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.
Focus of Today’s Discussion

Record encounter in EHR

Match Trigger Code

Locally Mapped Trigger Codes

Generate initial case message

Determine Reportability

Rules

Yes/ Maybe

No

Yes

Route initial case message

Jurisdiction Receive Initial Case Message

Public Health Surveillance System

(Remember, some jurisdictions want to receive initial case message even when not reportable)
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.

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

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
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
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

- 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
Intersection for each condition across all jurisdictions

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.

<table>
<thead>
<tr>
<th>CONCEPT CODE</th>
<th>PREFERRED CONCEPT NAME</th>
<th>CODE SYSTEM NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>27836007</td>
<td>Pertussis</td>
<td>SNOMED-CT</td>
</tr>
<tr>
<td>408682005</td>
<td>Healthcare associated pertussis</td>
<td>SNOMED-CT</td>
</tr>
<tr>
<td>A37.0</td>
<td>Whooping cough due to Bordetella pertussis [A37.0]</td>
<td>ICD 10</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Concept Code</th>
<th>Concept name</th>
<th>Code System Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>43913-3</td>
<td>Bordetella pertussis DNA [Presence] in Nasopharynx by Probe &amp; target amplification method</td>
<td>LOINC</td>
</tr>
<tr>
<td>548-8</td>
<td>Bordetella pertussis [Presence] in Throat by Organism specific culture</td>
<td>LOINC</td>
</tr>
</tbody>
</table>
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:

<table>
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<tr>
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<th>CODE SYSTEM NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>5247005</td>
<td>Bordetella pertussis</td>
<td>SNOMED-CT</td>
</tr>
</tbody>
</table>
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)

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<th>CONCEPT CODE</th>
<th>PREFERRED CONCEPT NAME</th>
<th>CODE SYSTEM NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>41877-2</td>
<td>Bordetella pertussis IgA &amp; IgG &amp; IgM panel [Units/volume] in Serum by Immunoassay</td>
<td>LOINC</td>
</tr>
<tr>
<td>41875-6</td>
<td>Bordetella pertussis &amp; Bordetella parapertussis DNA panel [Presence] in Unspecified specimen by Probe &amp; target amplification method</td>
<td>LOINC</td>
</tr>
<tr>
<td>48741-3</td>
<td>Bordetella pertussis [Presence] in Nasopharynx by Organism specific culture</td>
<td>LOINC</td>
</tr>
</tbody>
</table>
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 eICR (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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