Collection and Use of Interdisciplinary Provider Workload to Drive Quality Improvement

Highland Primary Care Network

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Presenter Disclosure

Presenters: Peter Rymkiewicz and Regan Paddington

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  – None
Mitigating Potential Bias

- No potential bias to mitigate
Acknowledgements

- Senior Leadership
- Physicians
- Health Management Team (HMT) providers
Core Communities and Surrounding Areas

- Didsbury
- Carstairs
- Cremona
- Crossfield
- Beiseker
- Irricana
- Airdrie
- Calgary

16 Clinics

50 Physician Members

60 Thousand Number of People in Patient Panel

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Medical Home Objectives

- Patient Panels
- Team Based Care
- Use of EMR
- Improvements in Access
- Enhanced Screening / Proactive Care
- Integration with Specialty Services
The Important People
HPCN Strategy

• Interdisciplinary team based care focused on Medical Home
• Combination of Centralized and **Decentralized** services
• Referrals come from a variety of sources
  – Physician, community (Home Care etc.), other team members
• Documentation is done in physician EMR’s
Aligning with the Strategy

- Developed service standards for each discipline
- Developed in partnership with the physicians and team members
- Helped to inform both staff members, physician and clinic staff

Laura, Registered Nurse
Service Standards

• Based on best practice, not scope of practice
• Outline the following:
  – General
    • Goal # of patients seen per day
    • Timing of appointments
    • General practice guidelines
    • Expectations as a team member
  – Clinical
    • Role in clinic
    • Services provide to patients
    • Support offered for physicians
Implementing Workload Measurement

• How did we get buy-in?
  – Develop trust
    • Everyone comes with history
    • How is the information going to be used
    • Respect for practice to support the quality of work being done, not volume driven
  – What’s in it for them?
  – The WHY factor
    – Support program role out
    – Common understanding of services delivered
Strategic Objectives

• Showcase great work being done – with true stats!

• Identify successes to help influence idea sharing between team members

• Show providers how their hard work is paying off
Strategic Objectives

• Identify if we are meeting PCN Service Standards as per PCN direction
  – Allows for timely identification and quick solutions
    • ? Low referrals
    • ? Clarity of roles needed
    • ? Process issues
    • ? Clinician efficiencies

• Data speaks – allows for meaningful factual conversations with both clinicians and physicians
The Process

- Year long adventure (although we didn’t wait a year to implement), multiple meetings to discuss:
  - Minimum data set definitions
  - Creating a legend to keep us all on the same page
  - Process of collection (both for clinician and engaging clinic)
  - Nuances that would come up (of which there were many)
Feedback from Staff

• “Compared to other tools used; it’s an easy, quick process”

• “Happy to see the data being used”

• “Provides a lens to view my practice; it encourages me to think about my rationale when I look at the conversations I have with my pts. It ensures my conversations are deliberate and focused”

• “I like the tracking tool and think it can support many decisions like ensuring appropriate use of clinicians time while balancing physician needs”

• “Process has been straight forward and fairly painless”
Key Lessons Learned

• Balancing need for data with the impact of workload
  – Current completion time for tracking tool and process is approx. 5-20min/day

• Ongoing PDSA cycle...
  – Need to keep staff involved throughout

• Importance of working as a truly integrated team with everyone involved
Data Collection and Validation Process

“The servers are on strike.”
Why Interdisciplinary Workload Collection Important?

- Aging populations and increasing disease comorbidity\(^{(1)}\)
- Evolution of service delivery supporting our PCN physicians\(^{(2)}\)
- What is workload - why is it so important?
- Evaluation question - are HPCN programs making a difference?
- HPCN accountability

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\(^{(2)}\)www.albertahealth.ca/services/primary-care-networks.html
Primary Data Collection

If the EMR is the right choice, why did we use paper?

• EMR is the answer?
  – Provincial adoption\(^{(1,2)}\)
• PCN challenges
  – 8 EMRS\(^{(3)}\)
  – two paper based clinic
• Paper solution
  – Is this viable?
  – Used in other areas of health care
  – Validation of data
    • Systematic processes

[4] Discharge Abstract Data (DAD)

Did we get it right?
Requirements of a Primary Data Collection System

- Reaching a common denominator
  - Supporting electronic and paper based clinics

- Systematic collection, analysis and reporting

- Allowed for distributed collection
  - 16 Clinics, 21 Interdisciplinary providers

- Scalable

- Common data definitions

- Timeliness
Balancing the Need for Data
Limiting Provider Burden

• Primary data collection is not free

• Purpose built – driven by organizational direction
  • Built to answer specific questions
  • Needs vs. wants
  • Balancing provider burden with data collection
    • Maximizing clinicians time with patients
    • Off loading burden of data entry
Minimum Data Set (MDS)
Supporting Specific Objectives

• Support organizational reporting

• Integrate with information & evaluation strategy

• Enable linkages between administrative data to support evaluation
Minimum Data Set (Paper Form)

- What does the HPCN minimum data set look like?
  - Paper form which capturing patient encounter data
  - Scalable – allow for easy provider on boarding
  - Minimizes writing
  - Saves time
Foundations of Measurement & Evaluation

- **Privacy**
  - Data Sharing Agreements (DSAs)
  - PCN Privacy Impact Assessments
  - Patient Health Information posters
- **Data Capture / Analysis**
  - EMR data extraction (multi step process)
  - Primary data collection
- **Secure Information Infrastructure**
  - 3-layer authentication (Oracle 12c server)
  - Thin client computing
- **Feedback and Communication**
  - Reporting
1) Primary Data Collection & Data Extraction Strategy

A) Primary Data Capture and Transcription

B) Electronic Medical Record Extraction

2) Analytics & Business Intelligence Layer

3) Reporting & Information Strategy

A) Quarterly Trending & Point in Time Reporting Supporting PCN Physicians

4) Evaluation

Robust Statistical evaluation linking changes in screening to PCN program

Note: PCN reports include Screening Trend Reports & Quarterly clinic reports on clinic hypertension, diabetes and obese populations

PCN Information & Evaluation Strategy
Data Collection Process
Primary Data Collection Strategy

- Data collection strategies are typically custom designed
- Dependent on information infrastructure
- Dependent on the model of care (program design)
Minimum Data Set

• Who, when, when, where, why and how
Minimum Data Set

- Administrative measures
Administrative Level Analytics

Program statistics supporting physicians and their patients
- Monthly volumes
  - Program adoption and expansion
  - Distributions of providers across PCN clinics
  - Referral rates

Provider Information (establishing norms)
- Average number of visits per clinic hour (adoption and service standards)
- Total Direct and Indirect time spent with patients
- Time spent with patients as a function of time available in clinic
# Monthly Board Reporting

## Monthly Board Report

<table>
<thead>
<tr>
<th>PROVIDER_TYPE</th>
<th>Clinic Type</th>
<th>Total</th>
<th>No Show or Cancelled Appointments</th>
</tr>
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<tbody>
<tr>
<td>Registered Nurse</td>
<td>Chronic Disease Management</td>
<td>10</td>
<td>37</td>
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<tr>
<td>Behavioral Health</td>
<td>Women's Health</td>
<td>7</td>
<td>84</td>
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<tr>
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<td>18</td>
</tr>
<tr>
<td>Social Worker</td>
<td>Clinic Support</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pharmacist</td>
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<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Kinesiologist</td>
<td>Clinic Support</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Dietitian</td>
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<td>3</td>
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<tr>
<td>Grand Total</td>
<td>Clinic Type</td>
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<td>118</td>
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<table>
<thead>
<tr>
<th>Clinic Encryption</th>
<th>Total</th>
<th>No Show or Cancelled Appointments</th>
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<tr>
<td>AAV</td>
<td>10</td>
<td>37</td>
</tr>
<tr>
<td>ABY</td>
<td>7</td>
<td>84</td>
</tr>
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<td>18</td>
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<tr>
<td>ANI</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td>DBY</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>DNI</td>
<td>10</td>
<td>105</td>
</tr>
<tr>
<td>HKG</td>
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<td>9</td>
</tr>
<tr>
<td>NBY</td>
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<td>131</td>
</tr>
<tr>
<td>NVK</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>PNI</td>
<td>22</td>
<td>45</td>
</tr>
<tr>
<td>TBY</td>
<td>18</td>
<td>51</td>
</tr>
<tr>
<td>VHB</td>
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<td>3</td>
</tr>
<tr>
<td>VWB</td>
<td>57</td>
<td>299</td>
</tr>
<tr>
<td>YBY</td>
<td>64</td>
<td>477</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Visits</th>
<th>June</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
</tr>
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<tbody>
<tr>
<td>1,346</td>
<td>1,292</td>
<td>1,179</td>
<td>1,304</td>
<td>215</td>
<td></td>
</tr>
</tbody>
</table>

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# Monthly Provider Reports

## Monthly Provider Statistics Summary

<table>
<thead>
<tr>
<th>Month, Year of VISIT_DATE</th>
<th>Clinic Encryption</th>
<th>New Patient Visit(s)</th>
<th>Follow up Patient Visit(s)</th>
<th>Number of Group Participants</th>
<th>No Shows Appointment</th>
<th>Total Patient Encounters</th>
<th>% No Shows</th>
<th>Visit Dis position F2F</th>
<th>Visit Dis position Telephone</th>
<th>Visit Dis position E-mail</th>
<th>Visit Dis position Not Recorded</th>
<th>Womens Health</th>
<th>CDM</th>
<th>Clinic Support</th>
<th>Hours Available to See Patients</th>
<th>Direct Patient Time (Hours)</th>
<th>Indirect Patient Time (Hours)</th>
<th>Total Visits per Clinical Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 2014</td>
<td>DNI</td>
<td>4.0</td>
<td>10.0</td>
<td>0.0</td>
<td>1.0</td>
<td>16.0</td>
<td>5.9</td>
<td>7.0</td>
<td>10.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>21.5</td>
<td>9.2</td>
<td>7.3</td>
<td>0.7</td>
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<tr>
<td></td>
<td>NBV</td>
<td>1.0</td>
<td>1.0</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>4.5</td>
<td>1.8</td>
<td>1.2</td>
<td>0.4</td>
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<tr>
<td></td>
<td>NVK</td>
<td>6.0</td>
<td>6.0</td>
<td>0.0</td>
<td>3.0</td>
<td>17.0</td>
<td>15.0</td>
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<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>26.0</td>
<td>11.0</td>
<td>4.9</td>
<td>0.7</td>
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<tr>
<td></td>
<td>PNI</td>
<td>4.0</td>
<td>10.0</td>
<td>0.0</td>
<td>1.0</td>
<td>20.0</td>
<td>4.8</td>
<td>13.0</td>
<td>6.0</td>
<td>1.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>31.3</td>
<td>13.8</td>
<td>9.0</td>
<td>0.6</td>
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<tr>
<td>Total</td>
<td></td>
<td>15.0</td>
<td>27.0</td>
<td>5.0</td>
<td>5.0</td>
<td>55.0</td>
<td>8.3</td>
<td>32.0</td>
<td>25.0</td>
<td>1.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>83.3</td>
<td>35.8</td>
<td>22.4</td>
<td>0.7</td>
</tr>
</tbody>
</table>

## Week of VISIT_DATE [2014]

<table>
<thead>
<tr>
<th>Week of VISIT_DATE</th>
<th>AAV</th>
<th>DNI</th>
<th>NVK</th>
<th>PNI</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 13</td>
<td>0.0</td>
<td>2.0</td>
<td>3.0</td>
<td>2.0</td>
<td>7.0</td>
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<tr>
<td>May 11</td>
<td>0.0</td>
<td>3.0</td>
<td>6.0</td>
<td>1.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Jun 8</td>
<td>0.0</td>
<td>3.0</td>
<td>6.0</td>
<td>1.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Jul 6</td>
<td>0.0</td>
<td>1.0</td>
<td>1.0</td>
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<td>3.0</td>
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<tr>
<td>Aug 3</td>
<td>1.0</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>3.0</td>
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<tr>
<td>Aug 31</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>2.0</td>
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<tr>
<td>Sep 28</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

## FTE Allocation, Hours per month

- 0.1 16.79hrs
- 0.2 33.58hrs
- 0.3 50.37hrs
- 0.4 67.16hrs
- 0.5 83.95hrs
- 0.6 100.74hrs
- 0.7 117.53hrs
- 0.8 134.32hrs
- 0.9 151.11hrs
- 1 167.9hrs

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Minimum Data Set ...Cont’d

- Patient identifier & patient demographics
Patient Information Supporting Analytics

- Patient identifier and demographics serve several functions
  - Linking patients to PCN interventions
  - Allowing us to track episodes of care
    - Identifying the beginning and end of an intervention
  - Help improve our understanding of patient needs and patient complexity
  - Age and sex can be used to stratify analysis or adjust regression/analytical models
Minimum Data Set

- Reason for referral & other issues discussed
Patient Complexity – Understanding our Patients

• Understanding reasons for referral & issues discussed

• Understanding patient complexity

• Development of proxy measures of patient complexity
  – Count of Chronic Conditions
  – Linked to increased use of the health system

• Could we reproduce a proxy of the Charlson Comorbidity Index?(1)
  – Can these measures be linked to the use of our interdisciplinary care team?

Utilizing the Tool to go Beyond Workload Measurement

- Demographics
- Utilization (# of visits by age & sex)
- Mean conditions count by age & sex
- Proxy patient complexity & number of visits
- Social / financial concerns & number of visits
- Mental health concerns & number of visits
Age Sex Patient Population Distribution
For the Period (01-Apr-2014 to 14-Oct-2014)
Average Number of Visits by Age and Sex
for the Period (01-Apr-2014 to 14-Oct-2014)
(1) BARBARA STARFIELD, LEIYU SHI, and JAMES MACINKO, "Contribution of Primary Care to Health Systems and Health", Johns Hopkins University; New York University
Patient Complexity and Utilization

Average Number of Visits by Count of Conditions
For the period (01-Apr-2014 to 14-Oct-2014)

<table>
<thead>
<tr>
<th>Sample (n)</th>
<th>Condition Count</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>545</td>
<td>0</td>
<td>1.40</td>
<td>1</td>
<td>(1-6)</td>
</tr>
<tr>
<td>1504</td>
<td>1-2</td>
<td>1.87</td>
<td>1</td>
<td>(1-20)</td>
</tr>
<tr>
<td>420</td>
<td>3+</td>
<td>4.17</td>
<td>3</td>
<td>(1-33)</td>
</tr>
</tbody>
</table>
Physician Referral or Patient Expressed Concern

Social/Financial Concerns

<table>
<thead>
<tr>
<th>Sample (n)</th>
<th>Social Financial</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
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<tbody>
<tr>
<td>2058</td>
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<td>1.89</td>
<td>1</td>
<td>(1-23)</td>
</tr>
<tr>
<td>411</td>
<td>Expressed Concern</td>
<td>3.48</td>
<td>2</td>
<td>(3-33)</td>
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</table>

Mental Health Concerns

<table>
<thead>
<tr>
<th>Sample (n)</th>
<th>Social Financial</th>
<th>Mean</th>
<th>Median</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1503</td>
<td>No Concerns</td>
<td>1.72</td>
<td>1</td>
<td>(1-23)</td>
</tr>
<tr>
<td>966</td>
<td>Expressed Concern</td>
<td>2.83</td>
<td>2</td>
<td>(2-33)</td>
</tr>
</tbody>
</table>
PCN Evaluation

Pre-intervention retrospective look back period

Prospective post-intervention assessment period

- MDS gives us an improved understanding of patients and the potential impact in the quality of care
- Evaluation of Interdisciplinary intervention
- Future partnerships and accountability
Patient Outcomes
Can we showing a shift in patient trajectory?
Where do we go from here?
Continued learning process

Continued accountability to HPCN stakeholders
• Collection of workload
  – Allows linkages between resource use and financial data
  – Collection of Patient self rated health (EQ-5D-5L)

• Measuring patient experience

• Physician support
  – Data Sharing Agreements
  – Information Management Agreements

http://www.ihi.org/Engage/Initiatives/TripleAim/Pages/default.aspx
Questions?

Thank You