HealthSource’s Digital Grid

Promises of ubiquitous connectivity, and our journey with FHIR

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WHO ARE THOSE 2 BLOCKS?

Florian Quarré
~15yrs in HIT and Health Innovation
Leads Ciox’s Digital Transformation and Emerging Techs Adoption

Florian Quarré
~15yrs in HIT and Health Innovation
Leads Ciox’s Digital Grid and Routing Intelligence

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Our clients engage us to do Care Coordination, HEDIS, Stars Rating, Risk Adjustment, Value Based Care, Observational and Interventional Clinical Trials, etc., all requiring the pull of Medical Records.

The combination of all factors means that we face ~6 billion possible alternatives if handling everything as 1-offs Scenario.

Our Reality at Ciox

1 Million Unique Requestors

Expected Outcomes in FHIR, OMOP, CSV, ...

65,000 Providers Covered

~5 truly SaaS connections YET still significant variability in information consistency

~500 EMRs supported, YET 75% site specificities: Use of different fields, Summary vs. Detailed, different coding approach, …

For 1 integral view of a patient at 1 health system, we might need coordination with 5+ EMR

Issues in Data Availability, Data Integrity, Data Completeness, Data Standardization, …

Mainly receive back paper, and electronic documents (eFax, Image, XPS, …), and a minority of EDIs / XMLs

Expected outcomes in FHIR, OMOP, CSV, …

Ciox Health

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## CIOX’S FUNCTIONAL CONTINUUM AND TECHNOLOGY ALIGNMENT

<table>
<thead>
<tr>
<th>Intake Pull Request</th>
<th>Acquire &amp; Digitize Medical Records</th>
<th>Process Medical Record</th>
<th>Package &amp; Deliver to Site Specificities</th>
</tr>
</thead>
</table>
| 1. Confirm requestor and validity of request  
2. Confirm authorization  
3. Validate request content | 1. Locate records and confirm modality  
2. Retrieve records  
3. Digitize and QA records (eg. remove protected data) | 1. Apply information transformation – records stitching/clean up, coding (Notes to ICD/CPT/...)  
abstraction (notes interpretation), Redaction (protected elements), Analytics (HEDIS, Stars, Elig, ...)  
2. Supplemental content QA if necessary | 1. Review content as per study guidelines – content quality, depth and structure/format  
2. Send abstracted, formatted content |

### HealthSource Retrieval
- Fax, File, API  
- Workflow, MDM  
- Workflow, Routing Intelligence, iOCR, NLP L1-2  
- Workflow, Access, Manual, (WIP: NLP L3)  
- Workflow, Excel
HealthSource Data Flow

Data Ingestion, Cleansing, Standardization
- Structured CCD documents from EMRs and full medical records (as needed)
- Standardized, validated human-readable clinical data

Manual data validation
- Storage of structured data in a Superloaded CCD construct
- Clinical data analysis

Analytics
- Member-centric view of clinical outputs and data stream to client systems.
- Delivery of information in FHIR, OMOP, CSV, Images.

Interactive User Interface

With member authorization, use of existing direct-to-EMR connections (e.g., with athenahealth) to retrieve CCD and other standards-based transactions

Where digital connections not available and as required by member need, use traditional methods to retrieve full medical record

Establishment of new digital connections with providers to retrieve CCD and other documents / data

Use of clinical NLP engine to extract data from medical records; translate NLP output and CCD data into human-readable format

Validation and updates of extracted data by highly-trained clinical abstractors to ensure accuracy of stored data

Storage of structured data, indexed by member, provider, location, etc.

Analytics engine able to generate insights from large data set; to be tailored based on agreed use cases

Interactive user interface to allow client staff and members to search and view aggregated data and share summary with new providers

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HealthSource’s Demo
Ubiquitous Information Exchange
HEALTHSOURCE DEMO, INTEGRATION WITH FHIR APIs

Intake
Acquire & Digitize
Process
Package & Deliver

HEALTHXSOURCE

Batch ID | Group ID | Requester Type | Patient Name | DOB | MRN | Received Date | Task Type | Reason
---|---|---|---|---|---|---|---|---
| | | | | | | | | 
| | | | | | | | | 
|

Attorney | Mohamed Im... | 09/12/2018 04:41 AM | Logging |

Attorney | Durga Thota | 09/12/2018 05:11 AM | Fulfillment |

Attorney | Durga Thota | 09/10/2018 05:55 PM | Fulfillment Tranz...

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HEALTHSOURCE DEMO, INTEGRATION WITH FHIR APIs

My Work Queue

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1. We will remain EMR agnostic – promoters of FHIR for information level systems integration

2. We standardize our internal systems and delivery APIs on FHIR / CCD / CCDA

3. “Big Data Analytics” and Workflows enablement
   1. Payers, Value Based Care, HEDIS and Stars: Focusing on standardization of (1) data storage and (2) data export
   2. Providers, Coordination of Care: Using FHIR as ETL’s canonical structure towards end-point implementation
   3. Life Science, Observational and Interventional Clinical Trials: How do leverage existing infrastructure to locate the needle in the haystack, mainly for interventional
Questions? Answers!

Stay in touch:
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