DX	
Criterion Description				
Clinical				
Zika virus disease (as a diagnosis or active problem)			S	
Laboratory				
Identification of Zika virus in a clinical specimen by culture method, including identification tests performed on an isolate	S	S		
Detection of Zika virus nucleic acid in a clinical specimen by any method	S	S		
Detection of Zika virus antigen in a tissue specimen (including serum, cerebrospinal fluid, tissue, fetal tissue, amniotic fluid, umbilical cord	S	S		
Detection of Zika virus IgM antibody in a clinical specimen (including serum and cerobrospinal fluid) by any method	S	S		
Vital Records				
Death certificate lists Zika virus disease as a cause of death or a significant condition contributing to death				S

Use criteria and logic to build specifications

Default logic:

Logic set

Criteria

patient record being evaluated contains evidence of:	Lab Reportin	Provider / Facility (1) LAB	(2) DX	Vital Records
Criterion Description				
Clinical				
Zika virus disease (as a diagnosis or active problem)			S	
Laboratory				
Identification of Zika virus in a clinical specimen by culture method, including identification tests performed on an isolate	S	S		
Detection of Zika virus nucleic acid in a clinical specimen by any method	S	S		
Detection of Zika virus antigen in a tissue specimen (including serum, cerebrospinal fluid, tissue, fetal tissue, amniotic fluid, umbilical cord	S	S		
Detection of Zika virus IgM antibody in a clinical specimen (including serum and cerobrospinal fluid) by any method	S	S		
Vital Records				
Death certificate lists Zika virus disease as a cause of death or a significant condition contributing to death				S

Logic statements

The patient record being evaluated contains evidence of:

1. **Zika virus disease (as diagnosis or active problem)**

IF

Patient has a diagnosis of [VS: Zika Virus Disease (Disorders)]

OR

(

Patient has a problem list entry of [VS: Zika Virus Disease (Disorders)]

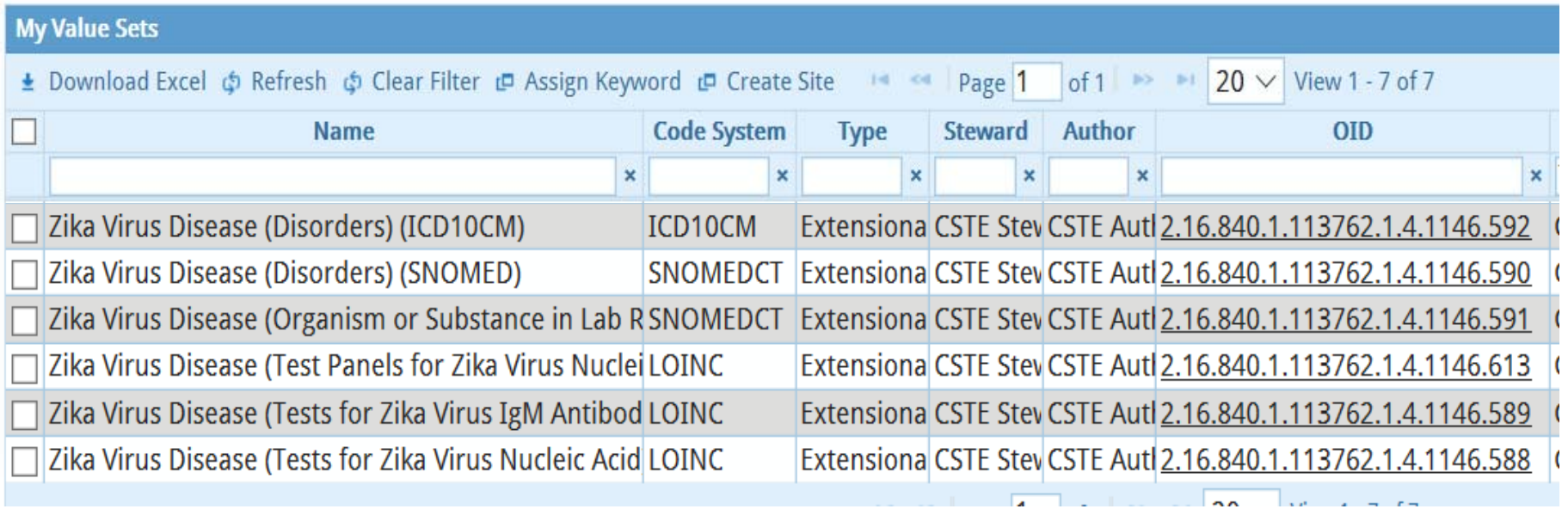
AND

Problem list entry has status of Active

)

THEN report

Value sets in NLM's Value Set Authority Center (VSAC)

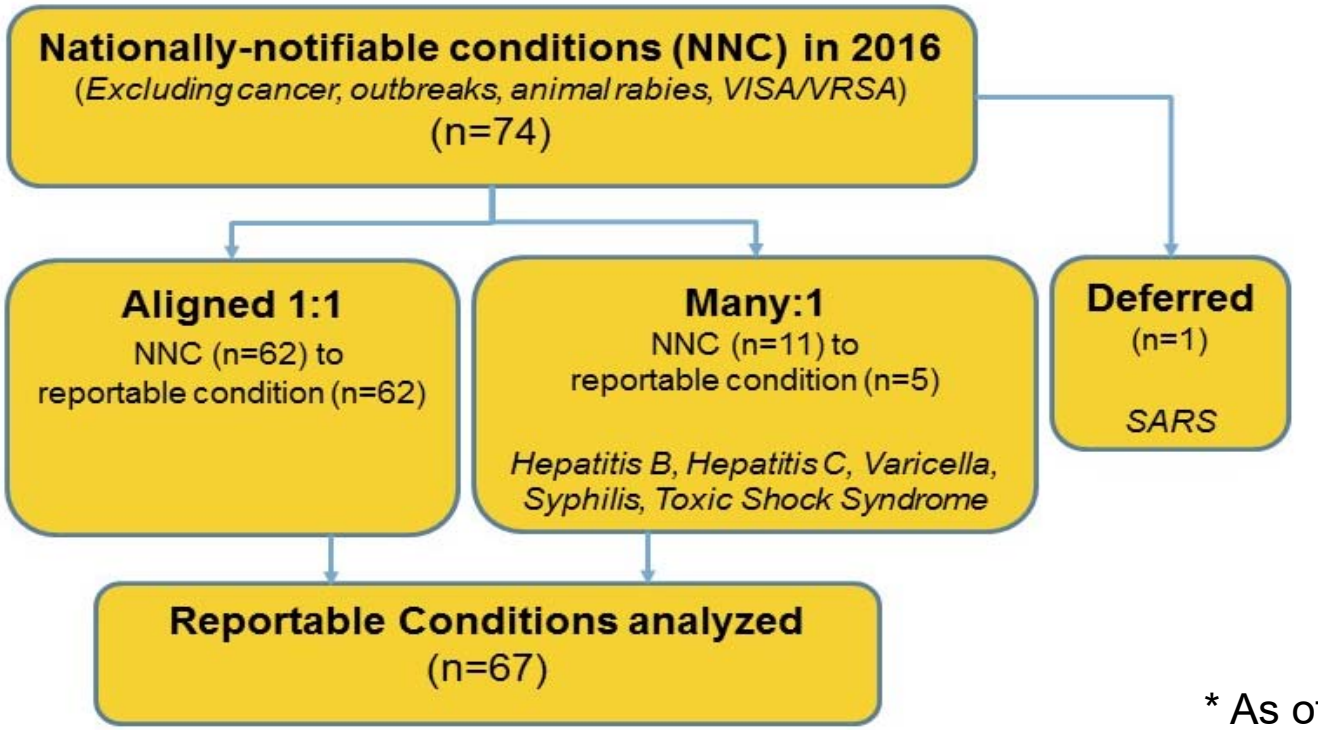


My Value Sets

Download Excel | Refresh | Clear Filter | Assign Keyword | Create Site | Page 1 of 1 | 20 | View 1 - 7 of 7

Name	Code System	Type	Steward	Author	OID
Zika Virus Disease (Disorders) (ICD10CM)	ICD10CM	Extensiona	CSTE Stev	CSTE Autl	2.16.840.1.113762.1.4.1146.592
Zika Virus Disease (Disorders) (SNOMED)	SNOMEDCT	Extensiona	CSTE Stev	CSTE Autl	2.16.840.1.113762.1.4.1146.590
Zika Virus Disease (Organism or Substance in Lab R	SNOMEDCT	Extensiona	CSTE Stev	CSTE Autl	2.16.840.1.113762.1.4.1146.591
Zika Virus Disease (Test Panels for Zika Virus Nuclei	LOINC	Extensiona	CSTE Stev	CSTE Autl	2.16.840.1.113762.1.4.1146.613
Zika Virus Disease (Tests for Zika Virus IgM Antibod	LOINC	Extensiona	CSTE Stev	CSTE Autl	2.16.840.1.113762.1.4.1146.589
Zika Virus Disease (Tests for Zika Virus Nucleic Acid	LOINC	Extensiona	CSTE Stev	CSTE Autl	2.16.840.1.113762.1.4.1146.588

Summary of reportable conditions analyzed*



* As of October 2017

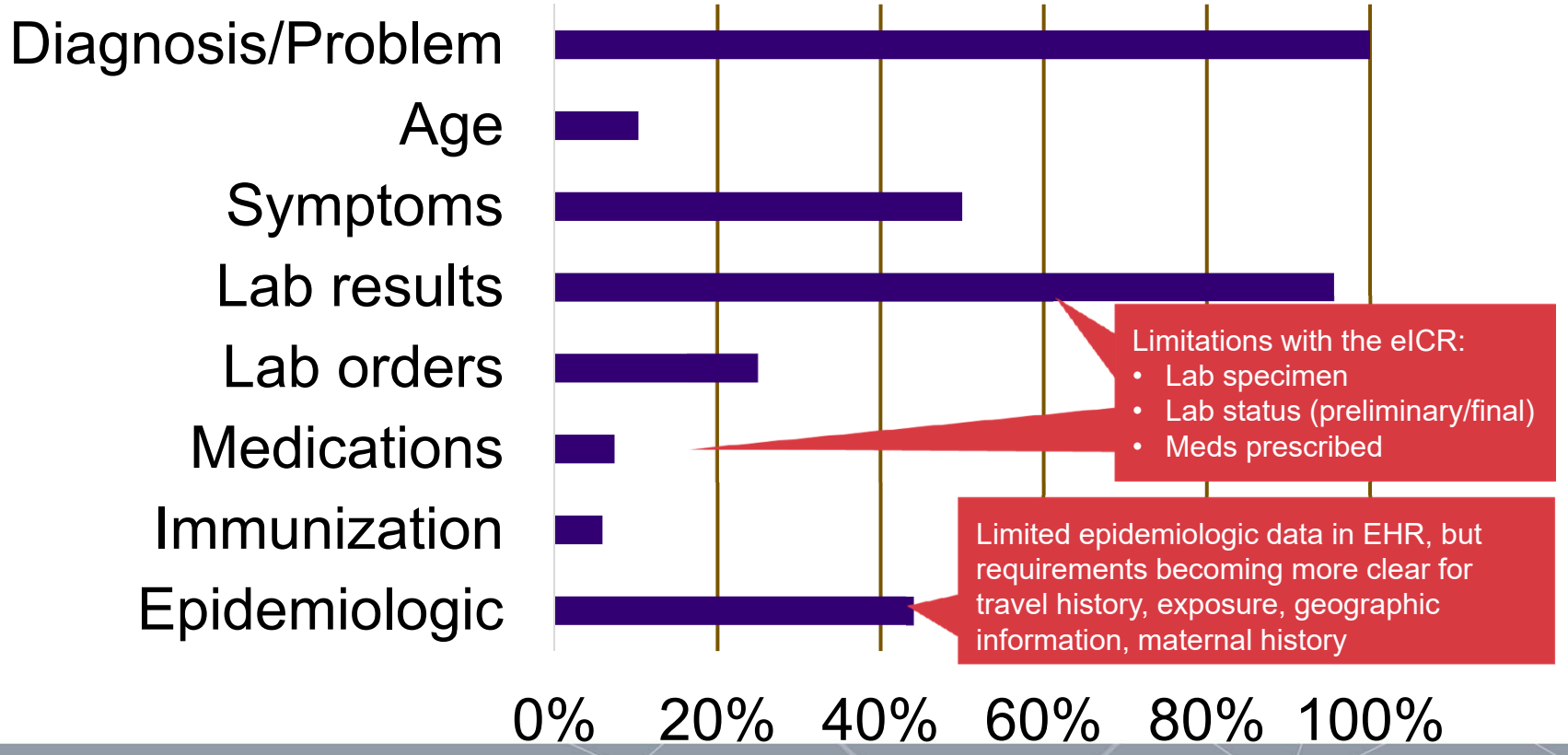
Harmonization success!

Default criteria identified for 100% of the conditions

Optional criteria requested for 43% of the conditions

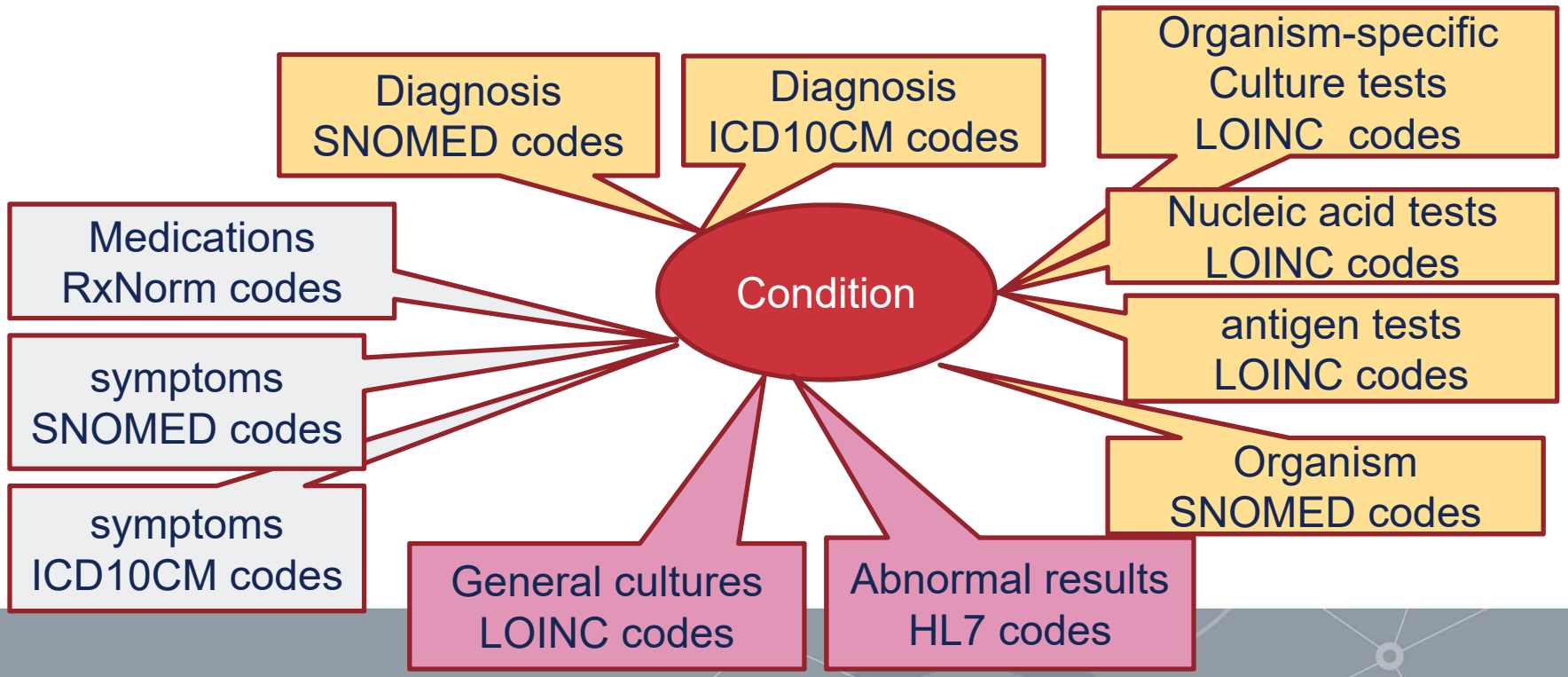
- Different surveillance priorities & practices:
  - Conjunctivitis (gonorrhea, chlamydia)
  - Based on hospitalization (influenza)
  - Negative results (chlamydia testing, lead)
- Want ability to '*tune*' event detection
  - increase sensitivity during outbreak (e.g., add lab orders)
- Willing to sacrifice PPV for sensitivity
  - inappropriate lab testing for important conditions

Frequency of criteria requested among 68 reportable conditions, by major category



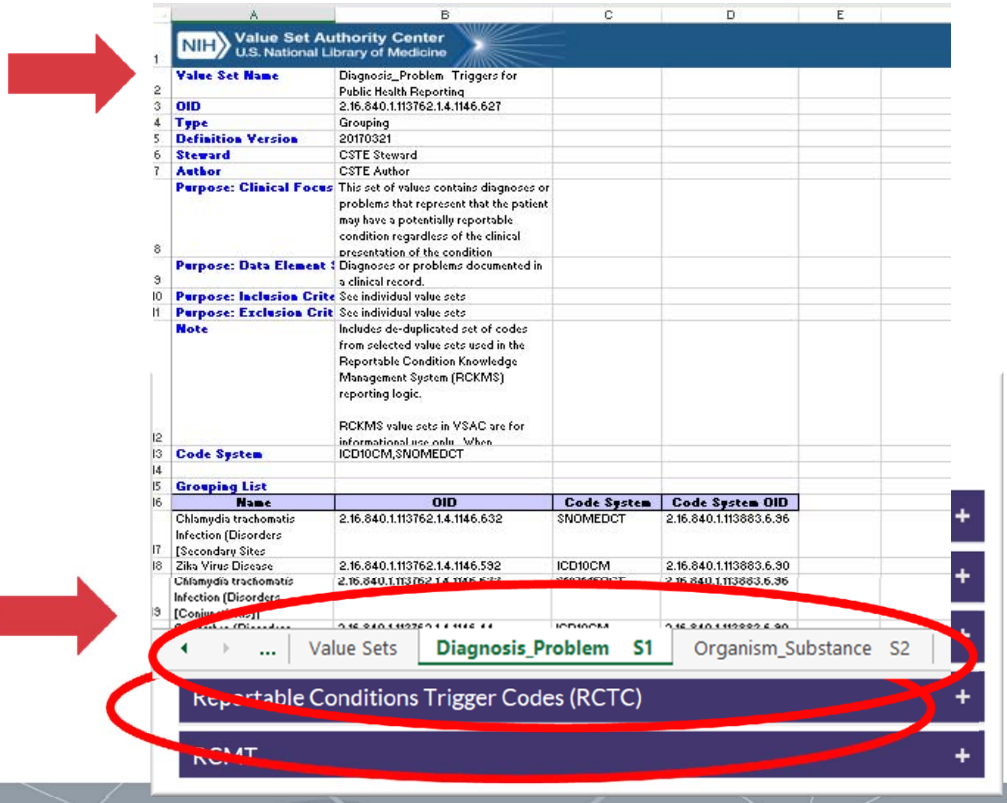
Value sets for the 68 conditions

~6-10 value sets required for each condition
~550 value sets addressed so far



Reportable Condition Trigger codes (RCTC) – current status

- Create RCTC using VSAC:
  - Condition-specific value sets assigned to domain-specific value sets (diagnoses, organisms, lab test names, lab orders, meds
  - Currently: Automatically create excel file with domain-specific codes
- Provision RCTC
  - Current: PHIN VADS website
  - Alternatives being evaluated



Thank you

Contact info:

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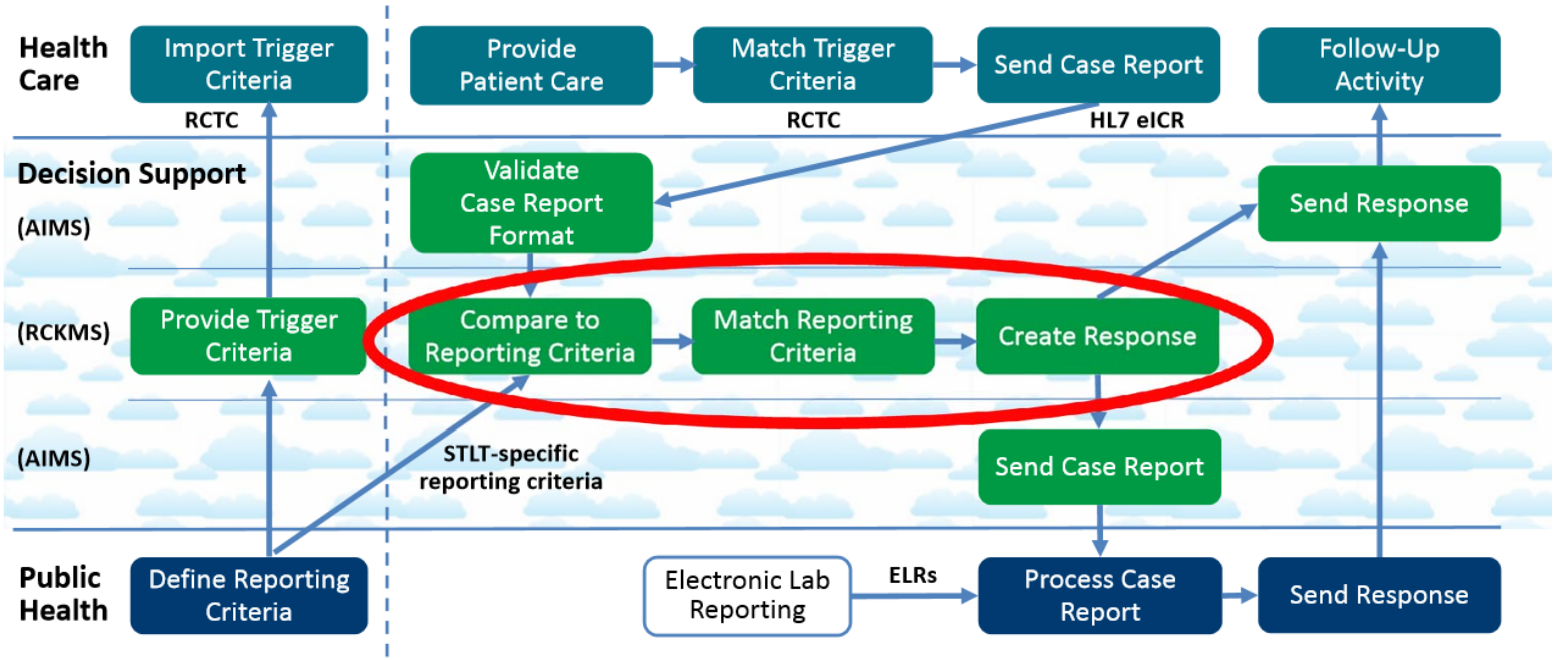
Defining a long-term public health clinical decision support (CDS) strategy

Noam H. Arzt, PhD

President, HLN Consulting LLC

Decision Support



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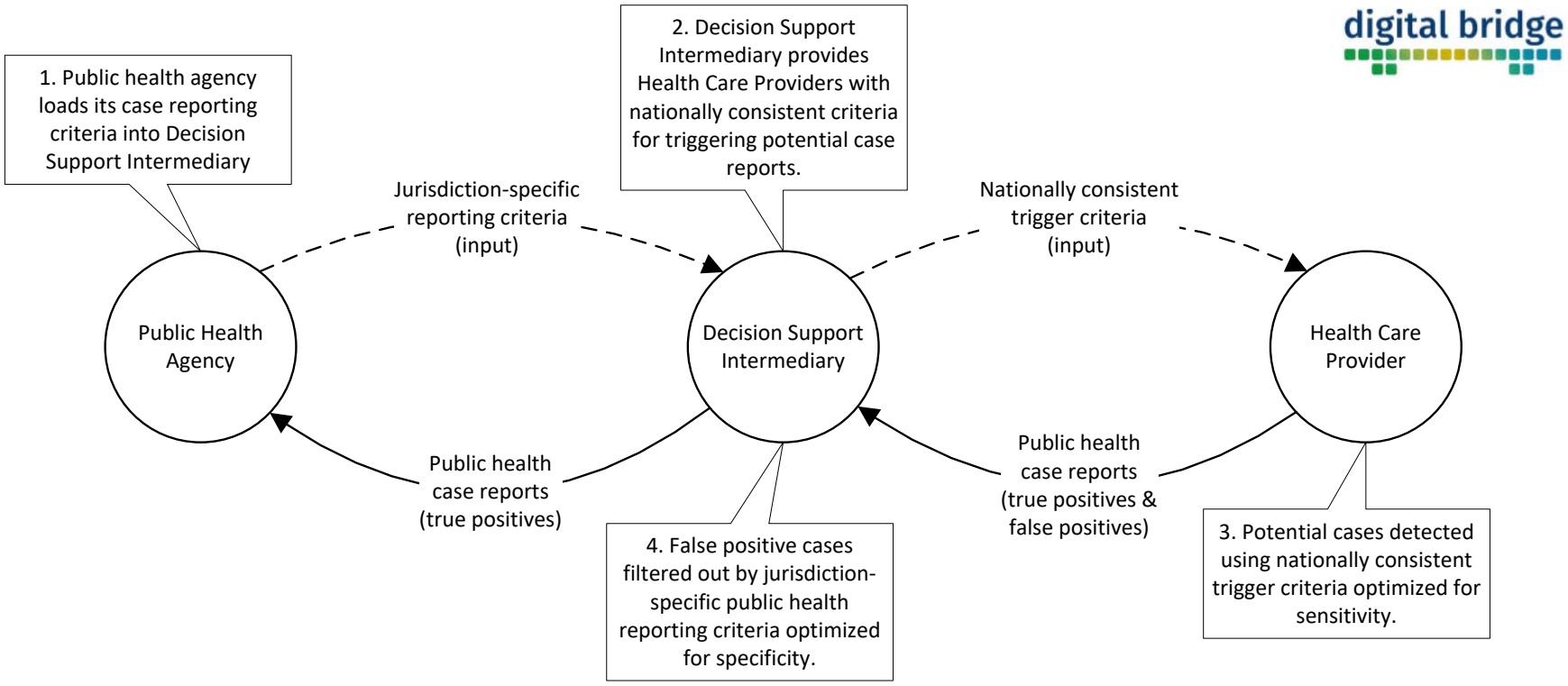
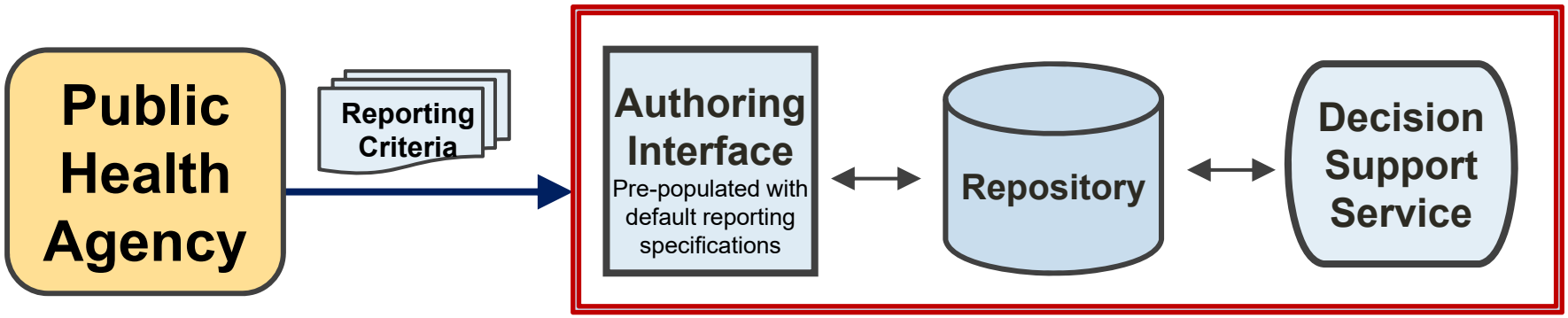
Electronic Case Reporting (eCR) Overview



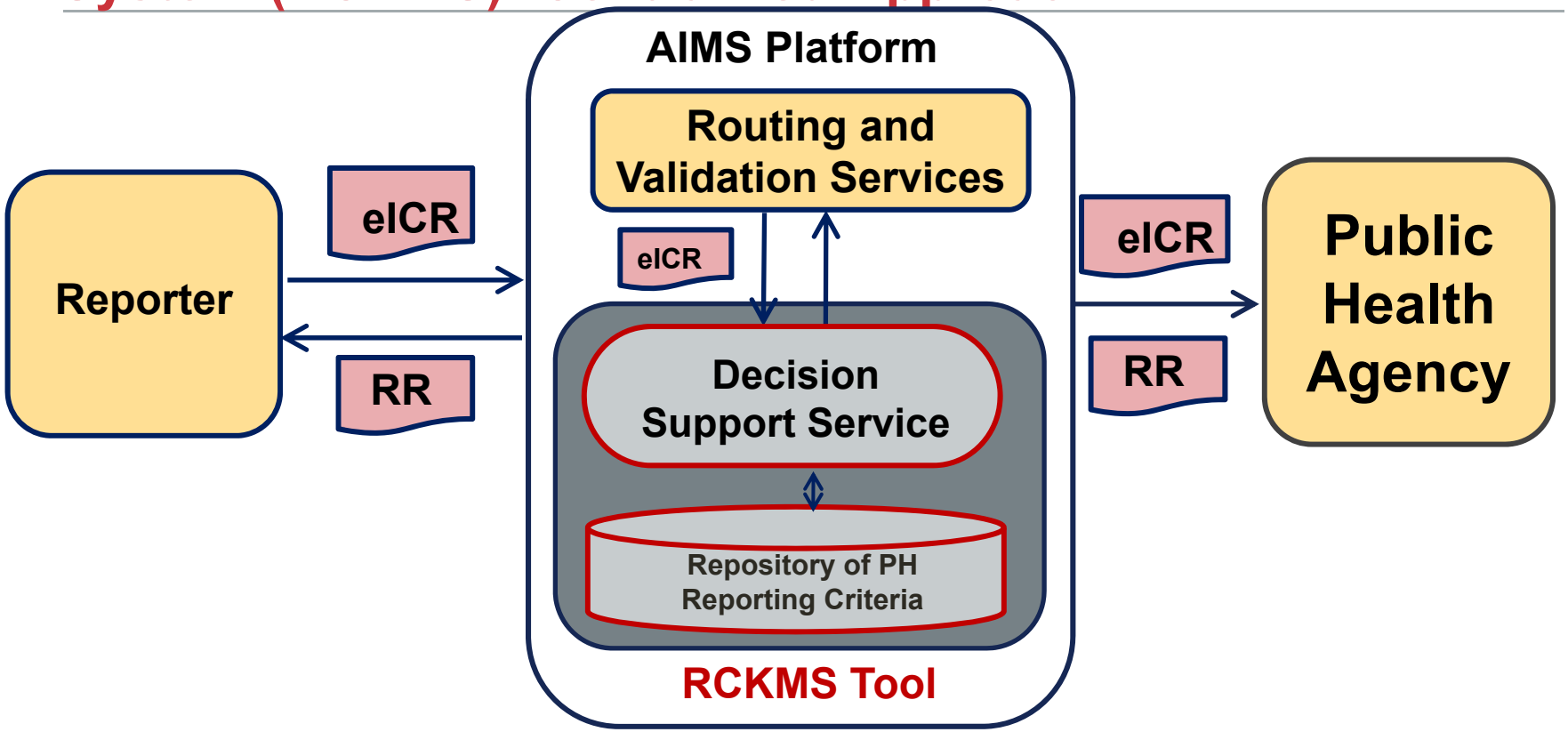
Source: Digital Bridge Project

Reportable Conditions Knowledge Management System (RCKMS) Components



1. **Authoring Interface:** Jurisdiction enters Reporting Specifications into Tool
   - RCKMS tool comes pre-populated with *default Reporting Specifications* that PHAs can choose to use as is, or customize to meet their needs
2. **Repository**: Reporting Specifications and Criteria stored in a Repository
3. **Decision Support Service (DSS)**: Reporting Specifications deployed to DSS (Rules Engine)

Reportable Condition Knowledge Management System (RCKMS): Centralized Approach



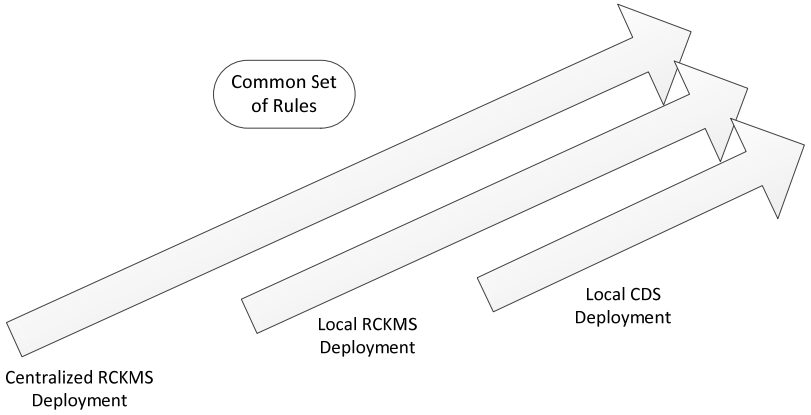
Benefits of a Centralized Approach

- **Standards based approach promotes interoperability between systems**
  - HL7 Initial Electronic Case Report 1.1 (eICR 1.1)
  - HL7 Reportability Response (In ballot reconciliation)
- **Scalable**
  - Centralized platform (AIMS) reduces number of connections needed between PHAs and EHRs
    - Everyone connects to AIMS vs 1-1
    - HIEs/Trust frameworks vs individual providers
  - Shared infrastructure for reduced resource burden on jurisdictions
- **Shared set of rules for all jurisdictions**
  - Condition may be reportable somewhere else
- **Collaborative development effort through Digital Bridge Collaboration**
  - Greater stakeholder involvement, more buy-in

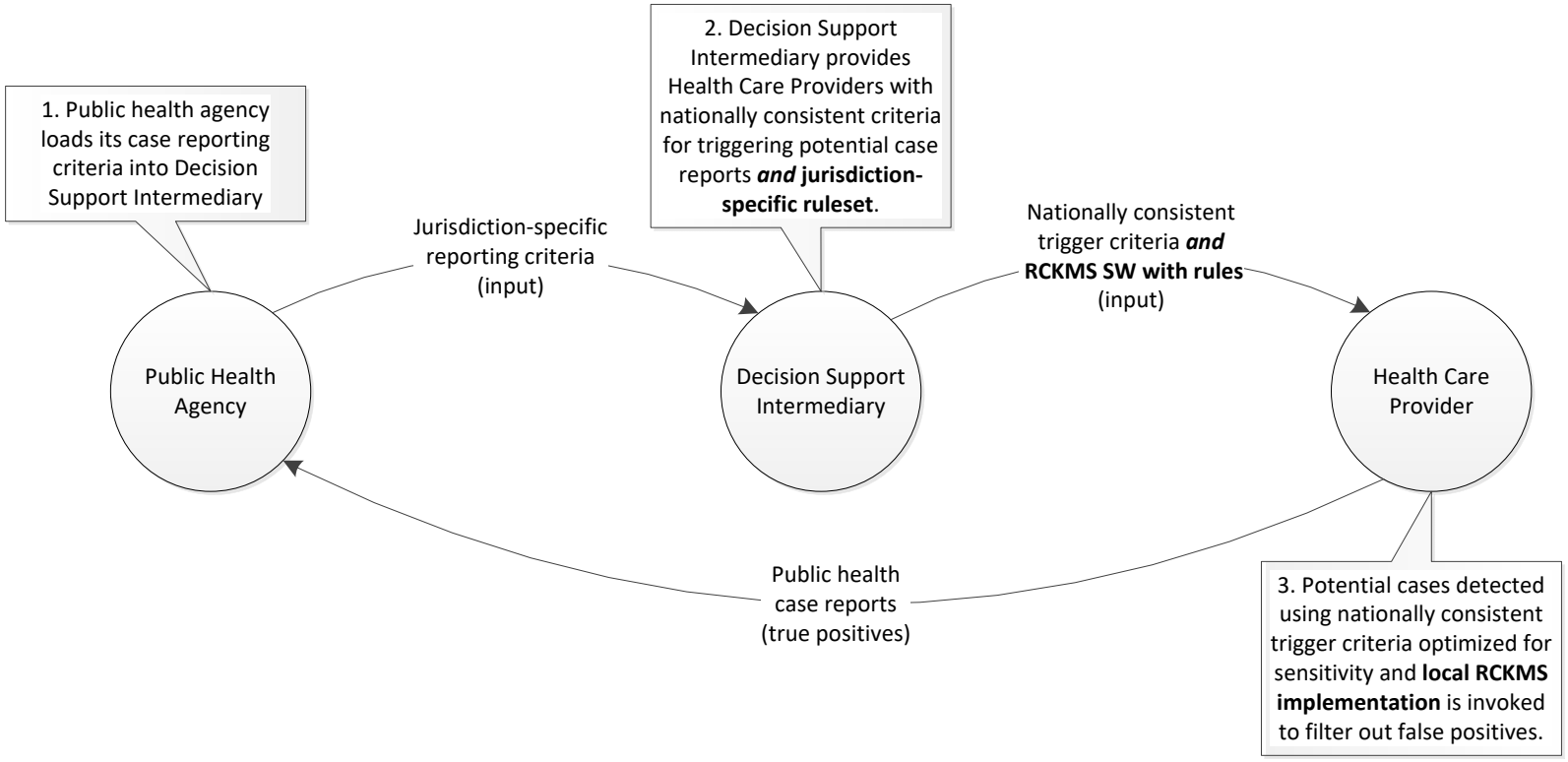
CDS “Sophistication”

Alternative Deployment Models

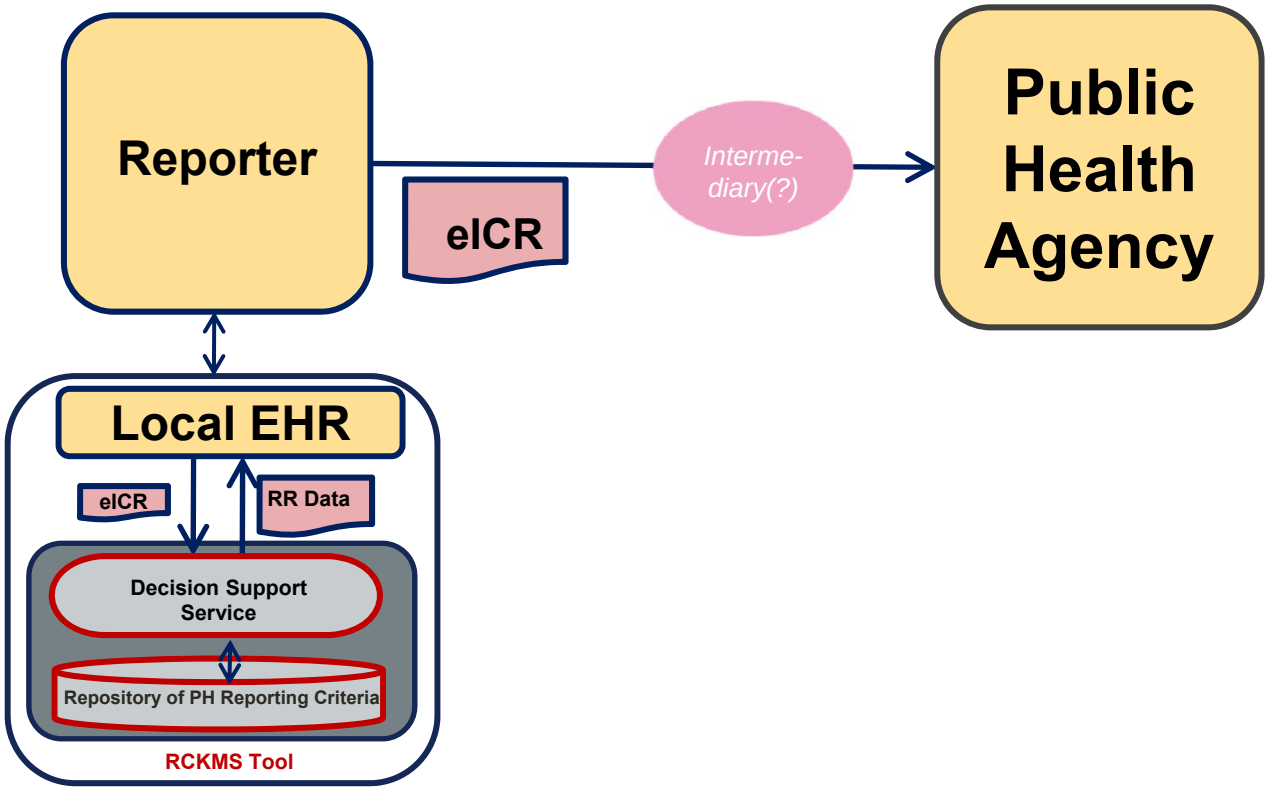
- **Reduce dependence on a central service**
  - Performance
  - Reliability
  - Network latency
  - Leverage existing local CDS capabilities
  - Legal reasons
- **Dangers**
  - Inconsistent rules
  - Insufficient rules
  - Higher cost
  - May require more technical skill
  - Other technical, policy, legal impacts
- **Two models**
  - Local RCKMS deployment
  - Deployment of national rule set using local CDS software capabilities



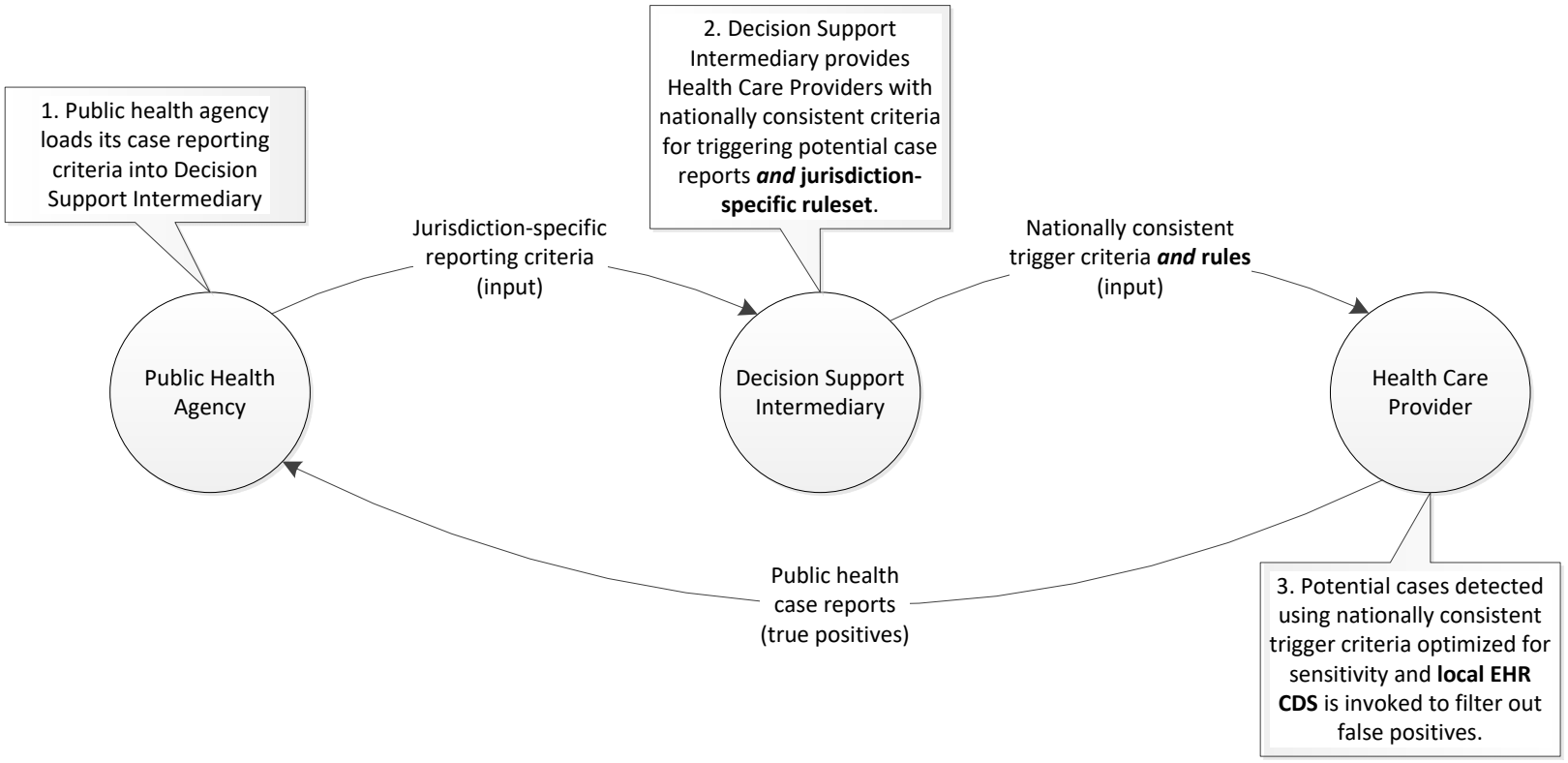
eCR Alternative #1 Overview: Local RCKMS Deployment



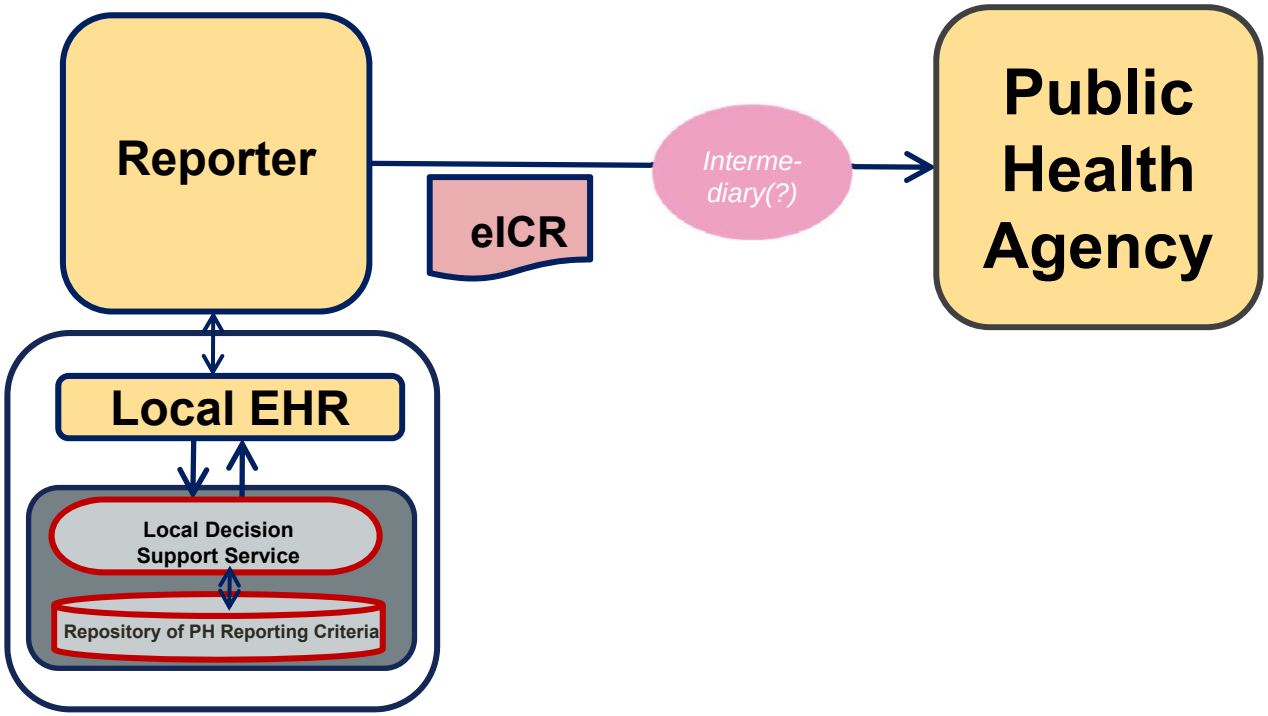
Reportable Conditions Knowledge Management System (RCKMS): Local Deployment



eCR Alternative #2 Overview: Local CDS Deployment



Reportable Conditions Knowledge Management System (RCKMS): Local Deployment



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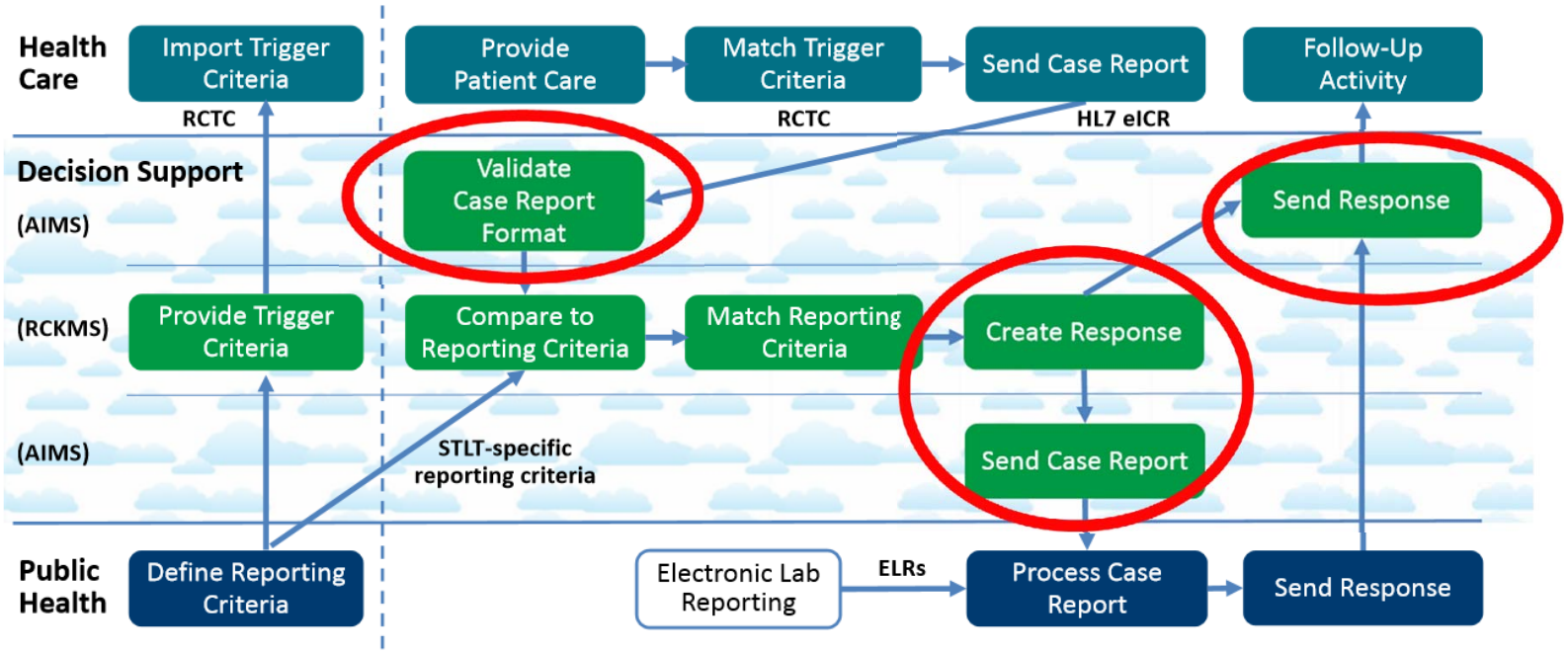
Building the ecosystem on a scalable, flexible services platform

Patina Zarcone-Gagne, MPH

Director of Informatics,

Assoc of Public Health Laboratories (APHL)

Services Platform



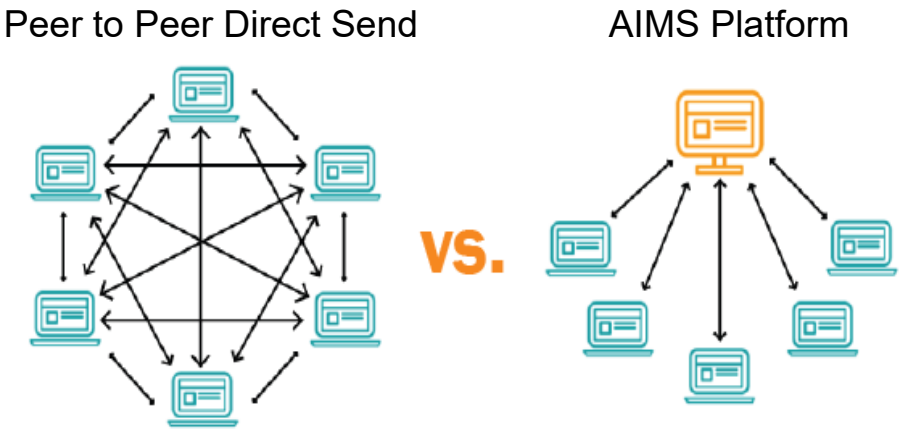
Source: http://www.digitalbridge.us/db/wp-content/uploads/2017/03/DigitalBridge_eCR_MidLevelDiagram_20170213.pdf

APHL Informatics Messaging Service

A secure, cloud based environment that accelerates the implementation of health messaging by providing shared services to aid in the transport, validation, translation, transformation and routing of electronic data.

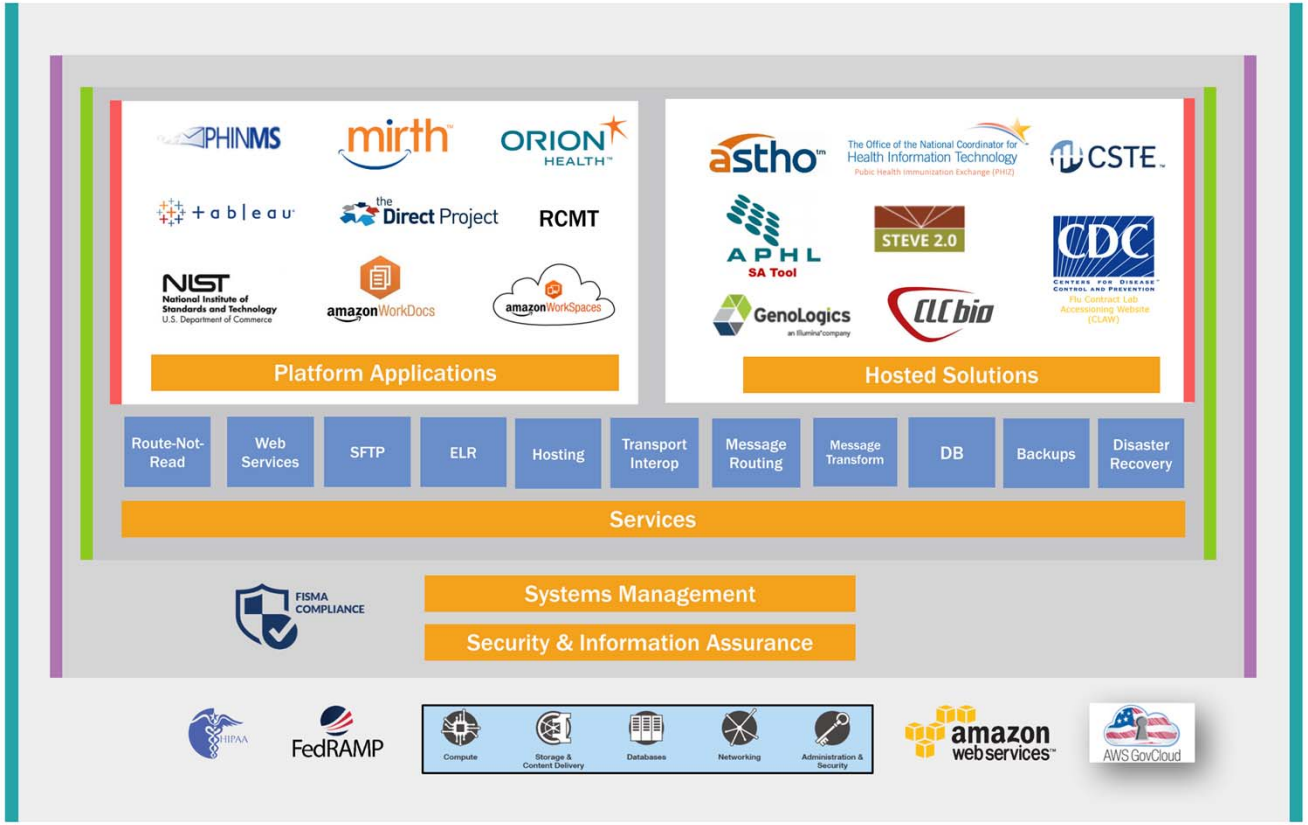
Foundation

Since 2008, APHL has maintained a message transport hub service that has the ability to receive, hold, and transmit electronic messages sent from one organization to another. The RnR Hub (now named AIMS Platform) service routes electronic messages between the CDC, partner laboratories, and public health agencies.



AIMS Functional Architecture

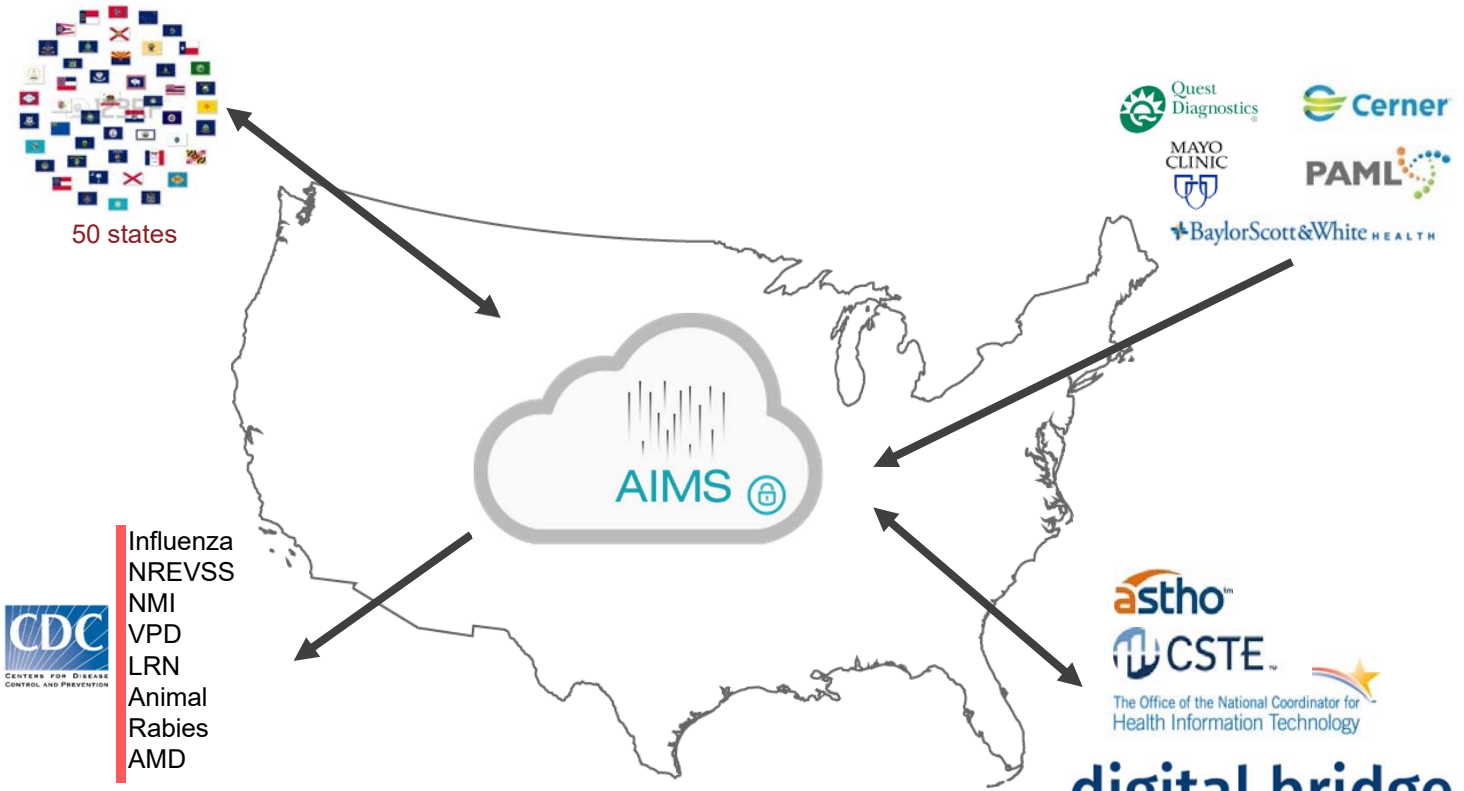
AIMS TECH TEAM



AIMS TECH TEAM

AIMS TECH TEAM

Today: A National Resource for Interoperability

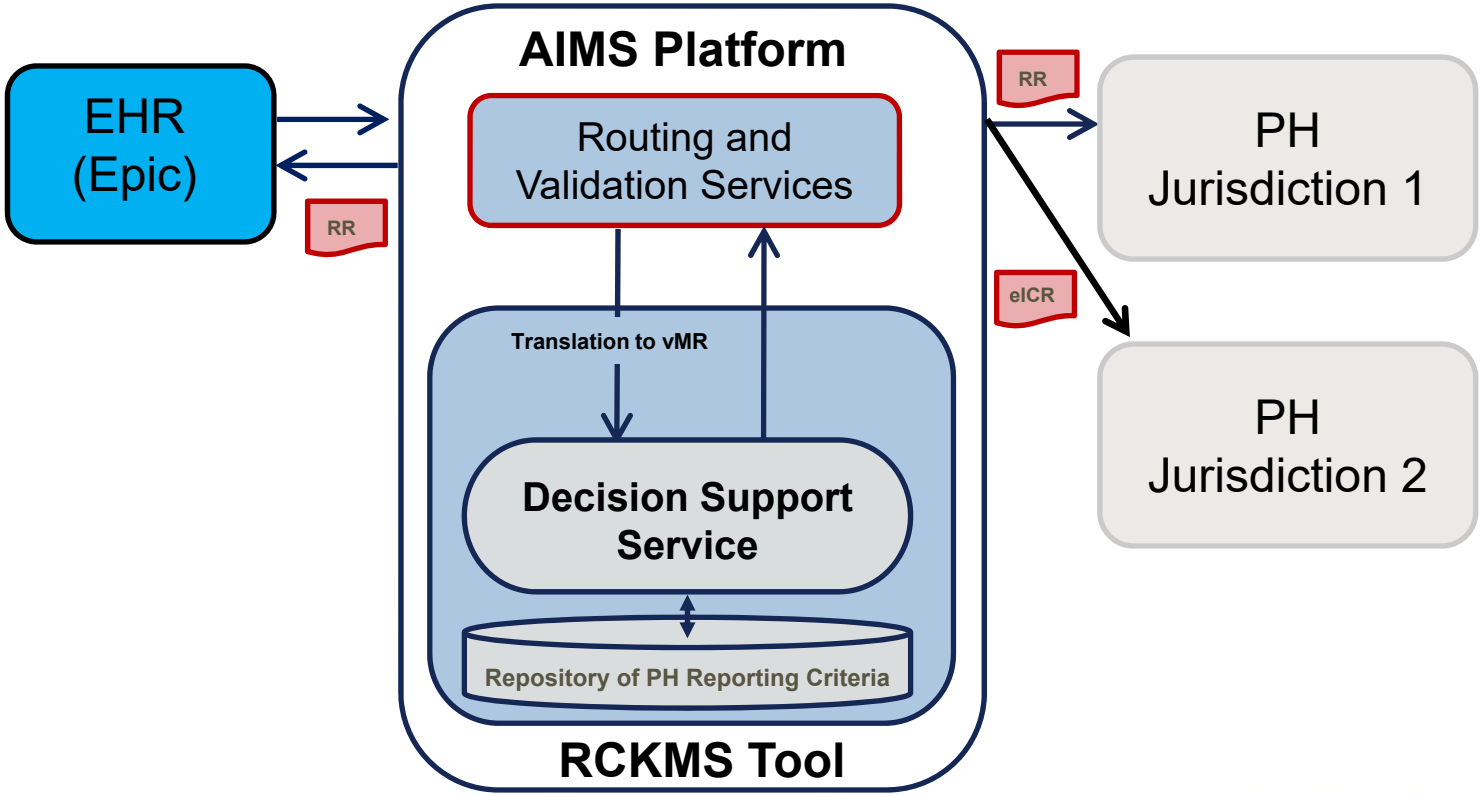


eCR with the Digital Bridge Project

- DB is a partnership of healthcare, health IT and public health organizations
  - Goal is to ensure our nation's health through a bidirectional information flow between health care and public health
  - A forum for sharing ideas
  - An incubator for growing projects that meet this vision
- Funded by the Robert Wood Johnson Foundation and the deBeaumont Foundation. Program management provided by Deloitte Consulting and the Public Health Informatics Institute
- Initial focus: electronic case reporting (eCR)

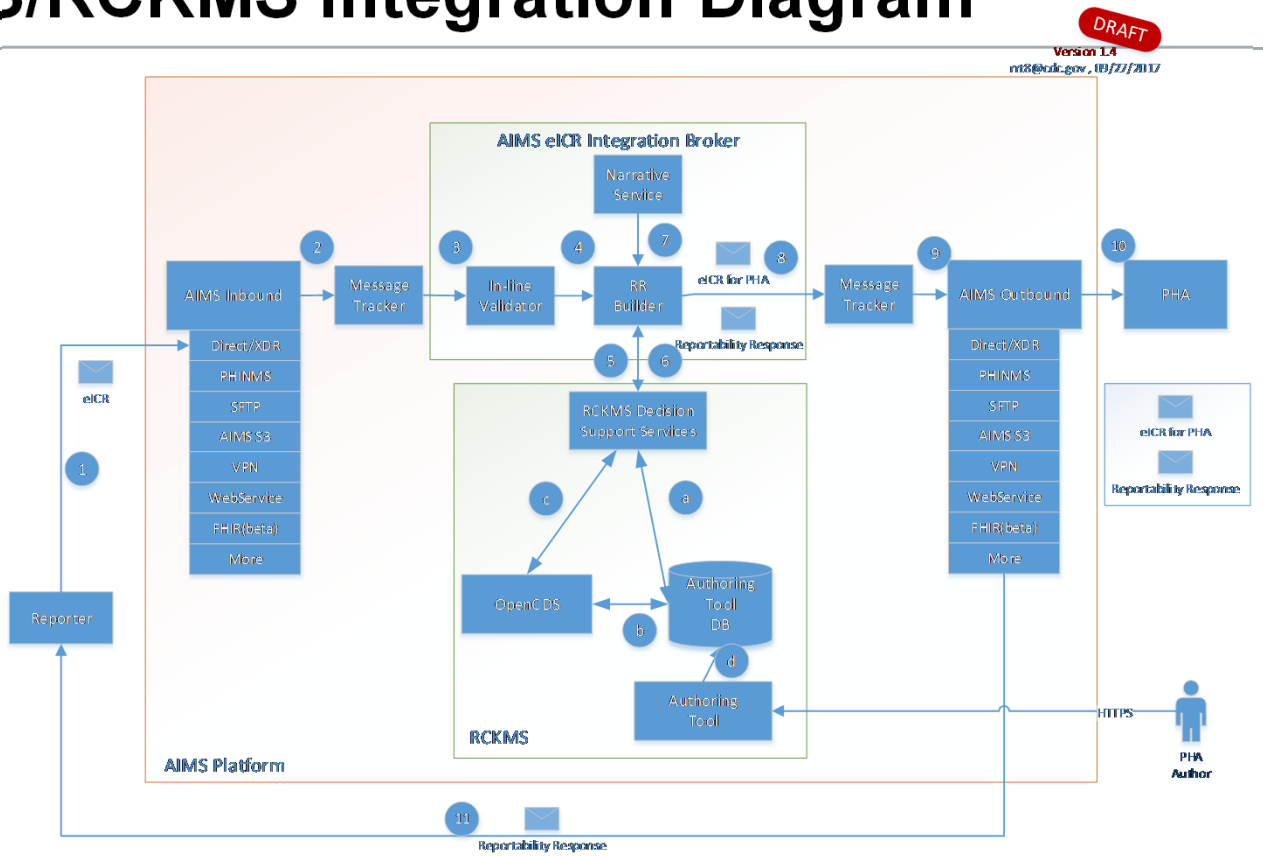
AIMS in support of eCR

*Simplified view of eCR use case



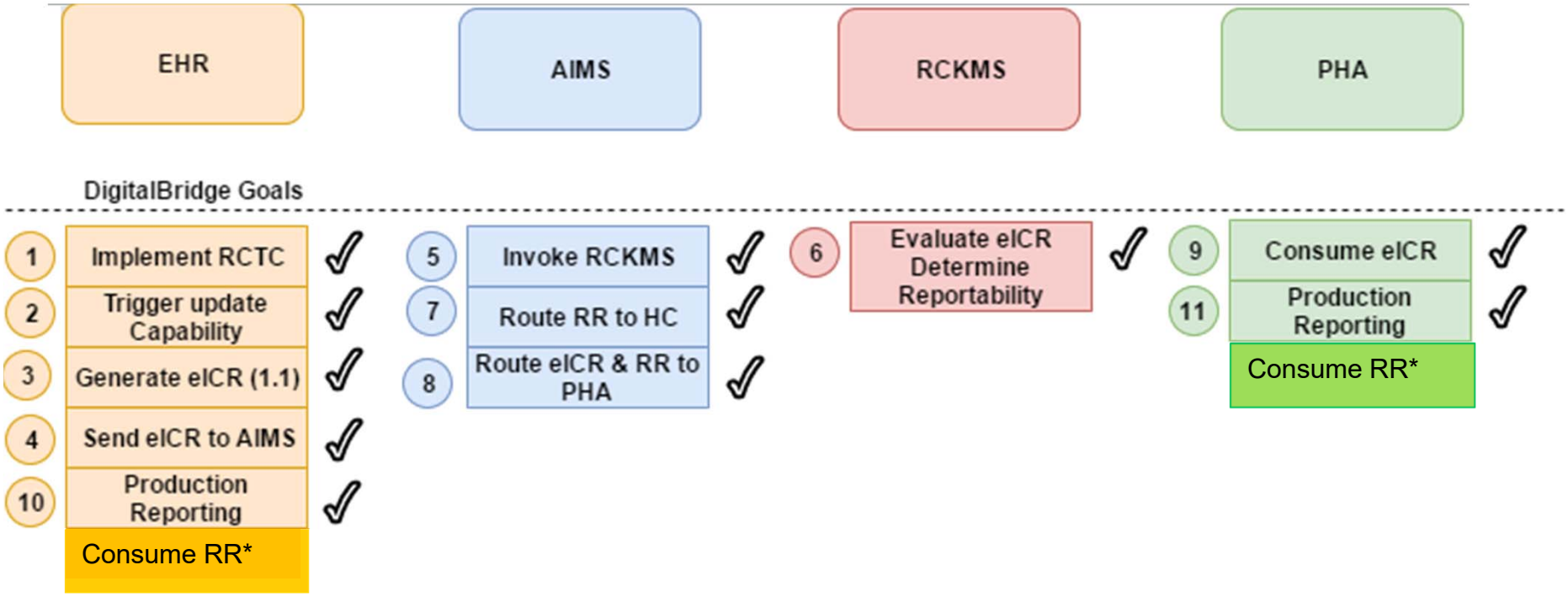
*Slide courtesy of CSTE

*AIMS/RCKMS Integration Diagram



*Slide courtesy of CDC

Goals of initial implementations



* RR not required under the Digital Bridge eCR Requirements

Scaling Provider Connectivity

There are 5,564 U.S. Registered Hospitals and 208,807 Practicing Primary Care Physicians.

- Technical Challenges
  - Many to many connections multiply complexity and effort - not just add them
  - Consistent exchange of specific data
  - Security of connections
  - Error handling
- Legal Challenges
  - Point-to-point contracts
  - HIPAA minimum necessary requirements
  - DUA and BA development costs for clinical “side”
  - DUA costs for public health “side”

Scaling Provider Connectivity (cont.)

Tools to reduce data exchange challenges

- Connection approaches that have a “hub” in the middle
- Highly specified data and technical standards
- “Compacts” or “trust agreements” that are one-to-many

Examples:

- Health Information Exchange DUAs and specific technical solutions
- eHealth Exchange DURSA and approved data and technical standards
- DirectTrust agreement and secure SMTP
- AIMS Platform

eCR Initial Implementation Site Participation

Public Health Agency	Health Care Provider	EHR Vendor
California	UC Davis	Epic
Houston	Houston Methodist	Epic
Kansas	Lawrence Memorial Hospital	Cerner
Massachusetts	Partners HealthCare	Epic
Michigan	Local Public Health Clinics	NetSmart/HIE-MiHIN
New York City New York State	Institute of Family Health Upstate	Epic
Utah	Intermountain Healthcare	Cerner

Site Status in Preparation for Onboarding and Testing

Implementation Sites	Vendor/HIE Activities	Provider Activities	Public Health Activities	Site Connectivity with AIMS
Kansas				
Michigan				
Utah				
California				
Houston				
Massachusetts				
New York				

Not Started – 0% In Progress – 50% Complete – 100%

Contact Information

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8515 Georgia Avenue, Suite 700, Silver Spring, MD 20910

For more information on AIMS please visit http://www.aimsplatform.com

Establishing standards for bi-directional exchange to support eCR

John W. Loonsk, MD FACMI

CMIO & VP, CGI Federal

Why Standards for eCR?

Public health puts a premium on interoperability and data comparability

- Thousands of Public Health Agencies, hundreds of thousands of providers
- A typical State Public Health Agency has about 200 reportable conditions
- EHRs need a consistent, coordinated interface to Public Health
- Standards are central to addressing these needs

Post-Meaningful Use (if not before) interoperability "formula" is clear:

1. Incentives for exchange
2. Specific standards with limited optionality
3. Testing to ensure proper implementation

Achieving eCR Interoperability

1 - Incentives for Exchange

- Case reporting – critical function but still needs incentives – advocated for MU III
- State and Local statutes have some effectiveness

2 - Specific standards

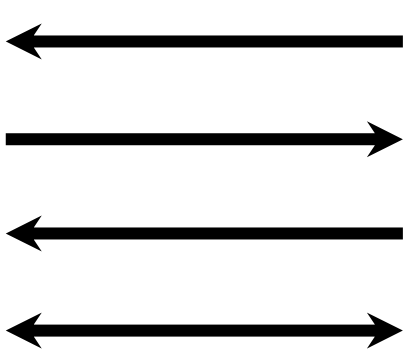
- Previously attempts – many individual or one all-encompassing standards
- Began working on current design pattern in 2013
- Specific eICR project began in 2015

3 - Testing

- EHR case reporting certification language has limited specificity
- Public health, overall, is now a “menu” of options
- Recent changes to MU / MACRA loosen it further

eCR Standards

EHRs Intermediaries PHAs



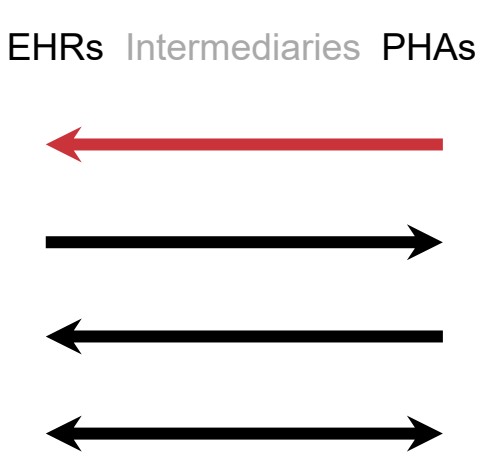
Decision Support

Initial Case Report

“Bi-directional” Communications

Supplemental Data and Investigation

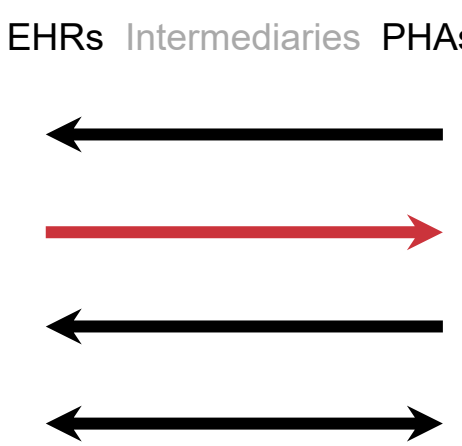
eCR Standards



Decision Support

- Industry not ready for distributable decision logic
- We promoted flat “trigger tables” instead
- Trigger tables can align well with reportable conditions (reasonable expectation for reporting), but:
  - Multiple complex jurisdictional factors
  - Positive and negative lab test issues
  - Lead to policy considerations
- In future, FHIR may offer 1 - better stored data standardization, 2 – eventual distributable logic support
- Can use FHIR publish / subscribe now for trigger code value set distribution, help build path to distributable logic

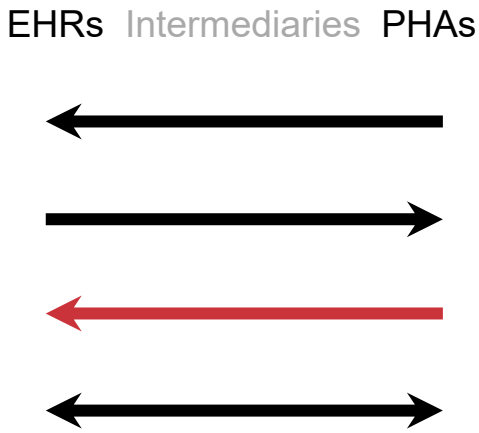
eCR Standards



Initial Case Report

- "Electronic Initial Case Report" (eICR) version 1.1
  - Data have HIPAA policy relevance
- All conditions, all jurisdictions
  - Part of multi-transaction design pattern
- Built from C-CDA templates
  - Data "certified" to be in EHRs secondary to care provided
- Added some travel history structure
- Working on FHIR version for when industry is ready

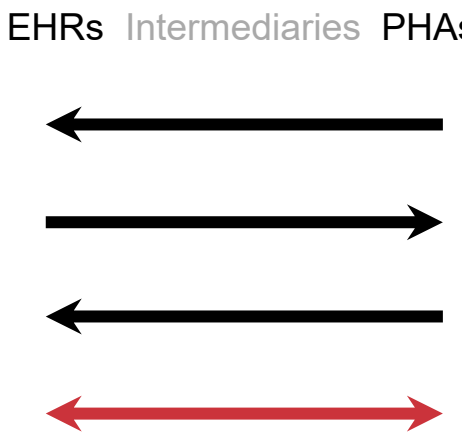
eCR Standards



Bidirectional Communications

- "Reportability Response" (RR) HL7 CDA – this month
- Visualized for *Providers / Reporters* and data for machine processing
- Serves several functions including:
  - Communicates reportability status and reporting for each eICR condition for each "responsible" Public Health Agency (PHA)
  - Lists suggested or required clinical follow-up activities from the responsible PHA - including additional reporting needs
  - Provides access to clinical support resources suggested by the responsible PHA for identified reportable conditions
  - Confirms eICR receipt and processing
- Closes loop, where possible, on statutory reporting requirements

eCR Standards

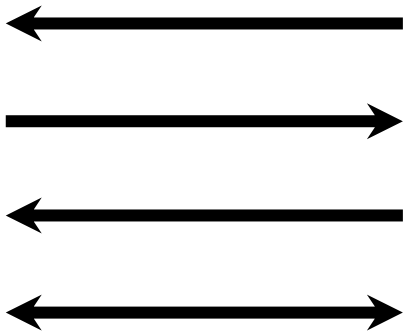


Supplemental Data and Investigation

- eICR does not address “public health” supplemental, jurisdiction or condition-specific questions data
- Most “supplemental” data not recorded as a product of care
- Place for manual entry into forms such as in IHE RFD and ONC Structured Data Capture (SDC)
- Moving forward will consider eICR supplements that can be used in initial send
- Pursuing FHIR population health resources to help manage population cases and data stores

eCR Standards

EHRs Intermediaries PHAs



Moving forward

- Interoperability requires consensus standards
- Balance between gaining consensus and pursuing the next bright and shiny object
- FHIR eCR IG for when ready
- Additional eICR data for CDA and FHIR
- Supplemental eCR questions and answers that can be used when desirable
- Add incrementally to distributable logic for triggering when industry can support

MS(((17

Thank you

Contact info:

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- CMIO CGI Federal
- Adjunct Associate Professor, Center for Population Health IT, Bloomberg School of Public Health, Johns Hopkins University
- Consultant Association of Public Health Laboratories
- John.loonsk@cgifederal.com
- 202 302-3434

Slide 69

MS(((17 Can you include an acknowledgement slide that includes the co-chairs, Caci (Julie), & Northrop Grumman so the organizations get a mention?? you, HLN, and CSTE are already there :)
McGarvey, Sunanda (Shu) (CDC/OID/NCEZID) (CTR), 10/31/2017

Audience Discussion

John Stinn, MA

Question / Answer

What is the same about Papayas, Puppies, Pathologists, and Pet Turtles?



A. All end in the letter S!
B. All are risk factors for current outbreaks under investigation by the CDC
C. All the outbreaks require bi-directional communication for disease control
D. All of the above

ANSWER: D. https://www.cdc.gov/outbreaks/index.html
Need flexible, scalable decision support systems to address the unexpected!

Audience Discussion

- From the health care enterprise perspective, do the requirements and systems for implementing eCR leverage your existing infrastructure and make case reporting more efficient?

- Are there unintended consequences that the informatics and public health community should be thinking about?

Thank you!