



Using Reportable Conditions Trigger Codes to Reverse Analyze eICR Triggering in Electronic Health Record Systems— Connecticut, 2024

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Background: RCTC

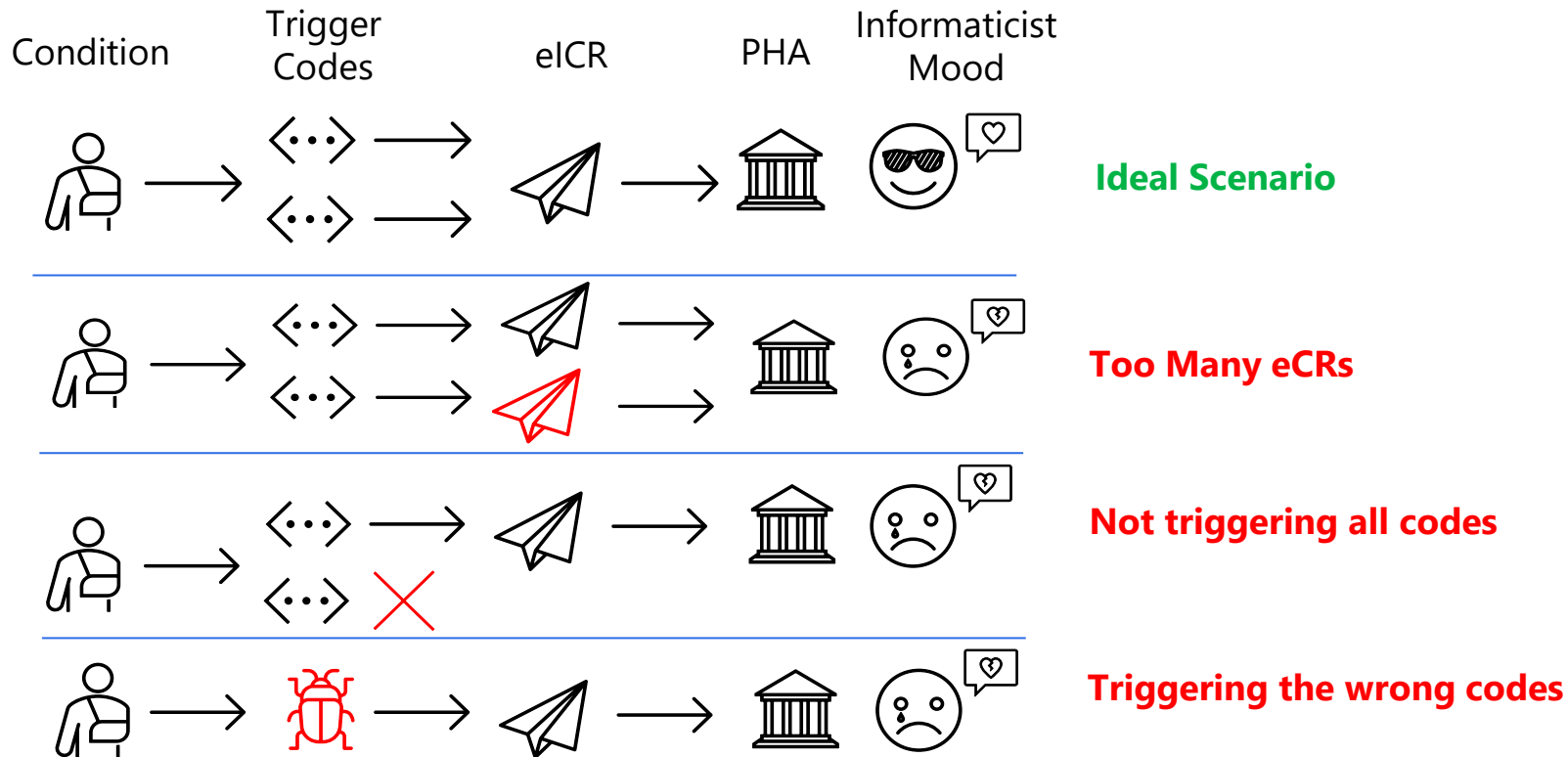
Reportable Conditions Trigger Codes (RCTC)

- Provided by eRSD
- Set of codes used in an electronic health record (EHR)
- A code in EHR matching RCTC will initiate an eICR (known as **Trigger Codes/Triggers**)
- Trigger codes identified in eICR using attributes:
 - sdtc:valueSetVersion
 - sdtc:valueSet

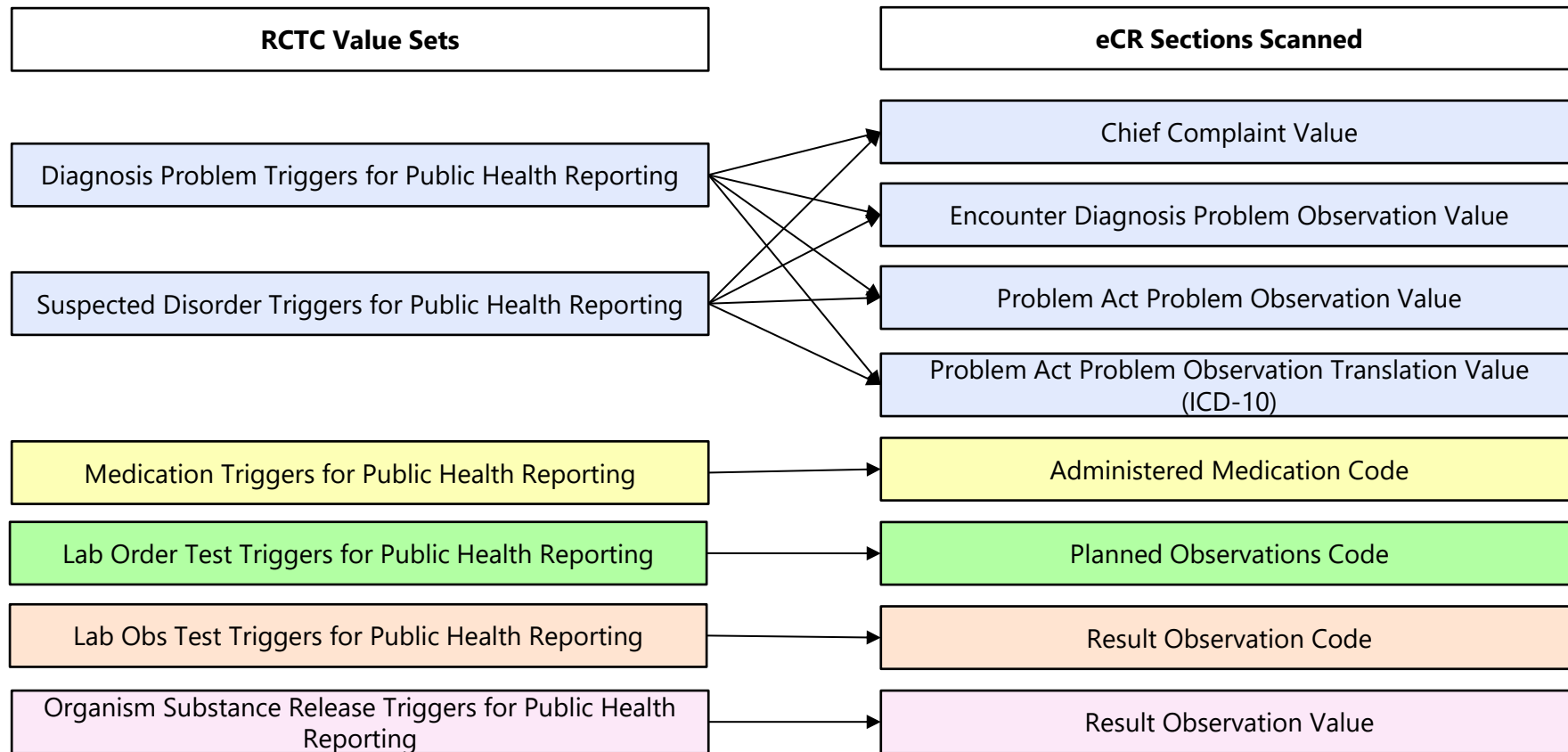
```
<observation classCode="OBS"
             moodCode="EVN">
<templateId root="2.16.840.1.113883.10.20.22.4.2"/>
<templateId extension="2015-08-01"
              root="2.16.840.1.113883.10.20.22.4.2"/>
<templateId extension="2016-12-01"
              root="2.16.840.1.113883.10.20.15.2.3.2"/>
<id extension="555555555"
      root="1.2.840.114350.1...>
<code xmlns:sdtc="urn:h17-o Code that triggered the eCR
      code="94500-6" ←
      codeSystem="2.16.840.1.113883.6.1"
      codeSystemName="LOINC"
      sdtc:valueSet="2... ←
      sdtc:valueSetVersion="2022-01-12">
```

Can we QA/analyze this process?

Triggering Issues



Value Set to eICR Comparisons



Process

- Downloaded current RCTC and converted to XML document
 - RCTC Version 2024-06-28 or 1.2.4.0
 - RCTC Version 2024-04-05 or 1.2.3.0

- Created an XSL

IF RCTC Version is Current (sdhc:valueSetVersion)

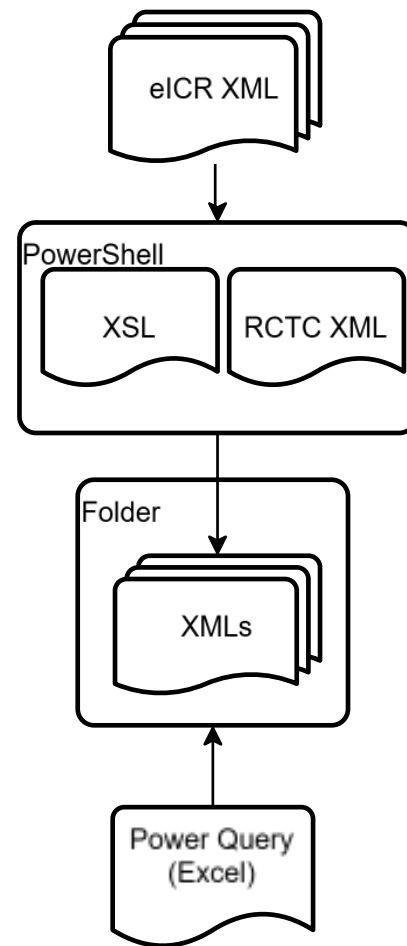
THEN

- Scan all codes/values based on eICR section
 - List all codes/values
 - Flag the codes/values that triggered the eICR
 - Flag the codes/values that are present in the RCTC (potential triggers)

ELSE RCTC Version is NOT Current

- Do not scan codes and transform document indicating the RCTC version

- PowerShell used to loop through eICRs
- Compile results with Power Query



Results – Current RCTC and eICRs Triggered

15-day sample (3,938 eICRs)

996,389 codes scanned from eICRs with current RCTC

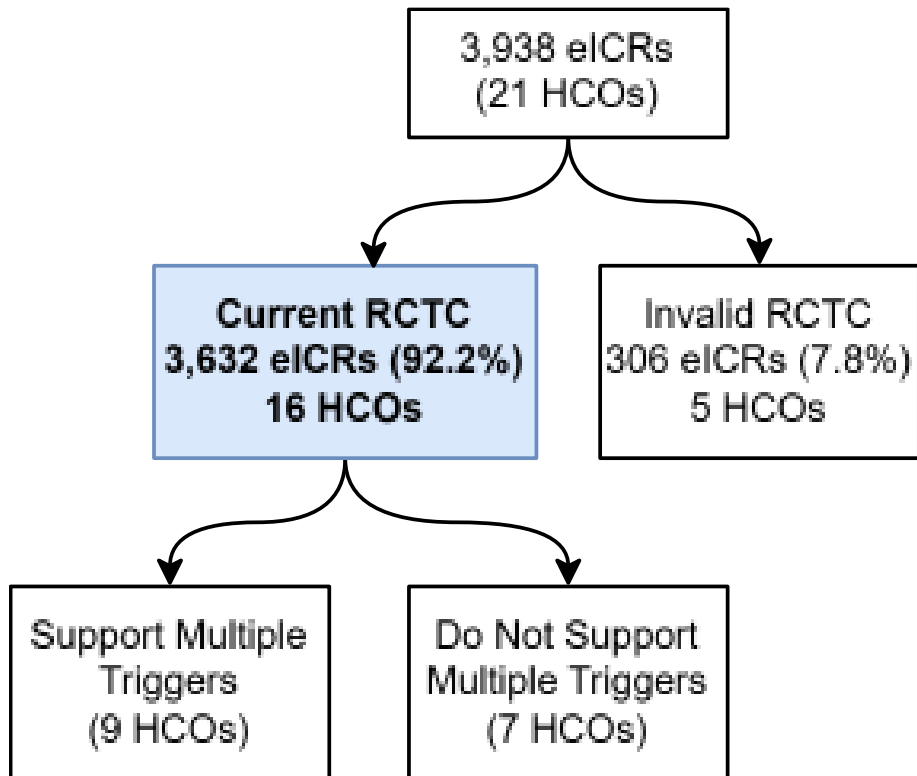
HCOs that support multiple triggers:

- Avg 1.41 eICRs/encounter

HCOs that do not support multiple triggers:

- Avg 4.38 eICRs/encounter

3X more eICRs



HCO = Health Care Organization

Results – Triggering Findings

- 5 codes **NOT** in the RCTC were triggering eICRs (resulted in 47 extra eICRs)
- Some RCTC value sets were not triggered in any of the sampled eICRs
- Triggers in the translation elements could NOT be identified with sdtc:valueSet attributes

RCTC Value Set	Triggered eICR	Matched RCTC	Total	Percent Triggered
Diagnosis Problem Triggers for Public Health Reporting	291	7,583	7,874	3.70%
Lab Obs Test Triggers for Public Health Reporting	3,546	29,901	33,447	10.60%
Medication Triggers for Public Health Reporting	0	362	362	0.00%
Organism Substance Release Triggers for Public Health Reporting	47	74	121	38.84%
Grand Total	3,884	37,920	41,804	9.29%

Limitations

- Result Observation Codes and Result Observation Organism sections were duplicative
 - Could be caused by non-codable tests (diagnostic imaging, etc.)
 - Errors in the XSL document
 - No Suspected Disorder Codes found
 - Could be an error in the XSL
 - PowerShell script limited eICR file size to 10MB
- Not a perfect product, but a good starting point

Take Away

Able to analyze triggering in EHRs

If the trigger code is not used

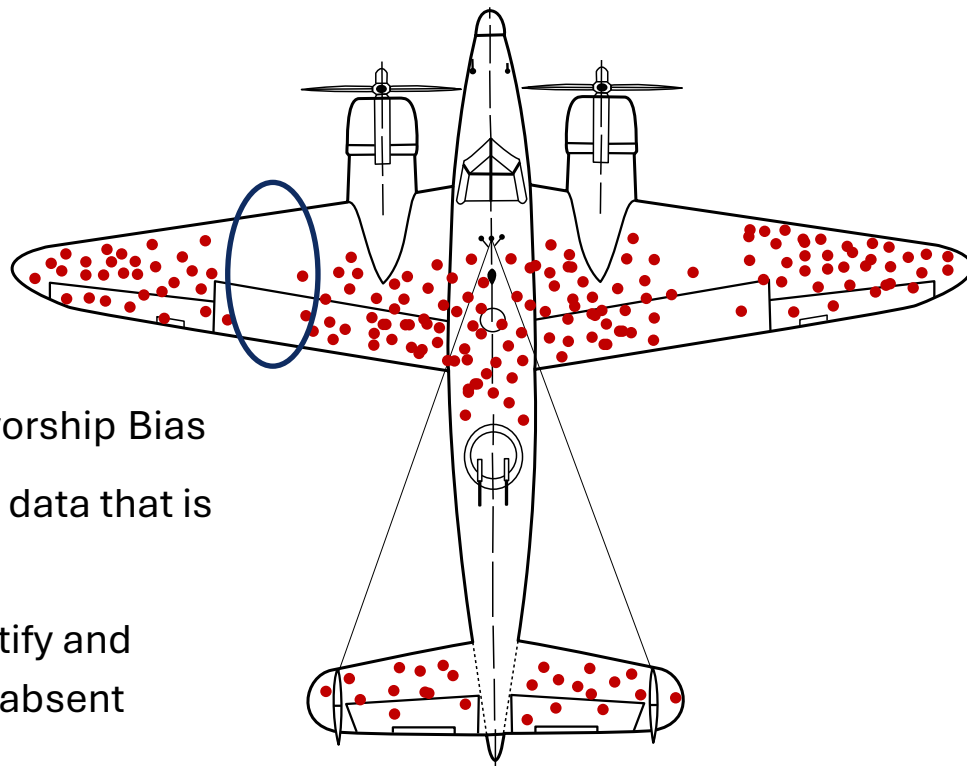
OR

If the wrong trigger code is used

How would you know?

Inspiration from Abraham Wald and Survivorship Bias

- Missing data can be just as important as data that is present
- Quality assurance activities should identify and quantify information that is present and absent



[Survivorship bias - Wikipedia](#)