Fast Healthcare Interoperability Resources (FHIR): Integrating Utah's PDMP and Medical Examiner Data

PDMP TRAINING & TECHNICAL ASSISTANCE CENTER TEAM WEBINAR
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Interoperability: HL7’s Mission

“a not-for-profit, ANSI-accredited standards developing organization dedicated to providing a comprehensive framework and related standards for the exchange, integration, sharing, and retrieval of electronic health information that supports clinical practice and the management, delivery and evaluation of health services”

http://www.hl7.org/
2011: Fresh Start for HL7

- V2: 1987
- Start V3: 1995
- V3 CDA: 2005
- Fresh FHIR Look: 2011
  DSTU: 2014

Timeline:
- 10 years
- 3 years

https://www.hl7.org/
**FHIR: Fast Healthcare Interoperability Resources**

Simplified health data model (80/20 rule)

Uses cross-industry web technologies

Multiple paradigms and architectures (web services)

Validated by developers

Ideal for mobile and web platforms

https://www.hl7.org/fhir/
Broad FHIR Interoperability?
FHIR Observation Resource

Incorporates existing data standards

Resource ID on this FHIR server

IDs unique to each FHIR server
# FHIR REST API

<table>
<thead>
<tr>
<th>Interaction</th>
<th>Path</th>
<th>Request</th>
<th>Verb</th>
<th>Content Type</th>
<th>Body</th>
<th>Prefer</th>
<th>Conditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>read</td>
<td>/{type}/{id}</td>
<td>GET</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>O: If-Match</td>
</tr>
<tr>
<td>vread</td>
<td>/{type}/history/{id}</td>
<td>GET</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>O: If-Match</td>
</tr>
<tr>
<td>update</td>
<td>/{type}/{id}</td>
<td>PUT</td>
<td>R</td>
<td>Resource</td>
<td>O</td>
<td>O: If-Match</td>
<td></td>
</tr>
<tr>
<td>delete</td>
<td>/{type}/{id}</td>
<td>DELETE</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>create</td>
<td>/{type}</td>
<td>POST</td>
<td>R</td>
<td>Resource</td>
<td>O</td>
<td>O: If-None-Exist</td>
<td></td>
</tr>
<tr>
<td>search</td>
<td>/{type}?</td>
<td>GET</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>search-all</td>
<td>/search</td>
<td>OPTIONS</td>
<td>OPTIONS</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>transaction</td>
<td>/</td>
<td>POST</td>
<td>R</td>
<td>Bundle</td>
<td>O</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>history</td>
<td>/{type}/history</td>
<td>GET</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>history-type</td>
<td>/{type}/history</td>
<td>GET</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>history-all</td>
<td>/_history</td>
<td>GET</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>(operation)</td>
<td>/{type} or /{type}/id</td>
<td>POST</td>
<td>application/x-www-form-urlencoded</td>
<td>form data</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>
GET [base]/Observation?_query=obs.stats&code=8480-6&03/03/2016/07:00:00&03/03/2016/12:00:00
GET [base]/Observation?_query=obs.stats&code=8462-4&03/03/2016/07:00:00&03/03/2016/12:00:00
(LOINC: https://loinc.org/fhir/)
Tight EHR/App Integration
FHIR Timeline
Online Master of Science in Computer Science

Are you ready to earn your master’s in computer science but not ready to stop working? Do you want a top-ranked degree without the top-ranked price tag?
If so, Georgia Tech has the answer.
Improve Medical Examiner Access to Controlled Substances Database

Develop a FHIR interface for the Utah Controlled Substances Database to enable users to access prescription history from within the Office of the Medical Examiner's case management system.
Provide Prescription Drug History Within Medical Examiner’s Workflow
Lessons Learned

- For best results, data should be de-duplicated in the source/PDMP database.

- Design decisions for search/display --may vary by jurisdiction and can be coded into the interface: types of searches allowed, how to handle multiple results, limiting by date, etc.

- Link to a master provider directory to provide detailed information on prescribers
Questions?