PATIENT MATCHING IS A KEY FOR INTEROPERABILITY

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Why Is Patient Data Matching So Important?

- Interoperability and health information exchange
  - "Whether aggregated in a repository or linked ‘just in time’ health information from disparate sources must be accurately matched to prevent information fragmentation and erroneous consolidation."
  - ONC's Connecting Health and Care for the Nation: A Shared Nationwide Interoperability Roadmap
- Patient safety
  - Co-mingling of medical information from 2 or more patients can lead to catastrophic events
  - Inability to link multiple records for the same patient leads to fragmented, incomplete records resulting in less than optimal outcomes
- Accurate billing
  - Duplicate medical records may not contain the patient's current healthcare coverage information which can prolong the revenue cycle

How Bad Is The Problem?

- An average hospital MPI contains 500,000+ patient records
- HIEs can have 1M to 15M records
- The average duplication rate is 8% - 12% (AHIMA) despite the widespread deployment of EMPIs
- The average duplicate medical record rate increased to 9.4% in MPI databases with more than 1M records and duplicate record rates of the enterprise master patient/person index databases studied were as high as 39.1% (RAND Survey)
- The annual cost of reconciling duplicate medical records can range from hundreds of thousands of dollars to >$1M for large, complex healthcare organizations
Causes Of Duplicate Medical Records

- Poor Data Integrity - It's All About The Data!
  - Non-standardized data
  - Missing data
  - Inaccurate data
  - Old data
  - Address discrepancies
  - Phone number discrepancies
  - Name discrepancies
  - Aliases
  - Data entry errors
- Multiple information systems and databases
- Merger and acquisition data consolidation
- HIT/EMR upgrades or replacements
- Poor system integration, or no integration

Master Patient Index (MPI) Limitations

- Match accuracy is reliant upon data quality
  - Health system data is limited and has questionable accuracy over time
- Most MPIs only use an organization’s data and do not have the ability to monitor name, alias, address, and phone number changes over time
- Tightening up matching algorithm rules leads to high match accuracy but lower match rates with many duplicate medical records
- Even the most sophisticated rules engine will sputter if the fuel (i.e. data) is dirty
  - It is all about the data!

Why Now?

- Meaningful Use requirements for health information exchange between unaffiliated providers and for patients to have the ability to view, download, and transmit their health information
- Patient data matching is a core building block in the ONC’s roadmap to achieve interoperability.
- As HIEs and the national eHealth Exchange Network ramp up to connect information locally, regionally, and nationally, patient data matching becomes a critical issue that must be understood and addressed
  - A local system with a poorly maintained or “dirty” master person index (MPI) will only proliferate and contaminate all of the other systems to which it links.
- Increased scrutiny by OCR audits
  - i.e. Matching to the wrong patient record will expose PHI to the wrong person resulting in a data breach
St. Francis Hospital – Columbus, Georgia

- 376-beds
- >2,800 associates
- 300 physicians
- Full range of inpatient, outpatient and emergency room services, including the area’s only open heart surgery program
- 2013 outpatient population - 91,971
- 2013 ED population - 57,280
- 13,000-14,000 inpatient admissions /yr
  - 70% come from ER

Health Information Technology Environment

- St. Francis utilizes 5 different IT systems
  - Admission, Discharge and Transfer (ADT) System
  - Enterprise Master Patient Index (EMPI);
  - 3 Different Electronic Medical Records (EMRs) utilized by various hospital-owned physician practices
- Only 1 EMR is integrated with the EMPI
- St Francis does not fully integrate medical records from acquisitions into EMPI due to the potential for creating duplicate medical records
- Medical records are retained in the acquired physician system but are not assigned a unique EMPI identifier
<table>
<thead>
<tr>
<th>System</th>
<th># of Medical Records</th>
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<tbody>
<tr>
<td>EMPI</td>
<td>752,800</td>
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<tr>
<td>ADT</td>
<td>388,482</td>
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<td>EMR 1</td>
<td>263,488</td>
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<tr>
<td>EMR 2</td>
<td>183,181</td>
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<tr>
<td>EMR 3</td>
<td>30,297</td>
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<tr>
<td>Total</td>
<td>1,618,248</td>
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</tbody>
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**Duplicate Medical Records at St. Francis**

- How did we know we had a duplicate problem?
  - We monitor for duplicate patient records in all areas of the enterprise
  - This is an issue for every health care organization
    - Patients that will get married and/or divorced or are registered with a nickname
    - Patients register with inaccurate/incomplete information
  - Standard process should be in place to address duplicate patient records
    - St. Francis has developed a work-around using batch files to pull hospital outpatient visits and inpatient admissions to match up to physician system records to ensure billing information is consolidated
    - Time consuming manual process

**Patient Safety**

- When the electronic systems were mainly focused on the revenue cycle, there was not a lot of urgency related to the issue
- Now that treatment decisions are made based upon the electronic medical records; patients that are not associated with the correct information are placed at risk

**Hospitals Must Accurately Assess the # of Dups**

- Avg. Industry Dup Rate is 8-12% (AHIMA)
  - This is unacceptable
- St. Francis suspected it had a large dup rate but needed verification and reached out to Equifax for help in accessing the dup rate
**Equifax Data Analysis Results**

- Equifax leverages multiple years of Individual data to resolve name changes, address variations and utilizes corroboration across multiple sources of data to obtain a strong match.
- St. Francis EMPI had a 25% dup rate.
- Main causes of St. Francis duplicates:
  - Address changes
  - Missing SSNs
  - Missing D.O.B.s

**Examples**

- 11 EMPI Unique Identifiers Assigned to 1 Patient
  - Last Name Changes
  - Address Variations
  - First Name Variations
  - FN-MI-LN Combination variations
  - Missing SSN
  - Missing DOB

- 4 EMPI Unique Identifiers Assigned to 1 Patient
  - First Name Variation
  - DOB Validation (See 1/1/1850)
  - Missing Field (Null Treatment) for SSN
  - FN-MI-LN Combination variations
  - Address Verification (Correctional Institution)

**What Is The Answer? – The “Key” to Success**

- Start by leveraging 3rd party Big Data:
  - Time-tested, reliable, highly accurate, secure national consumer database with current and historical demographic data with match “keys” assigned to each unique consumer.
- No need to rip and replace costly MPIs
  - Big data can more accurately identify unique patients in a patient file and/or MPI
  - Augment MPI matching capabilities with 3rd party data and patient data match (PDM) “keys” from 3rd party
    - Will facilitate matching records across different health systems as the “keys” propagate to the rest of the industry
    - Mapping of the “keys” to the patients resides in secure key store which does not contain any clinical, claims, or demographic information
- Most MPIs assign their own unique identifiers to individual patients but these identifiers do not link to identifiers in unaffiliated healthcare organizations which have their own MPI identifiers.
What About Questionable Matches?

- For duplicates requiring manual review, access 3rd party unique consumer database via a web service
  - One-stop-shop for current and historical demographic information

Benefits of a PDM Key at a Micro Level

- Patient Data Match Key
  - Allows for accurate patient identification
  - Mitigates risk of noncompliance with more complete patient records
  - Less medical information is shared
  - Reduced time to locate patient records
  - More accurate reimbursement records

Benefits of a PDM Key at a Macro Level

- Achieve Meaningful Use
  - Interoperability
  - Coordination of care across disparate facilities
  - Positive patient facilities
  - Eligibility, billing, and reimbursement
  - Analysis and healthcare organization

Health Information Exchange

Prevention of overlays & coordination of exchange
Contact Information:

Charles Christian, CIO
St. Francis Hospital
Columbus, GA
(706) 596-4023
christianc@sfhga.com

Michael L. Nelson, DPM
VP of Healthcare Strategy and Business Development
Equifax Identity and Fraud Solutions
(610) 530-3186
michael.nelson@equifax.com