ADVANCING INTEROPERABILITY THROUGH FHIR APPLICATIONS

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THE ROAD TO HEALTHCARE INTEROPERABILITY IS COMPLEX AND CHALLENGING...
...BUT WE’RE SEEING PROGRESS THROUGH E-PRESCRIBING WITH MORE THAN 73% OF PRESCRIPTIONS DIGITIZED

- **4.4 million** electronic prescriptions daily
- **1.6 billion** electronic prescriptions in 2016
- **10.9 billion** transactions in 2016
Actionable intelligence is needed at critical points in care.

Concise list of patient issues

Prescription review and processing

Prescriber selects medication and pharmacy

Patient appointment referral

Prescription sent to pharmacy for patient pick-up

Night before patient schedules visit

Patient history information
Actionable intelligence is needed at critical points in care.

**Prescription Review and Processing**

- Prescription sent to pharmacy for patient pick-up

**Concise List of Patient Issues**

- Prescriber selects medication and pharmacy

**National Record Locator Services**

- Patient appointment referral
- Night before patient schedules visit

**Patient History Information**

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NATIONAL RECORD LOCATOR SERVICES DELIVERS VISIT HISTORIES NO MATTER WHERE PATIENTS RECEIVE CARE

NRLS facilitates retrieval of patient documents by providing:*  
1. A list of records and contact info  
2. Electronic coordinates to enable point-to-point retrieval  
3. A hub and spoke structure for full document exchange  
*Response type depends on connection.

Providers are able to locate and exchange John’s records, and treat him with the full picture.
NATIONAL RECORD LOCATOR SERVICES PROCESS FLOW
HOW FHIRE HELPS NATIONAL RECORD LOCATOR SERVICES DELIVERS KEY BENEFITS

1. **INCREASED LOCATIONS**
   By adding FHIRE as a way to exchange patient data, Surescripts increases the pool of health systems that can exchange data.

2. **EXPAND BEYOND CAREQUALITY**
   By adding FHIRE Surescripts makes it easier to connect Carequality members to non-Carequality systems.

3. **EASE FOR IMPLEMENTERS**
   By adding FHIRE, EHRs with modest development budgets can implement and integrate National Record Locator Services in a shorter timeframe.
NATIONAL RECORD LOCATOR SERVICES USES FHIR

- **Bridge IHE and FHIR Interactions**
  - Both IHE to FHIR and FHIR to IHE supported
  - National Record Locator Services abstracts the differences between the standards

- **Patient Resource**
  - Search using Patient-Match Operation
  - Return a patient resource if a match is found

- **DocumentReference Resource**
  - Find all available documents for a patient at any location across the country

- **Documents**
  - Currently returned as CDAs for maximum interoperability
  - Future enhancements to return discrete resources
Actionable intelligence is needed at critical points in care.
WE DELIVER MEDICATION INSIGHTS FROM PAYERS DIRECTLY INTO THE PROVIDER’S EHR

**MEDICATION MANAGEMENT FOR ADHERENCE**

Gaps in Care and adherence summaries (using Portion of Days Covered by disease class)

**RESULTS**

Over 4% increase in medication adherence in first 3 months

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1. Walsh, Andrew, Report from MediCenter Pilot Study, Health Monitoring Systems, 2010. Study demonstrated that using Medication History identified these drug types at rates greater than the average rates at which they are reported using the patient interview process only.
FHIR STANDARDIZES LOCAL AND NETWORK DATA TO IMPACT DECISION-MAKING AT THE POINT OF CARE

Payers
- Sends Portion of Days Covered ratios and patient specific messages

EHRs
- Adherence summaries integrated with existing workflows

Providers
- Information is displayed within provider’s EHR

Patients
- More informed care for better outcomes

SMART on FHIR Standard
Medication Management for Adherence FHIR Resources

Med Adherence, Missing Med and High Risk Messages:
- Message Header
- Communication Request
- Contraindication
  - Text
  - Medication Prescription
  - Medication
  - Severity
- Patient
- Practitioner
- Organization

Adherence Summary:
- Message Header
- Communication Request
- Observation
  - Medication Dispense
  - Medication Prescription
  - Medication
  - Extension (disease category)
  - Value (PDC score)
- Patient
- Practitioner
- Organization
EXAMPLE DISPLAY OF MESSAGE DETAIL FOR A PATIENT

Sollors, Harry

MEDICATION ADHERENCE MESSAGE
SOLLORS, HARRY 08/24/1952

Received: 09/13/2017

Payor ABC records indicate this patient may have discontinued taking niacin as instructed. Please discuss adherence with your patient.

PLEASE RESPOND:

Is adherence a confirmed issue?

- Yes
- No

List of relevant Medication Adherence summaries by disease classification

**MEDICATION ADHERENCE PROFILE**

<table>
<thead>
<tr>
<th>Disease</th>
<th>Adherence %</th>
<th>Received Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol</td>
<td>58%</td>
<td>09/07/2017</td>
</tr>
<tr>
<td>Diabetes</td>
<td>64%</td>
<td>09/04/2017</td>
</tr>
<tr>
<td>Hypertension</td>
<td>96%</td>
<td>09/08/2017</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medication Type</th>
<th>Filled Date</th>
<th>Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>niacin, 1000mg</td>
<td>07/29/2017</td>
<td>90 days</td>
</tr>
<tr>
<td>propranolol, 60mg</td>
<td>08/08/2017</td>
<td>60 days</td>
</tr>
</tbody>
</table>
Actionable intelligence is needed at critical points in care.

Concise list of patient issues

Patient history information
- Night before patient schedules visit
- Patient appointment referral

Track medication adherence
- Prescription sent to pharmacy for patient pick-up

Prescription review and processing

Specialty patient enrollment

Prescriber selects medication and pharmacy
A NEW ENROLLMENT SOLUTION WILL ENABLE THE SPECIALTY PRESCRIBING PROCESS TO GO ELECTRONIC

- Enrollment forms are FHIR (STU 3) Questionnaire resources
- Argonaut has guidelines for exchanging clinical information using FHIR resources
- Condition-specific information required for all specialty enrollment (e.g., CRP & ESR for RA, and LFTs for Hepatitis C)
THE PATIENT ENROLLMENT SOLUTION INTEGRATES INTO THE PROVIDER’S EHR WORKFLOW

Standardized forms across Specialty Pharmacies by disease state/drug for prescriber to select from.

Prepopulates enrollment form with patient information, including demographic, insurance, clinical and lab data.
EXAMPLE – BODY HEIGHT (QUESTIONNAIRE)

"linkId": "PatientBodyHeight", "text": "Body Height",
"code": [{ "system": "http://loinc.org", "code": "8302-2", "display": "Body height" }],
"valueString": "GET /Observation$lastn" }],
"type": "group", ...
"item": [{ "linkId": "PatientBodyHeight_Value",
"text": "Height",
"type": "decimal",
"extension": [{ "url": "http://surescripts.com/StructureDefinition/allowedUnits", "valueCoding":
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{ "url": "http://surescripts.com/StructureDefinition/allowedUnits", "valueCoding":
{ "system": "http://unitsofmeasure.org", "code": "in", "display": "Inches" } } ] },
{"linkId": "PatientBodyHeight_Date",
"text": "Height date",
"type": "date" }]
FUTURE AREAS FOR FHIR APPLICATION

CONCISE LIST OF PATIENT ISSUES

PATIENT HISTORY INFORMATION

- Night before patient schedules visit
- Patient appointment referral
- Prescription sent to pharmacy for patient pick-up

PRESCRIPTION REVIEW AND PROCESSING

COMPLETEPA

REAL-TIME PRESCRIPTION BENEFIT

Prescriber selects medication and pharmacy