Eliminating Faxing in Medicine
How far away are we?
How will we get there?

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Reliant Medical Group
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Outline

Why do we use fax to begin with
Why eliminate faxing
Use of existing interoperability tools
  Limitations
  Benefits

The path ahead
Remember when…

… we used to write notes on paper
… we used to write orders on paper
… we used to receive test results on paper

… we used to receive faxes

Someday soon, we may say this.
Why should we eliminate faxing?

Faxing is:
- Cheap
- Easy, does not require training. Fairly easy to find out fax number of intended recipient.
- Can easily send drawings and waveforms (e.g. EKGs)
- Reliable. You know when it fails. Receive or failure receipt.
- Universally available
- Obvious when you received one

- Can accidentally be sent to non-HIPAA-covered entity
- Sits exposed visible to non-intended recipients when received
- Paper or an image, of varying quality and legibility
- Needs to be scanned into the EHR of the recipient—more administrative work
- **Not text or structured data; data may require abstraction, which creates gaps in the record and rework**
The mandate: Eliminate Faxing

“If I could challenge the developers in this room here today to achieve one mission, it would be this: help us make every doctor’s office in America a fax free zone by 2020!”

Seema Verma, CMS Administrator, August 6th, 2018

In England, Health Secretary Matt Hancock bans NHS from buying new fax machines and insists that they be phased out by March 31, 2020.

HISTalk: Should hospitals be prohibited from using fax machines? No 43.95 % (98 votes). Yes 56.05% (125 votes). Total Votes: 223
"I don't think it's feasible that we get there by 2020," says Jeff Michaels, O.D., AOA Quality Improvement and Registries Committee past chair. "Because PHI is so regimented and regulated, and because EHR-to-EHR communication requires such a standardized set of data, right now, I don't think it's possible."
Communicating Healthcare Information

Who: Internal to healthcare system
    External healthcare providers
    External healthcare agents or agencies

What: Clinical and administrative information

Clinical examples:
    Lab, radiology, pathology, cardiac reports
    Physician notes, letters, communications
    Request for information

Administrative examples:
    Referrals, Prior authorizations
Communicating Healthcare Information

Properties:
- Directory of possible recipients
- Timely, including real-time notification that new information has been received
- Secure
  - Encrypted
  - Sender and recipient authenticated/authorized
- Reliable
  - Reaches intended recipient
  - When a failure occurs, a notification occurs
- Format is acceptable to the recipient
  - The recipient is able to find the information that they need
  - The recipient is able to take action on the information
- Retrievable
  - Easily made available within the EHR (now)
  - Can be easily found at a later date
- Structured data can be incorporated into the correct location in an EHR
Multiple methods for communicating healthcare information

How: Push / pull

Push:

Mail
Phone call
**Fax**
Email [SMTP] or Text [SMS]
Direct message (secure email [SMTP-S/MIME])
Point-to-point interface between EHR systems (HL7 V2.x [TCP/IP])
Internal EHR communication methods [Portal or proprietary APIs]
Web Service (IHE XDR [SOAP] or FHIR [REST])

Pull:

Phone call
Same EHR vendor (e.g. initially Epic’s CareEverywhere [IHE XCPD/XCA] and eClinicalWorks’ eHX)
Different EHR vendors (e.g. carequality, commonwell, eHealthExchange [IHE XCPD/XCA])
FHIR (Fast Healthcare Interoperability Resources)
“Pushing” a Release of Information request and then “pushing” back the requested information
Multiple formats for communicating healthcare information

Non-structured data:
- Paper
- TXT
- TIFF and PCX (Fax)
- PDF

Structured data:
- PDF/H
- HL7 V2.x point-to-point interfaces
- HL7 V3 Consolidated clinical document architecture (C-CDA):
  - Continuity of Care Document (CCD)
  - Discharge Summary
- International Patient Summary (Trillium2.eu)
- FHIR
Importance of communicating structured data

Facilitates incorporating data into EHR which saves time and reduces errors
   Manual reconciliation (e.g. problems, allergies, medications, etc…)
   Automated importing (e.g. lab results, immunizations, etc…)

Enables clinical decision support
   Alerting pharmacist when patient discharged on high-risk meds
   Alerting physicians of abnormal results needing follow-up

Reduces administrative burdens
   Prior authorizations (Da Vinci Project – FHIR)
   Closed-loop referrals (IHE 360X - CDA)
      Referral request/acceptance/scheduling confirmation
      Referral outcome/report linked to original order

We can **improve** healthcare by replacing Fax with structured data!
How is fax being utilized most frequently now? Where is the gap?

Pushing information

Referrals/Prior authorizations

Delivery/Routing of test results and notes to external, referring providers

Ad hoc routing of information to external providers
<table>
<thead>
<tr>
<th>Property</th>
<th>Fax</th>
<th>Email</th>
<th>Direct with C-CDA</th>
<th>Point-to-Point Interface</th>
<th>Internal EHR / External Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provider Directory</td>
<td>No</td>
<td>Not for external providers</td>
<td>Yes (Most HISPs and ~2 Million DirectTrust)</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Timely/Secure</td>
<td>Yes</td>
<td>Not encrypted, so not recommended for healthcare use</td>
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<td>Yes</td>
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<tr>
<td>Reliable</td>
<td>Yes</td>
<td>Yes, although recipient can block read receipt. Can file into Junk folder.</td>
<td>Yes, although how EHRs display Delivery Status Notification (MDN/DSN) is variable</td>
<td>Yes</td>
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<tr>
<td>Format Acceptable/Retrievable</td>
<td>Readable: Yes Take Action: +/-</td>
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<td>No</td>
</tr>
<tr>
<td>Structured Data</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cost/complexity to implement</td>
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<td>Low</td>
<td>Moderate</td>
<td>High</td>
<td>Low</td>
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<td>Comments</td>
<td>Universal, reliable. Fax server can connect to EHR directly.</td>
<td></td>
<td>Excellent functionality, but each interface needs to be built individually. Not sustainable</td>
<td>Requiring private providers to log into external portal, print then scan into EHR is more labor intensive than Fax</td>
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## Our best hope for eliminating faxes

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Current barriers to leveraging Direct interoperability

Provider Direct address association
Most, but not all HISPs are in the DirectTrust Provider Directory
Inconsistent level of effort and success incorporating Directory into EHR

Difficulty sending exactly what you want to send depending on EHR
Ability to select specific reports/documents, including images/PDFs
Ability to include a free-text comment

Automatically generated Direct messages (e.g. referrals or results) is variable by EHR

Sending Direct message does not always assure timely receipt by intended recipient
Message Disposition Notification (MDN) and Delivery Status Notification (DSN)
(required by ONC’s 2015 Edition of HIT Certification for EHRs)
may not be visible to sender
Each receiving organization has different workflows for patient-matching and
routing incoming Direct messages which can delay delivery

Ability to see images embedded in the CDA (nonXMLBody element) or non-CDA attachments
(e.g. PDFs) or free-text in body of message varies by EHR

Filing received structured data into correct location in the chart is variable by EHR
Addressing barriers to replacing Fax with Direct interoperability

Functionality will drive adoption

Usability has to exceed that achieved by Fax
  Automate data gathering/addressing/sending
  Automate routing and incorporating incoming data

Value has to exceed that achieved by Fax
  Reduction in work and chances for errors
  Improved timeliness
  Enable new workflows
    Clinical decision support/alerts/tracking
    Closed-loop referrals (IHE 360X)

EHR vendors & implementers must make functionality available!
Addressing barriers to replacing Fax with Direct interoperability


<table>
<thead>
<tr>
<th>Feature/Function</th>
<th>Priority 1</th>
<th>Priority 2</th>
<th>Priority 3</th>
<th>Total</th>
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<tr>
<td>Transitions of care</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Outbound message</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Inbound message</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Clinical messaging</td>
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<td></td>
</tr>
<tr>
<td>Outbound message</td>
<td>6</td>
<td>8</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>Inbound message</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Administrative functions</td>
<td></td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>21</td>
<td>13</td>
<td>57</td>
</tr>
</tbody>
</table>

ONC supportive of recommendations

EHR vendors are gradually improving their Direct functionality

New vendors supplementing EHR functionality to better support Direct (e.g. Kno2, MaxMD, etc….)
How do we get to the goal line?

Should we encourage EHR vendors to send PDF attachments to Direct messages?

**Pros**: Can readily include images (e.g. EKGs)
Could be implemented fairly easily

**Cons**: No structured data so limited benefit over Fax
May divert energy from structured-data solutions
May cause industry to declare that Faxes are dead and stop work on better structured-data solutions

Will FHIR magically solve all of our problems?
Someday perhaps, but not for a while
EHR vendors are working mostly on FHIR queries
Next they will work on pushing FHIR resources (data)
Eventually they will catch up with Direct/C-CDA documents
How do we get to the goal line?

Legislation/Regulation or Conditions for Participation/Payment!

- We have good transport standards (e.g. Direct)
- We have good data format standards (e.g. C-CDA)
- We have good vocabulary standards (LOINC, RxNORM, SNOMED, etc…)

We send >25 Million Direct messages/month

What’s lacking is usability (both sending & receiving)

We need to force EHR vendors to provide a minimum level of Direct interoperability usability that exceeds what is available today!
Summary

• Eliminating fax is a laudable goal

• Standards to support this are still being developed for several use cases, but most of the necessary standards are currently available

• There is no current regulation to implement these standards with a focus on usability, or that puts a hard time-limit on faxing; regulation may encourage vendors to more rapidly conform to the standards and add functionality to make it more user-friendly

• Without the technical foundation or the ease of use to drive achieving improved usability and value, progress will be slow (and likely incremental)

• We believe that fax is on its path to elimination, but not in the time frame that has been articulated
Questions?

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• Lawrence.Garber@ReliantMedicalGroup.org