

Public Health – EHR Vendor Collaboration Initiative

Electronic Case Reporting: eICR and Trigger Implementation Discussion

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Disclaimer

The findings and conclusions in this presentation are those of the presenter(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention (CDC) or the Office of the National Coordinator for HIT.

Purpose of today's call

- The purpose of this webinar is to review electronic case reporting (eCR) to public health and garner input from EHR developers and implementers on the implementation of the Reportable Conditions Trigger Codes (RCTC) in an EHR to initiate generation of electronic initial case reports (eICR). Input will be used to refine, improve and begin implementation of the proposed approach.

Agenda

- Review of eCR approach
- Meaningful Use requirements
- Introduction to implementation topics for discussion
- Update on HL7 PHER eCR activities
- Stage setting for triggers
- Preview of draft trigger code content, format of tables, distribution, and timeline
- Discussion

Terms

- eCR – Electronic case reporting (verb)
- eICR – Electronic initial case report (noun)
- RCKMS – Reportable Conditions Knowledge Management System
- RCTC – Reportable Conditions Trigger Codes - codes implemented in the health care system to match against encounter information and initiate an eICR
- Code system definitions
 - LOINC[®] - Regenstreif
 - SNOMED CT[®] - International Health Terminology Standards Development Organisation
 - ICD-9/10 - CMS
 - CPT[®] - American Medical Association
 - RxNorm – US National Library of Medicine
- Distribution – Method by which codes will be made available
- Notification - Communication of file ability to implementers

Review of eCR approach, Meaningful
Use eCR and introduction to
implementation topics for discussion

Case reporting

- ❑ **Public health agencies need to manage cases of “reportable conditions” in their surveillance systems**
- ❑ **Upward of 90 conditions are required by law to be reported in every State and Territory**
- ❑ **Needed to manage outbreaks like Ebola or Measles**
- ❑ **Needed to monitor more routine trends**
 - e.g. cases of multi-drug resistant TB need to be investigated and managed by public health officials to protect the public from infection
- ❑ **Often difficult for reporters to know or easily find the “who, what, when, where, and how” of reporting**

Typical Presentation

Utah.gov Services Agencies

UTAH DEPARTMENT OF HEALTH

Home Health Services A-Z List FAQ Data About Us

Bureau of Epidemiology

A-Z Disease List Diseases & Conditions Commun Environ

Epidemiology > Disease Reporting

Services **Disease Reporting**

Disease Plans/Report Forms

Disease Prevention

Disease Testing

Disease Treatment

Find Disease Information

Foodborne Illness Complaints

Immunization Records

Information for:

General Public

Healthcare Providers

Media

Public Health Departments

Schools & Childcare

Utah law requires that certain diseases be reported to the Department of Health. Some days after identification.

To find out which diseases are Utah Reportable Diseases.

Diseases may be reported to Epidemiology.

Reports to Bureau of Epidemiology

- Secure fax: 801-538-9333
- Secure email: epi@utah.gov
- Phone: 1-888-EPI-UTA

The following information is available on the Communicable Diseases website.

- Patient's name, address
- The diagnosed or laboratory diagnosis
- Date of onset for disease
- Your (person reporting) contact information
- The laboratory results
- All other information relevant to the case

For questions about disease reporting, patient information will be in the **Public Health Department**.

Printable Reference Materials

- Disease Reporting Flyer
- Immediately Reportable Diseases
- Mandatory Submission

Mass.gov State Offices & Courts State A-Z Topics

The Official Website of the Executive Office of Health and Human Services

Health and Human Services

Departments & Divisions

A-Z Topic Index Health Care & Insurance Consumer

Home > Government Agencies > Departments & Divisions > Reportable Diseases, Isolation & Quarantine > Reporting Diseases and Surveillance

Reporting Diseases and Surveillance

Welcome to the Massachusetts Department of Public Health (MDPH). We are committed to preventing disease, suffering and even death, and place an enormous emphasis on local boards of health, healthcare providers, laboratories and other entities. We rely on local boards of health, healthcare providers, laboratories and other entities to report notifiable diseases as required by law (Massachusetts General Laws, Chapter 112 and Chapter 111D, Section 6. These laws are implemented through Regulations (CMR), Section 300.000: Reportable Diseases, Surveillance and Control. Our Reportable Diseases web site is an on-line resource for local health departments and other entities.

Lists of Infectious Diseases Reportable by County

- List of Diseases Reportable by Healthcare Providers
- List of Diseases Reportable by Laboratories
- List of Diseases Reportable to Local Boards of Health

Regulations and Amendments

- 105 CMR 300.000: Reportable Diseases, Surveillance, and Control - specific isolation and quarantine requirements
- Summary of Significant Amendments to 105 CMR 300.000: Reportable Diseases, Surveillance, and Control - Quarantine Requirements
- Memo about the Regulations Directing the use of MAVEN for the control of infectious diseases (PDF)
- Letter Re-Approved Amendments to 105 CMR 300.000 to Efficacy of Mumps Virus Vaccine

Guide to Surveillance, Reporting and Control

- Guide to Surveillance, Reporting and Control: A Massachusetts Department of Public Health resource for surveillance and control of reportable infectious diseases. Contains information on the reporting requirements for each reportable disease, isolation and quarantine requirements for each reportable disease, and other information.

Documents Pertaining to Privacy and Confidentiality

Washington State Department of Health

Notifiable Conditions & the Health Care Provider

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

<p>Acquired immunodeficiency syndrome (AIDS) ^{3d} (including AIDS in persons previously reported with HIV infection) ^{3d}</p> <p>Animal bites (when human exposure to rabies is suspected) ^{imm}</p> <p>Anthrax ^{imm}</p> <p>Arboviral disease ^{3d} (West Nile virus disease, dengue, Eastern & Western equine encephalitis, St Louis encephalitis, and Powassan) ^{3d}</p> <p>Asthma, occupational (suspected or confirmed) ^{Mo} 1-888-66SHARP</p> <p>Birth Defects ^{Mo}: autism spectrum disorders, cerebral palsy, alcohol related birth defects ^{Mo} 360-236-3533</p> <p>Botulism (foodborne, wound and infant) ^{imm}</p> <p>Brucellosis (<i>Brucella</i> species) ^{24h}</p> <p><i>Burkholderia mallei</i> (Glanders) ^{imm} and <i>pseudomallei</i> (Meliodiosis) ^{imm}</p> <p>Campylobacteriosis ^{3d}</p> <p>Chancroid ^{3d}</p> <p><i>Chlamydia trachomatis</i> infection ^{3d}</p> <p>Cholera ^{imm}</p> <p>Cryptosporidiosis ^{3d}</p> <p>Cyclosporiasis ^{3d}</p> <p>Diphtheria ^{imm}</p> <p>Disease of suspected bioterrorism origin ^{imm}</p> <p>Domoic acid poisoning ^{imm}</p> <p><i>E. coli</i> - Refer to "Shiga toxin producing <i>E. coli</i>" ^{imm}</p> <p>Emerging condition with Outbreak potential ^{imm}</p> <p>Giardiasis ^{3d}</p> <p>Gonorrhea ^{3d}</p> <p>Granuloma inguinale ^{3d}</p> <p><i>Haemophilus influenzae</i> (invasive disease, children < age 5) ^{imm}</p> <p>Hantavirus pulmonary syndrome ^{24h}</p> <p>Hepatitis A, acute infection ^{24h}</p> <p>Hepatitis B, acute ^{24h}</p> <p>Hepatitis B, chronic (initial diagnosis/previously unreported cases) ^{Mo}</p> <p>Hepatitis B, surface antigen positive pregnant women ^{3d}</p> <p>Hepatitis C, acute ^{3d} and chronic ^{Mo} (initial diagnosis only)</p> <p>Hepatitis D (acute and chronic infections) ^{3d}</p> <p>Hepatitis E (acute infection) ^{24h}</p> <p>Herpes simplex, neonatal and genital (initial infection only) ^{3d}</p> <p>HIV infection ^{3d}</p> <p>Immunization reactions ^{3d} (severe, adverse)</p> <p>Influenza, novel or unsubtypeable strain ^{imm}</p> <p>Influenza-associated death (lab confirmed) ^{3d}</p> <p>Legionellosis ^{24h}</p> <p>Leptospirosis ^{24h}</p> <p>Listeriosis ^{24h}</p> <p>Lyme disease ^{3d}</p>	<p>Lymphogranuloma venereum ^{3d}</p> <p>Malaria ^{3d}</p> <p>Measles (rubeola) acute disease only ^{imm}</p> <p>Meningococcal disease (invasive) ^{imm}</p> <p>Monkeypox ^{imm}</p> <p>Mumps (acute disease only) ^{24h}</p> <p>Outbreaks of suspected foodborne origin ^{imm}</p> <p>Outbreaks of suspected waterborne origin ^{imm}</p> <p>Paralytic shellfish poisoning ^{imm}</p> <p>Pertussis ^{24h}</p> <p>Pesticide poisoning 1-800-222-1222</p> <p>Hospitalized, fatal, or cluster ^{imm}</p> <p>Pesticide poisoning, all other ^{3d}</p> <p>Plague ^{imm}</p> <p>Poliomyelitis ^{imm}</p> <p>Prion disease ^{3d}</p> <p>Psittacosis ^{24h}</p> <p>Q fever ^{24h}</p> <p>Rabies (confirmed human or animal) ^{imm}</p> <p>Rabies, suspected human exposure ^{imm}</p> <p>Relapsing fever (borreliosis) ^{24h}</p> <p>Rubella (include congenital rubella syndrome) ^{imm}</p> <p>(acute disease only)</p> <p>Salmonellosis ^{24h}</p> <p>SARS ^{imm}</p> <p>Shiga toxin-producing <i>E. coli</i> infections ^{imm}</p> <p>(enterohemorrhagic <i>E. coli</i> including, but not limited to, <i>E. coli</i> 0157:H7; also includes post-diarrheal hemolytic uremic syndrome)</p> <p>Shigellosis ^{24h}</p> <p>Smallpox ^{imm}</p> <p>Syphilis (including congenital) ^{3d}</p> <p>Tetanus ^{3d}</p> <p>Trichinosis ^{3d}</p> <p>Tuberculosis ^{imm}</p> <p>Tularemia ^{imm}</p> <p>Vaccinia transmission ^{imm}</p> <p>Vancomycin-resistant <i>Staphylococcus aureus</i> ^{24h}</p> <p>(not to include vancomycin intermediate)</p> <p>Variola-associated death ^{3d}</p> <p>Vibriosis ^{24h}</p> <p>Viral hemorrhagic fever ^{imm}</p> <p>Yellow fever ^{imm}</p> <p>Yersiniosis ^{24h}</p> <p>Other rare diseases of public health significance ^{24h}</p> <p>Unexplained critical illness or death ^{24h}</p>
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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)

Condition Referral from EHR to Public Health Use Case

Healthcare



ElectronicHealth Record

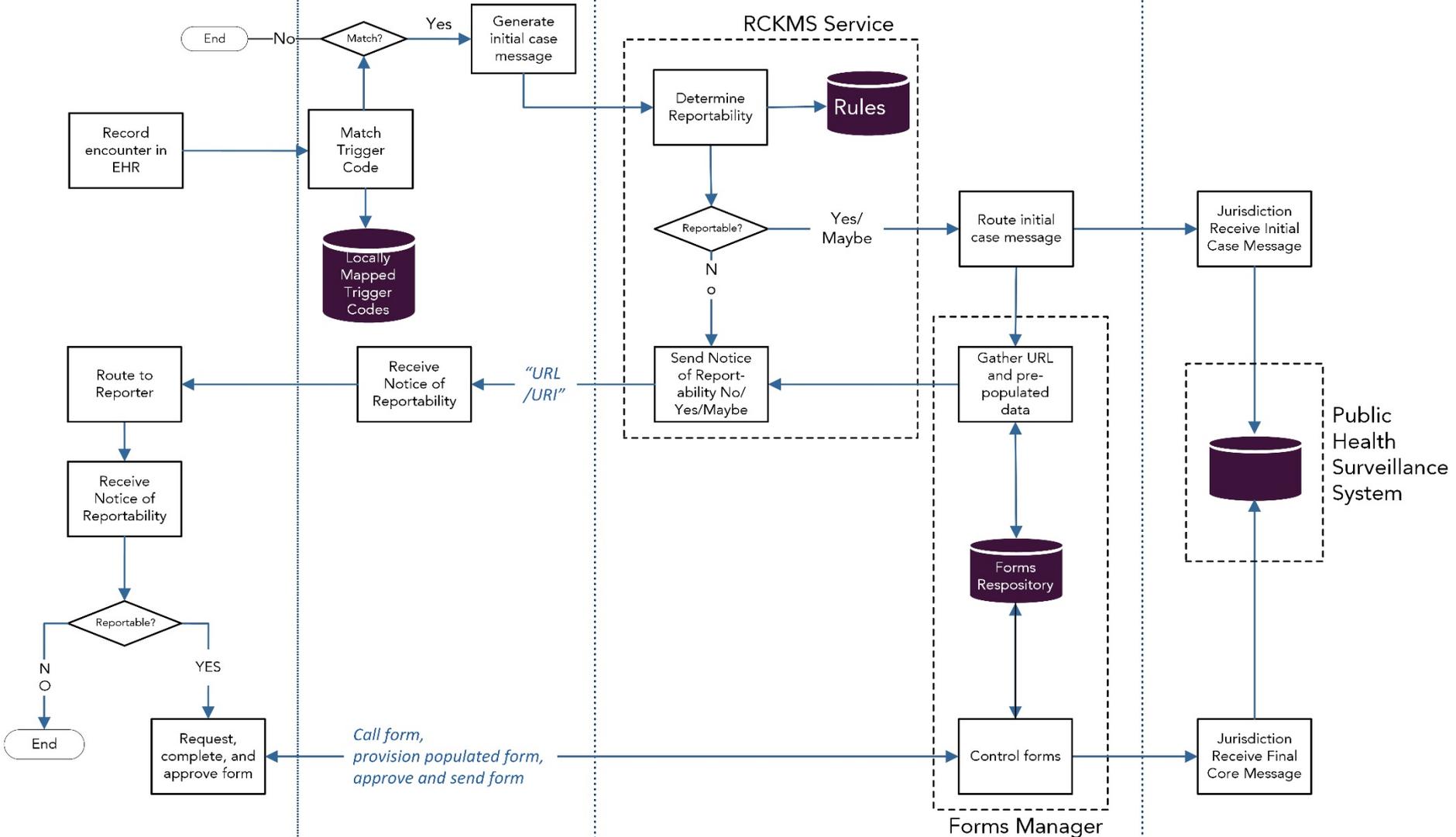


THE PUBLIC HEALTH COMMUNITY

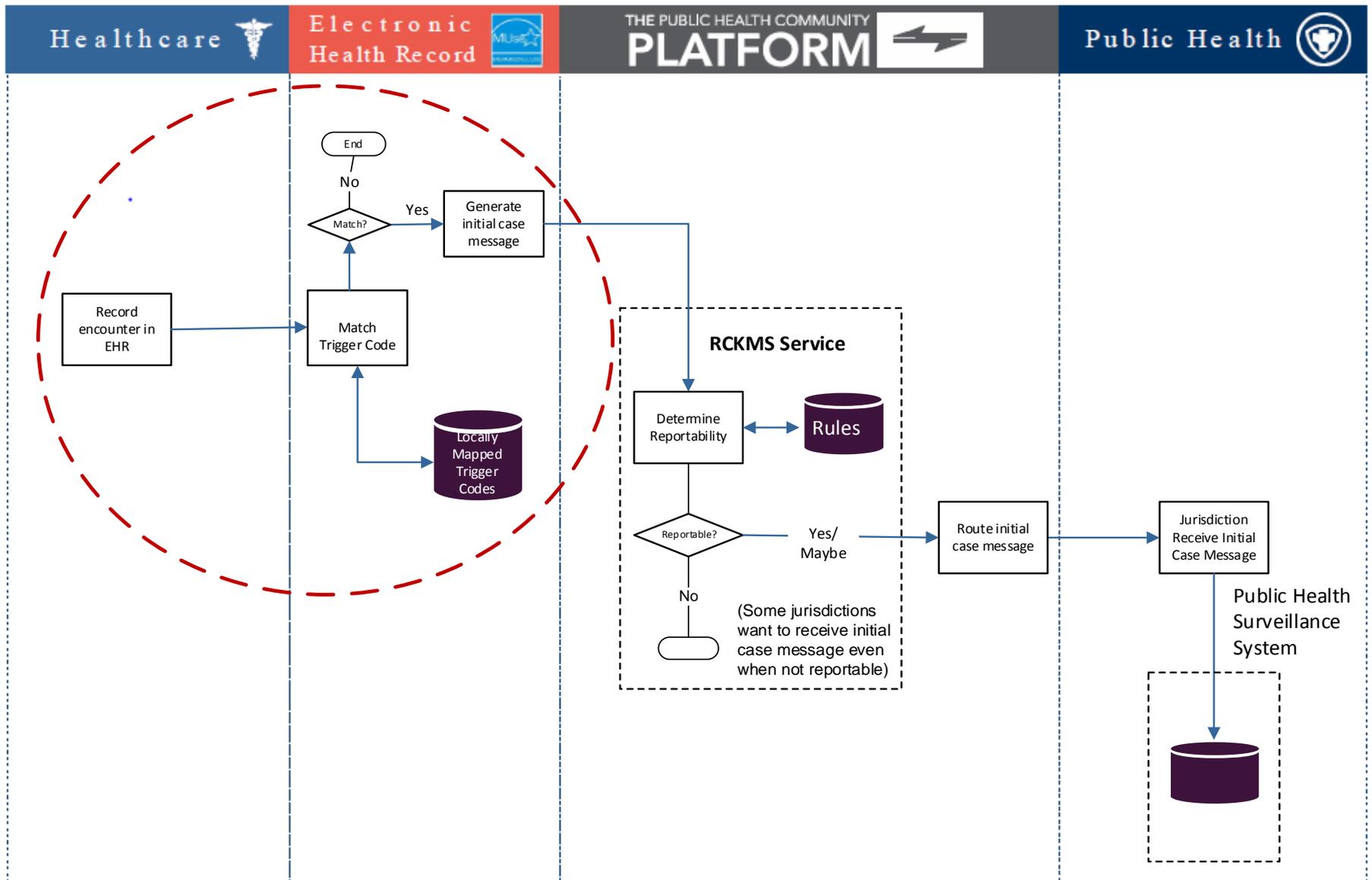
PLATFORM



Public Health



Focus of Today's Discussion



Summary of CMS Rules MU Stage 3

- ❑ Total 8 Objectives and Measures-
 - 1) Protect Patient Health Information.
 - 2) Electronic Prescribing.
 - 3) Clinical Decision Support (CDS).
 - 4) Computerized Provider Order Entry (CPOE).
 - 5) Patient's Electronic Access to Health Information.
 - 6) Coordination of Care thru' Patient Engagement.
 - 7) Health Information Exchange (HIE).
 - 8) **Public Health (PH) and Clinical Data Registry (CDR).**

MU3: Public Health (PH) and Clinical Data Registry (CDR) Measures

- ❑ Immunization Registries
- ❑ Syndromic Surveillance
- ❑ **Case Reporting**
- ❑ PH Registry Reporting (includes Cancer Registry Reporting, Health Care Surveys, Antibiotic Use and Resistance Reporting)**
- ❑ Clinical Data Registry (CDR)**
- ❑ Electronic Reportable Lab Results (EH/CAHs only)

**EPs, EHs/CAHs may choose to report to more than one PHR/CDR to meet this measure.

- ❑ EPs- Must report on 3 Public Health Measures.
- ❑ EHs/CAHs- Must report on 4 Public Health Measures.

2015 Edition Final Rule: § 170.315(f)(5) Transmission to public health agencies—electronic case reporting

Specifically, a Health IT Module would need to support the ability to electronically:

- (1) consume and maintain a table of trigger codes to determine which encounters should initiate an initial case report being sent to public health;
- (2) when a trigger is matched, create and send an initial case report to public health;
- (3) receive and display additional information, such as a “notice of reportability” and data fields to be completed; and
- (4) submit a completed form.

Certification Criteria for eCR

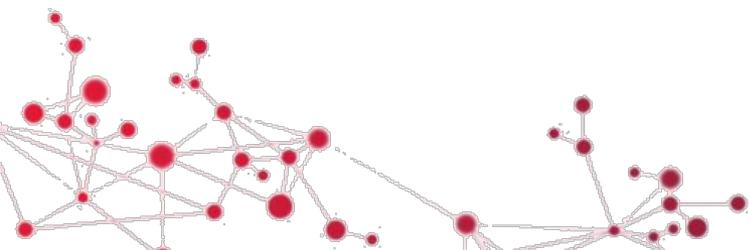
5) *Transmission to public health agencies—electronic case reporting.*

- (i) *Consume and maintain a table of trigger codes to determine which encounters may be reportable.*
- (ii) *Match a patient visit or encounter to the trigger code based on the parameters of the trigger code table.*
- (iii) *Case report creation. Create a case report for electronic transmission:*
 - (A) *Based on a matched trigger from paragraph (f)(5)(ii).*
 - (B) *That includes, at a minimum:*
 - (1) *The Common Clinical Data Set.*
 - (2) *Encounter diagnoses. Formatted according to at least one of the following standards:*
 - (i) *The standard specified in § 170.207(i).*
 - (ii) *At a minimum, the version of the standard specified in § 170.207(a)(4).*
 - (3) *The provider's name, office contact information, and reason for visit.*
 - (4) *An identifier representing the row and version of the trigger table that triggered the case report.*

Implementation Topics in EHRs

1. Where in the EHR workflow would codes be looked for?
2. Timing of when the EHR looks for a match to the RCTC?
3. What defines an encounter, does it differ based on care setting.
4. Generation of eICR – how many reports will be generated for each condition, one for all conditions?
5. Once an eICR is sent for an encounter, what should initiate an updated report?
6. More....

Electronic Initial Case Report (eICR) HL7 Standard



What is the eICR About?

- When patients with certain conditions (Zika, Pertussis, TB, etc.) exist in clinical care, they need to be promptly shared with appropriate Public Health Agencies (PHAs) – even, at times, before the end of an encounter
- Clinicians are not always good at initiating this process
 - either with paper or by web
- PHA surveillance systems need to work these “cases” to:
 - report, investigate, confirm, match with labs, manage, trace exposures, and, sometimes, connect with prevention or treatment
- Hence needs for:
 - a transferable format (message or structured document),
 - with a highly consistent set of case data,
 - that is reliably consumable and processable by public health decision support and surveillance / outbreak management systems.
- In the U.S., even a minor Ebola outbreak put a spotlight on the EHR involved – this is a high risk area for everyone - important to get right

eICR Standard Development Guideposts

1. Public health access to these identifiable data is enabled and specified by State and Territorial reporting laws
2. Want it to be usable by all conditions (>90) and all jurisdictions (>56)
3. Sometimes there will be needs for supplemental data
4. Allowed by HIPAA, but still must abide by Privacy Rule and the Minimum Necessary Requirement
5. Minimal clinical care / EHR vendor burden to implement

eICR Standard Development Guideposts

6. Data should already exist in a certified EHR
7. Capable of automated (or manual) initiation during an encounter
8. Is reliably consumable by public health surveillance / outbreak management systems
9. Can leverage healthcare HIEs, transport, and trust networks
10. Usable by the Public Health Community Platform or directly by States / Territories

eICR Development Process

- Council of State and Territorial Epidemiologists (CSTE) “Initial Case Report Task Force” identified necessary data elements
- We mapped CSTE data elements into already existing, certified, C-CDA templates to produce eICR C-CDA
- Successfully balloted by HL7
 - Clinical care, EHR vendor, public health participants
 - 597 comments dispositioned and voted
 - All negative votes have been withdrawn
- The updated implementation guide is to have its final vote Thursday (5/19/16), then it is off to the HL7 publisher - could be available in a matter of days

eICR Standard

- A.K.A. “HL7 CDA® R2 Implementation Guide: Public Health Case Report, Release 2”
- Built on already certified C-CDA templates
- Expect an eICR to be sent when a trigger code is matched
- May mean multiple reports per encounter (updates), but reports will align closely with reportable conditions
- Unique case (not patient) identifier = encounter number and reporting organization – important to connect back up
- Travel history is important, but challenges with HL7 representation - put into social history until structure is present in dot release
- Need to know the trigger code version you are using for all the eICRs sent

eCR Next Steps

- Dot release with structured travel history, occupation, imbedded trigger code table version
- Notice of reportability (case confirmation) standard to provide PHA information to clinicians, request supplemental data if needed
- To develop FHIR versions of both standards to be available when full industry is ready

Stage Setting for Triggers

Guiding Principles

- Match to a trigger initiates an eICR
- One set of trigger codes for all jurisdictions
- Must allow for reporting of any condition that is reportable in any jurisdiction
 - Requires 2nd level of PH decision support to confirm reportability
- All trigger codes are indicative of possibility of a reportable condition

Scope

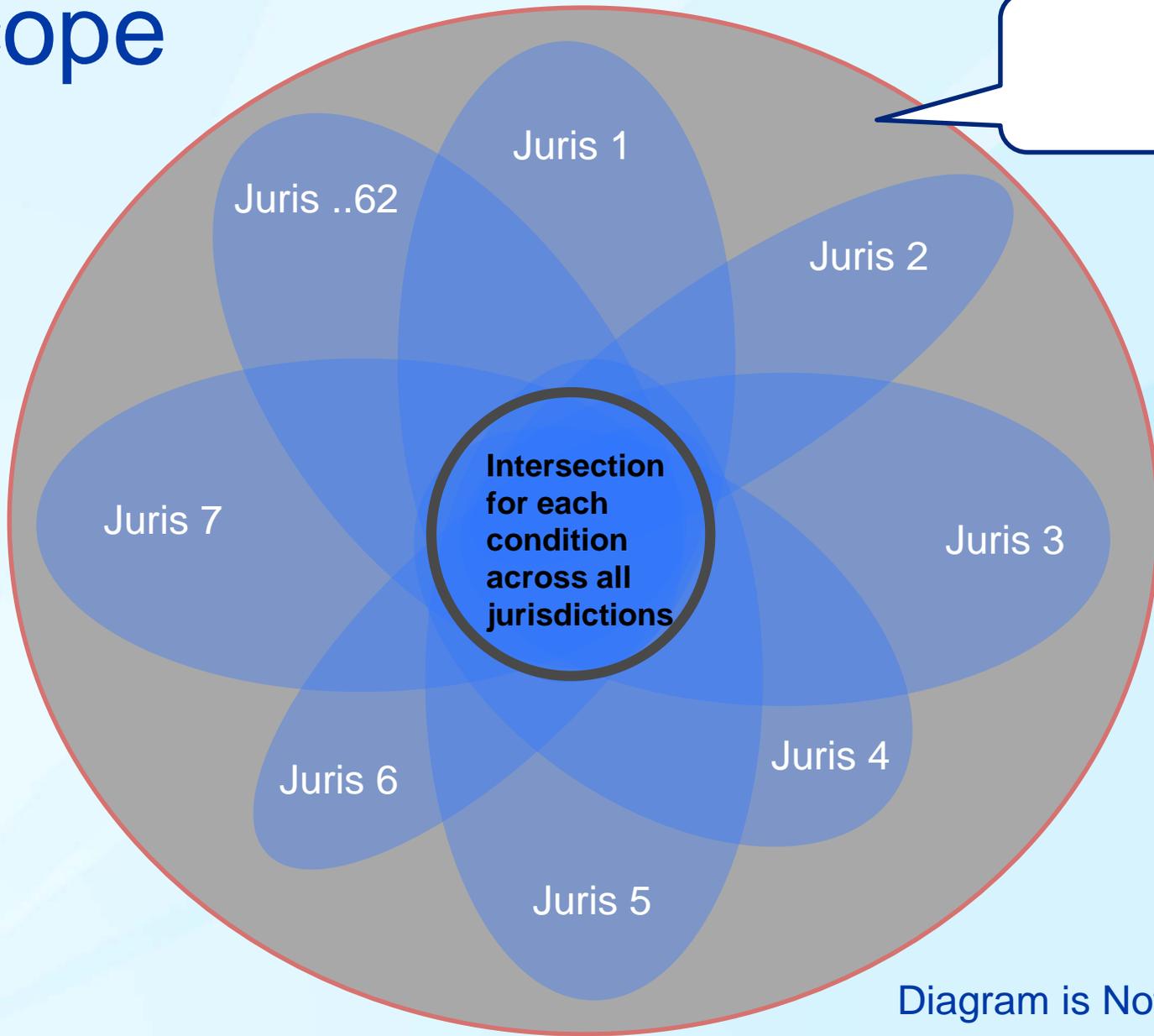


Diagram is Not to Scale

PREVIEW OF RCTC:

- Draft RCTC content
- Format of Workbook
- Distribution
- Timeline

RCTC - What are they?

- Draft set of codes for 5 reportable conditions – Chlamydia, gonorrhea, pertussis, salmonellosis, and Zika
- Codes Include:
 - Diagnosis codes (ICD 10 and SNOMED-CT)
 - Test Name from Lab Results Report (LOINC)
 - Test Result from Lab Results Report (SNOMED-CT)
 - Test Order Placed (LOINC)

Clinical diagnoses that represent reportable conditions

- Diagnoses recorded in a problem list/differential diagnoses, and/or recorded for use in billing for the encounter.
- These will include specific codes from SNOMED-CT and ICD-10.

CONCEPT CODE	PREFERRED CONCEPT NAME	CODE SYSTEM NAME
27836007	Pertussis	SNOMED-CT
408682005	Healthcare associated pertussis	SNOMED-CT
A37.0	Whooping cough due to Bordetella pertussis [A37.0]	ICD 10

Lab result: test name specific for reportable condition

- Laboratory test names coded in LOINC - specific to reportable condition. Result could be non-specific (“positive”, “detected”, “found”, or numeric and abnormal flag could be used) and is important in the context of the test name resulted.
- Exclude generic tests (e.g., bacterial cultures) where reportable condition may be in results field

Concept Code	Concept name	Code System Name
43913-3	Bordetella pertussis DNA [Presence] in Nasopharynx by Probe & target amplification method	LOINC
548-8	Bordetella pertussis [Presence] in Throat by Organism specific culture	LOINC

Lab result: result value that represent reportable conditions

- Laboratory values, such as organisms found in generic tests, coded in SNOMED-CT
- These results are relevant for non-specific tests (e.g., cultures) where the lab test performed (i.e., lab test name) is not specific to a reportable condition

Example of a Pertussis result code that would be associated with a general culture test:

CONCEPT CODE	PREFERRED CONCEPT NAME	CODE SYSTEM NAME
5247005	Bordetella pertussis	SNOMED-CT

Lab orders where the suspicion of the condition is, itself, reportable

- Reporting required based on suspicion
- Orders placed, coded in LOINC, includes at least one test specific to a reportable condition
- Lab order is a single lab test name
- Orders placed - value set must be used to **match codes against tests ordered** rather than tests performed

Lab Order Examples

Examples include:

- Suspicion of Anthrax (all jurisdictions)
- Suspicion of Pertussis (some jurisdictions or during an outbreak)

CONCEPT CODE	PREFERRED CONCEPT NAME	CODE SYSTEM NAME
41877-2	Bordetella pertussis IgA & IgG & IgM panel [Units/volume] in Serum by Immunoassay	LOINC
41875-6	Bordetella pertussis & Bordetella parapertussis DNA panel [Presence] in Unspecified specimen by Probe & target amplification method	LOINC
48741-3	Bordetella pertussis [Presence] in Nasopharynx by Organism specific culture	LOINC

Show workbook

RCTC

Distributing to Clinical Care

- Each published set of RCTCs will be identified with a unique identifier, a version number (date of publication), and effective start date
- Published initially as an Excel workbook with worksheet for each type of code (e.g., diagnosis, test name, result code)
- Authored in VSAC, Published in PHIN VADS
- Periodic updates will be required, both routine and emergent

RCTC Implementation Assumptions for EHRs

- Only one RCTC will be implemented at a time in the EHR
- Clinical Care will implement the latest available version of the RCTC in their EHR/LIS
- Trigger codes will be used to automatically initiate generation of an eCR (manual initiation will also need to be supported)
- There will be an onboarding process for clinical care entities implementing eCR

eCR Certification Timeline

- ASAP – Release draft trigger codes to EHR implementers
- May – Certification material for eCR due to ONC from CDC (trigger codes, test scenarios)
- Summer 2016 – ONC will release Certification Companion Guide and Test Procedures for eCR
- TBD 2017 – ONC Authorized Certification Bodies (ONC ACB) will begin certifying EHRs for MU eCR

Next Steps

- Continue discussion of topics with EHR implementers on calls over the Summer
- Email meaningfuluse@cdc.gov to request participation

Clarifying Questions and Discussion of Implementation Topics

Implementation Topics in EHRs

1. Where in the EHR workflow would codes be looked for?
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