Objectives

(1) Review current challenges in hospital to ambulatory provider discharge communications

(2) Describe a reproducible three-step process implemented post-discharge to improve transitions of care

(3) Identify results achieved in readmissions, reimbursement, and patient outcomes
Agenda

1. Introduction and overview of Johns Hopkins Community Physicians

2. Overview of Encounter Notification Service (ENS) Technology

3. Presentation on Implementation, Application, and Clinical Outcomes Impacted through ENS

Challenges

Reduce readmissions

Value
Business Challenges Addressed

1. Real time notification of hospitalizations
   - Hospitalist often care for patients in the hospital, thus provider’s don’t often know when their patients are admitted to a hospital
   - The handoff back to their PCP is inadequate

2. Ability to manage costs for populations with financial risk
   - Aligned covered lives
   - Shared savings programs (PCMH, ACO)

How Medicine Has Changed

<table>
<thead>
<tr>
<th>Year</th>
<th>Problems</th>
<th>Solutions</th>
</tr>
</thead>
</table>
| 1889 | • Young people with acute disease  
      • Little scientific knowledge  
      • Doctors poorly trained     |            |
| 2015 | • Older people with chronic diseases  
      • Information overload  
      • Knowledge in silos       |            |
Creating Value from Data

- Wisdom
- Knowledge
- Information
- Data
- Value

Primary Care is Pivotal

- Inpatient
- Short Stay
- Same Day
- Procedural
- Sub-specialist: Outpatient
- Community-Based Specialty: Outpatient
- Primary Care
- Convenience Care / Community-Based Care
- Patient Self-Care/Monitoring/ Home Care
- Physician Planning

Seamless, Efficient, and Safe Transitions of Care

Physician Planning
Johns Hopkins Medicine Organizational Structure

JHM: Clinical Enterprise Integrated Delivery Network

- 5 Hospitals - Baltimore/DC
- Community Based Health Centers - ASCs, Specialty Care, Primary Care
- Primary Care Sites
- Patients seen in and out of network
Johns Hopkins Community Physicians

- 40 practices
- 31 Primary Care Practices
- 420+ providers
- 800K+ encounters
- 280K patients

JHCP Vision

We strive to create a medical home that offers our patients the greatest levels of health, wellness, and function. We endeavor to make meaningful contributions to new discovery through transformative care models, the science of health care delivery and technology integration. We aspire to train the next generation of providers and healthcare professionals, focusing on excellence in patient care and teamwork.
JHM Quality and Safety Governance Structure

Armstrong Institute for Patient Safety and Quality

JHM Ambulatory Quality & Transformation

Department funding sources varies
- JHM provider groups - JHCP, JHU SOM
- Internal payer
- ACO
- Grants
- Armstrong Institute
- Medical Services
- Organization services
Ambulatory Quality team scope

- **Pay for Performance Oversight/Management**
  - Meaningful Use of EMR
  - Value Based Purchasing for Medicaid

- **Value Driven Payment models (Triple aim) support**
  - Accountable Care Organization
  - PCMH
  - High Risk Patient Mgmt: Transitional Care Management, Case Management, JCHiP

- **Clinical Analytics to support ambulatory quality**
  - Data Trust Operating Team
  - Data/Dashboards

- **Site level quality improvement facilitation**
  - Use Lean principles and A3 development- JHM Primary Care, ACO practices, Regional partnerships, MSO services

HIE landscape

Wide spread adoption across the country

Figure 1: The state HIE cooperative agreement program funds by state

Health Information Exchanges

• CRISP- Chesapeake Regional Information System for our Patients
  – Maryland State designated HIE
  – All hospitals in Maryland are required to send data
  – Mature HIE with vast data

Security & Patient Awareness

• All participating organizations are required to update their HIPAA Notice of Privacy Practices to include a paragraph on their participation with CRISP.

• All participating organizations are required to make CRISP brochures and opt-out forms available at intake areas.

• Patients are responsible for completing and submitting the opt-out form to CRISP. They may also opt out by phone or online.
What is the Encounter Notification Service (ENS)?

- Free utility of CRISP
- Sends hospital notifications to providers that sign up

HIE Encounter Notification System (ENS): Real time hospital event notifications to providers

Data Inputs
- MD, DC, DE Hospitals
- ADTs, C-CDMs

Encounter Notification Service
- Powered by A2
- Member Rosters (Member rosters can be created from inbound ADTs)

Ens Recipients
- Payers
- Providers

CSV
ENS Relies on Three Core Inputs

1. **Trigger Message**
   - Typically ADT message from a hospital (ADT-A01 admit, ADT-A03 discharge)

2. **Patient/Member Panels**
   - Providers and payers determine the attribution methodology (patient to provider, patient to practice or department, etc.)
   - ENS Subscribers provide patient rosters via file via an ADT feed to the ENS service to auto-subscribe patients.

3. **Notification Preferences**
   - Types of notifications: inpatient admit/discharge, ED admit/discharge, etc.
   - Delivery Time: real time, configurable daily batches, etc.
   - Method of Delivery: via HL7 interface, Direct secure message, sFTP folder, or web service

---

**Sample Real-Time Encounter Notification**

ADT-based notifications can carry additional valuable clinical and other relevant data:
- Reason for Visit
- Discharge Diagnosis Code
- Discharge Diagnosis Description
- Discharge Disposition
- Discharge to Location
- Death Indicator
- Insurance Information
- Race
- Ethnicity
Sample Daily Notification Summary

- Notification summaries are sent daily, or at other customer-defined times throughout the day

### Building Panels Using Auto-Subscription

- Uses existing ADT feeds to automatically subscribe and unsubscribe patients
- Relies on HL7 ADT events such as ADT-A01, ADT-A03 to add or remove patients from panels
- If a patient arrives at any other participating facility within the defined period, the discharging facility is notified
Sending Care Summaries Using ENS

- ENS supports C-CDA routing to subscribing providers
- Core logic to process an ADT can be applied to processing the identity segment (or header segment) of C-CDA document for routing to subscribing providers
- CMS clarified that this capability can be relied on to support the transitions of care measure for Meaningful Use Stage 2

CRISP Key Performance Indicators

- Portal Queries
  - Monthly Queries
  - 109,862
- ENS Notifications Sent
  - Monthly Notifications
  - 735,230
- Monthly CRISP Portal Users
  - Active Clinician user accounts*: 9,512
  - Unique Users who logged in during month: 6,923
  - Active SSO: 5,543
  - Total SSO: 1,635
Post-Hospitalization: Information Obtained and Patient Contacted

- When Patient is Discharged:
  - Discharge summary obtained and scanned into EHR
    - Task removed from sites to decrease paperwork burdens
    - Centralized function improved efficiency and rate which discharge summaries were obtained

- Clinical staff at JHCP sites call patient within 2 days of discharge and perform 3 functions:
  1. Basic Medication Reconciliation
  2. Assessment of any immediate needs
  3. Attempt to schedule an appointment *within 7 days* of discharge for any medical admission

Operationalization: How Primary Care Practices are Notified Real Time

- A message is sent via the EHR to the PCP and a nurse at the primary care practice to notify them about the hospitalization.
Care Team Communication: Telephone Encounter

Using a structured template in EMR to assure all key elements are asked and recorded

Transitional Care Management Script

Answer all questions to script form
If able to schedule a follow-up appointment, specify date at end of form
Tracking for Continuous Quality Improvement

Sites are provided monthly feedback reports to assure patients are getting phone calls and appointments timely for continuous quality improvement of the process.

Use of A3 for Continuous Quality Improvement with sites

Hospital Follow-up Initiative
Performance Improvement Plan - Bowie

<table>
<thead>
<tr>
<th>Site</th>
<th>Purpose</th>
<th>Action</th>
<th>Responsible</th>
<th>Due</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowie</td>
<td>Vaccine follow-up program: how to talk</td>
<td>Improve vaccine compliance, drug handoff, appointment reminders</td>
<td>Infection Prevention</td>
<td>After 30 days</td>
<td>In progress</td>
</tr>
<tr>
<td>Bowie</td>
<td>Use A3 for continuous improvement projects</td>
<td>Identify key issues, root causes, and potential solutions for improvement</td>
<td>Infection Prevention</td>
<td>After 30 days</td>
<td>In progress</td>
</tr>
<tr>
<td>Bowie</td>
<td>Use A3 for continuous improvement projects</td>
<td>Identify key issues, root causes, and potential solutions for improvement</td>
<td>Infection Prevention</td>
<td>After 30 days</td>
<td>In progress</td>
</tr>
</tbody>
</table>
Benefits

- Awareness when EVERY patient is admitted to the hospital
- Provider satisfaction of transitions of care
- Patient satisfaction
- Reduction of harm
  - Reduction of avoidable acute problems
- Enhanced revenue
  - Transitional Care Management billing
- Aligns with other programs
  - NCQA PCMH
  - Meaningful Use
- Analytics
  - Cumulative data for aggregation and analysis

Impact of Readmission Reduction

- Readmissions contribute to $15 billion of medical spend, $12 billion of which is preventable
- Preventing readmissions reduces harm and unnecessary acute care
- Causes of preventable readmissions
  - Gaps in planning for transition
  - Failures in communication
  - Delays in scheduling post-hospitalization care
  - Medication discrepancies during transitions

Bisognano, Boutwell. Frontiers of Health Services Management, 25:3
Best Practice Recommendations to Reduce Readmissions

- Early assessment of discharge
- Enhance patient education
- Timely communication at handoff
- Early post-acute follow up
- Early post-discharge phone calls
- Appropriate referral to home care as needed
- Improved transfer between facilities
- Effective medication management
- Remote monitoring

Aligns with PCMH NCQA Requirements

<table>
<thead>
<tr>
<th>Element C: Coordinate Care Transitions</th>
<th>6.00 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>The practice:</td>
<td>Yes</td>
</tr>
<tr>
<td>1. Proactively identifies patients with unplanned hospital admissions and emergency department visits.</td>
<td>☐</td>
</tr>
<tr>
<td>2. Shares clinical information with admitting hospitals and emergency departments.</td>
<td>☐</td>
</tr>
<tr>
<td>3. Consistently obtains patient discharge summaries from the hospital and other facilities.</td>
<td>☐</td>
</tr>
<tr>
<td>4. Proactively contacts patients/families for appropriate follow-up care within an appropriate period following a hospital admission or emergency department visit.</td>
<td>☐</td>
</tr>
<tr>
<td>5. Exchanges patient information with the hospital during a patient’s hospitalization.</td>
<td>☐</td>
</tr>
</tbody>
</table>
Aligns with Meaningful Use (MU) Transitions of Care (ToC)

ENS sends a CCDA (Consolidated clinical document)

Data aggregation and analysis

Drill down readmission rates by service and discharging hospital for targeted performance improvement
Outcomes

Maryland readmission rates are among the highest in the country.

Results: Decreased Readmission Rates for Patients Seen in 7 Days

<table>
<thead>
<tr>
<th>Measurement period end date</th>
<th>Readmission rate seen by PCP in 7 days</th>
<th>Readmission rate NOT seen in 7 days by PCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/28/2012</td>
<td>13.17</td>
<td>16.05</td>
</tr>
<tr>
<td>3/10/2012</td>
<td>16.8</td>
<td>13.9</td>
</tr>
<tr>
<td>4/10/2012</td>
<td>12.36</td>
<td>15.10</td>
</tr>
<tr>
<td>5/10/2012</td>
<td>11.4</td>
<td>17</td>
</tr>
<tr>
<td>6/10/2012</td>
<td>11.36</td>
<td>17.83</td>
</tr>
<tr>
<td>7/10/2012</td>
<td>8.9</td>
<td>21.3</td>
</tr>
<tr>
<td>8/10/2012</td>
<td>9.7</td>
<td>19.4</td>
</tr>
<tr>
<td>9/10/2012</td>
<td>9.1</td>
<td>19.2</td>
</tr>
<tr>
<td>10/10/2012</td>
<td>9.1</td>
<td>24.6</td>
</tr>
<tr>
<td>11/10/2012</td>
<td>11.13</td>
<td>22.7</td>
</tr>
<tr>
<td>12/10/2012</td>
<td>10.4</td>
<td>24.7</td>
</tr>
<tr>
<td>1/10/2013</td>
<td>12.3</td>
<td>22</td>
</tr>
<tr>
<td>2/10/2013</td>
<td>13.5</td>
<td>21.6</td>
</tr>
<tr>
<td>3/10/2013</td>
<td>16.2</td>
<td>22</td>
</tr>
<tr>
<td>4/10/2013</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>5/10/2013</td>
<td>12.7</td>
<td>18.5</td>
</tr>
<tr>
<td>6/10/2013</td>
<td>12.4</td>
<td>16</td>
</tr>
<tr>
<td>7/10/2013</td>
<td>16.5</td>
<td>14.2</td>
</tr>
<tr>
<td>8/10/2013</td>
<td>12.9</td>
<td>14.63</td>
</tr>
</tbody>
</table>

JHHC medical readmission rates to JHCP PCP sites.
Results: Decreased Readmission and Admission Rates

2014 ACO Performance Data

<table>
<thead>
<tr>
<th>Measure</th>
<th>Your ACO Performance Rate</th>
<th>90th Percentile Benchmark</th>
<th>90th Percentile Benchmark</th>
<th>90th Percentile Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readmission Rates</td>
<td>15.40</td>
<td>16.02</td>
<td>15.45</td>
<td></td>
</tr>
</tbody>
</table>

Readmission rates are lower than the 90th percentile benchmark.

Results: Decreased Readmission Rates for commercial payer

CareFirst all-cause readmission rates for JHCP patients have decreased.
**Review of Clinical Benefits**

1. Improved patient satisfaction
2. Improved communication with patient’s PCP upon discharge
3. Clinicians at the primary care facility have insight into real-time hospital events that lead to improved coordinated care
4. Quality improvement – provider notifications encourage faster follow-up calls and visits with the patient’s PCP
5. Readmission rates are lower for patients seen in 7 days compared to those that are NOT seen in 7 days

**Objectives**

(1) Review current challenges in hospital to ambulatory provider discharge communications
(2) Describe a reproducible three-step process implemented post-discharge to improve transitions of care
(3) Identify results achieved in readmissions, reimbursement, and patient outcomes
Thank You!

Steven Kravet, MD
skravet@jhmi.edu

Jennifer Bailey
jbailey@jhmi.edu

Questions?