Big Data, Documentation, Quality, Case Mix and Funding Reform: Are You Leveraging Your HIMs?

HealthAchieve
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Outline

• Data quality and why it is important
• CIHI’s data quality program
• Case study: improving data quality
• Concluding remarks
You Need Good Data To Make Good Decisions

- Improve patient care and quality of life
  - Individual patients
  - Patient populations
- Resource planning
- Funding
- Policy and legislation

Poor Data Quality Is Costly

- Time and resources to correct it
- Bad/incorrect/inappropriate decisions
- Loss of reputation and trust
- Lost opportunities
CIHI’s Five Dimensions of Quality

- **Relevance**—Does the data meet users’ current and potential future needs?
- **Usability**—Can the data be easily accessed and understood?
- **Timeliness**—How current is the data?
- **Accuracy**—How well does the data reflect what it was designed to measure?
- **Comparability**—Is the data consistent over time and to other sources?
CIHI’s Role Begins With Prevention

**Prevention**
- Stakeholder consultations
- Standards and training updates
- System changes

**Quality Data**
- Analysis and use of the data
- PTDQ Reports
- Validation/reabstraction studies
- DQ documentation & metadata
- Surveillance/data monitoring

**Standards**
- Training & client support
- System edits/audits

**Error reports & corrections**
- DQF assessment

**Monitoring & Feedback**
Prevention
### Education Roadmap: Reach Your GOAL With Classifications, DAD, NACRS and Case Mix

#### Getting Started

This is the first level of learning. These courses will appeal to anyone new to Classifications, DAD, NACRS or Case Mix.

- **Applied Diagnosis Types and Main/Other Problem Assignment**
- **CCI Code Assignment: Selection of Interventions to Code for Inpatient and Ambulatory Care**
- **CCI: Ten Years in Action**
- **Classifying Post-Intervention Conditions: ICD-10-CA Code Assignment**
- **Coding for Diabetes—Introduction**
- **Emergency Department Coding: Getting Your Diagnosis Codes Right**
- **Introduction to the National Ambulatory Care Reporting System**
- **Making DAD and NACRS Work for You**
- **Moving Forward Using ICD-10-CA/CCI**
- **Search Techniques for ICD-10-CA/CCI using Folio Views**
- **Trending and ICD-10-CA/CCI**

#### Opportunities to Develop

These courses build on the basics in Getting Started. In this level, learners will find courses dealing with more specific subject areas. Learners may select courses that appeal to them or that are pertinent to their work.

- **Acute Coronary Syndrome: Understanding the Spectrum—Part 1**
- **Acute on Chronic Renal Failure**
- **Basic DAD Abstracting**
- **Coding for Diabetes—Acute Short-Term Complications of Diabetes Mellitus**
- **Coding for Diabetes—Basic Diabetes Mellitus Coding Principles**
- **DAD Data Submissions and Corrections: Rules and Tools**
- **Different Codes for Different Strokes**
- **Exploring the Lower GI Tract With CCI**
- **Focus on Emergency Department Data Collection**
- **Identifying Post-Intervention Events: Prefix 5 and 6 Assignment**
- **Improving the Quality of Admitting and Registration Data**
- **NACRS Data Collection Fundamentals**
- **NACRS Data Submission and Corrections**

#### Advancing Your Skills

This level is for those who want to further develop their skills and knowledge in a particular subject area.

- **Acute Coronary Syndrome—Part 2**
- **Coding Flaps and Grafts of Skin and Soft Tissue**
- **Coding for Diabetes**
  - Diabetic Angiopathy
  - Diabetic Nephropathy
  - Diabetic Neuropathy
  - Diabetic Retinopathy
- **Introduction to CACS**
- **Introduction to Case Mix for DAD and NACRS**
- **Introduction to CMG+**
- **Introduction to HIG Grouping and Weighting Methodology for Ontario**
- **Introduction to Resource Indicators (RIW and ELOS) for DAD and NACRS**
- **Knee Joint Replacement**
- **Obstetrical Coding—Moving Beyond the Basics**
- **Staying on Track Series**
- **What’s New for CMG+ and CACS**
- **What’s New for DAD**
- **What’s New for NACRS**
- **What’s New for Classifications and Terminologies**

#### Lifting Your Confidence Even Further

This level provides additional opportunities to apply skills and knowledge gained through any of the previous levels. Courses on data usage for decision-making are included here.

- **Coding for Diabetes: Final Assessment**
- **Decision Support for CMG+**
- **iCODE 1: Sepsis/Pneumonia/COPD**
- **iCODE 2: Pathological Periprosthetic Fracture and Postoperative Low Hemoglobin**
- **iCODE 3: Multiple Post-Intervention Conditions**
- **iCODE 4: Metastatic Breast Cancer**
- **eDAD: An Essential Tool in Decision Making**
- **eNACRS: An Essential Tool in Decision Making**

### Supporting Resources

- **Canadian Coding Standards**
- **Coders’ Resource Page**
- **Tips for Coders**
- **CMG+ Directory**
- **eQuery Tool**
- **DAD Abstracting Manual**
- **NACRS Abstracting Manual**
- **DAD and NACRS Data Submission Manual**
- **DAD and NACRS Bulletins**

Available at [www.cihi.ca/dad](http://www.cihi.ca/dad) or [www.cihi.ca/nacrs](http://www.cihi.ca/nacrs)
Monitoring and Feedback
Reabstraction/Chart Reviews

• A key tool in the tool box, but not the only one
  – Quality of original abstraction/coding
• 2012-2013 CIHI contracted to conduct a BC DAD study
  – B.C. has also implemented “patient-focused funding”
  – Identified quality issues: incomplete documentation; inconsistent application of coding standards
• Upcoming studies
  – Chart review of BC NACRS data (level 2)
  – DAD reabstraction study in 2015-2016
B.C. Study: overall good quality; issues reflecting process problems identified

<table>
<thead>
<tr>
<th>Intervention Coding</th>
<th>RHA A</th>
<th>RHA B</th>
<th>RHA C</th>
<th>RHA D</th>
<th>RHA E</th>
<th>B.C. (weighted)</th>
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<tbody>
<tr>
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<td>2</td>
<td>3</td>
<td>All</td>
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<td>Percentage of DAD interventions not confirmed in the chart review, not present in DAD</td>
<td>5.2</td>
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<td>1.9</td>
<td>1.9</td>
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<td>1.3</td>
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<td>Percentage of diagnoses recorded in the chart review, not present in DAD</td>
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<td>11.9</td>
<td>21.6</td>
<td>14.0</td>
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<td>Diagnosis Coding</td>
<td>RHA A</td>
<td>RHA B</td>
<td>RHA C</td>
<td>RHA D</td>
<td>RHA E</td>
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</tr>
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<td>3</td>
<td>All</td>
<td>4</td>
<td>5</td>
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<tr>
<td>CCI Coding Consistency: up to rubric level</td>
<td>95.9</td>
<td>98.8</td>
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<td>98.7</td>
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<td>Diagnosis Typing</td>
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<td>RHA C</td>
<td>RHA D</td>
<td>RHA E</td>
<td>B.C. (weighted)</td>
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<td>3</td>
<td>All</td>
<td>4</td>
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<tr>
<td>Consistency of typing MRDx</td>
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<td>89.3</td>
<td>91.8</td>
<td>92.4</td>
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<td>Consistency of typing Type 1 diagnoses</td>
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<td>73.0</td>
<td>58.3</td>
<td>77.5</td>
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<td>Case Mix</td>
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<td>RHA C</td>
<td>RHA D</td>
<td>RHA E</td>
<td>B.C. (weighted)</td>
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<tr>
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<td>3</td>
<td>All</td>
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<td>MCC agreement (weighted)</td>
<td>94.7</td>
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<td>95.5</td>
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<td>93.6</td>
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<td>86.8</td>
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<td>Percentage Net Change in Patient's Expected Length of Stay (weighted)</td>
<td>6.3</td>
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<td>1.3</td>
<td>2.9</td>
<td>-5.7</td>
<td>0.5</td>
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<td>Percentage Net Change in Patient's Resource Intensity Weight (weighted)</td>
<td>8.7</td>
<td>1.3</td>
<td>-3.2</td>
<td>1.3</td>
<td>-2.3</td>
<td>0.5</td>
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<tr>
<td>Alternate Level of Care (ALC)</td>
<td>RHA A</td>
<td>RHA B</td>
<td>RHA C</td>
<td>RHA D</td>
<td>RHA E</td>
<td>B.C. (weighted)</td>
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<td>Agreement Rate on ALC days</td>
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<td>99.1</td>
<td>99.7</td>
<td>98.0</td>
<td>100.0</td>
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<td>Sample Size</td>
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<td>112</td>
<td>110</td>
<td>328</td>
<td>200</td>
<td>110</td>
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CIHI Support to HSFR Data Quality

- In 2011-2012 the Ontario ministry contracted CIHI to:
  - Analyze the quality and fitness-for-use of data for funding
  - Identify data that may be influenced by funding changes, have the potential to be engineered, or are suspect to be of poor quality
  - Focus on changes in **aggregate data** over time and facility-level differences

- Actionable information for facilities, LHINs and the ministry to monitor and improve the quality of their data
  - Reports now produced on a quarterly basis
Monitoring Completeness and Timeliness

- DQMP Reports produced for all sectors
- An additional record level report identifies the records so that corrections can be submitted to the database.
# Monitoring Key Clinical Data

<table>
<thead>
<tr>
<th>Sector</th>
<th>Data Quality Indicator</th>
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<tbody>
<tr>
<td>Inpatient Acute Care (DAD)</td>
<td>Pre and Post-admit Comorbid Conditions</td>
</tr>
<tr>
<td>Emergency Departments, Day Surgery, Outpatient Clinics (NACRS)</td>
<td>MIS Functional Centre Reporting for Select Procedures</td>
</tr>
<tr>
<td>Inpatient Mental Health (OMHRS)</td>
<td>Days Away from Bed</td>
</tr>
<tr>
<td>Inpatient Complex Continuing Care, Long-Term Care (CCRS)</td>
<td>Special Rehabilitation</td>
</tr>
<tr>
<td>Inpatient Rehabilitation (NRS)</td>
<td>Comorbid Conditions</td>
</tr>
</tbody>
</table>
Identifying Outliers in Acute Care

Average number of Type 1 comorbidities for Stroke Quality Based Procedure patients, Large Facilities, Ontario, 2013-2014 Q1/Q2

Source: CIHI, DAD 2013-2014
Further Analysis to Identify Patterns

Average Number of Type 1 comorbidities, Stroke QBP

- Tended to code chronic diseases (diabetes, hypertension) more frequently
- Tended to code diagnoses from the CMG+ Comorbidity List more frequently
- Some facilities had specific coding issues which appear to be a lack of understanding of the coding standards

Source: CIHI, DAD 2011-2012 to 2013-2014
Next Steps

• Identified facilities with different coding

• Need to understand why they exist
  • Data quality issues
  • More accurate/complete coding
  • Real differences in patient populations

• Discuss results with the facilities and develop appropriate strategies
CIHI Data Surveillance Pilot Project

- Investigating new analytical techniques to identify data anomalies
- Pilot: Ontario DAD data
  - Combine multiple indicators
  - QBP populations and comorbidities
  - Special Care Units
  - Discharges to Home Care
  - Prioritization of results
- Application of techniques to other databases and beyond Ontario
Case Study: Improving Data Quality
Improving the Coding of Strokes

• In 2008-2009, **29%** of strokes in the DAD were coded as unspecified
• A **reabstraction study** showed many were actually **ischemic** strokes
• After the study, CIHI developed an **eLearning** course
• In 2013-2014 only **9%** of strokes were unspecified
• Facilities that have MRI/CT technology, participated in the study and eLearning have lower rates.
• Room for improvement
• Continue to **monitor**

![Percentage of Strokes Diagnosis in DAD](chart1)

Source: DAD 2008-2009 to 2013-2014, CIHI

![Proportion of Strokes in DAD](chart2)

Source: DAD 2011-2012, CIHI
Conclusions

• High quality data is required for evidence-based decisions including funding

• Everyone who touches the data has an impact and a responsibility for its quality

• CIHI has a strong data quality program to support data providers and users

• HIMs have an essential role in data quality and can be data quality ambassadors
Thank you

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