



CIHI Data Quality Initiatives

Health Data Users Day

May 12th, 2014

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Outline

- Why data quality is important
- What do we mean by quality?
- CIHI's data quality program
- CIHI's support to Ontario's funding reform
- Other data quality initiatives
- Next steps and conclusions

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

Better data. Better decisions. Healthier Canadians.

Poor Data Quality Is Costly

- Time and resources to correct it
- Bad/incorrect/inappropriate decisions
- Loss of reputation and trust
- Lost opportunities



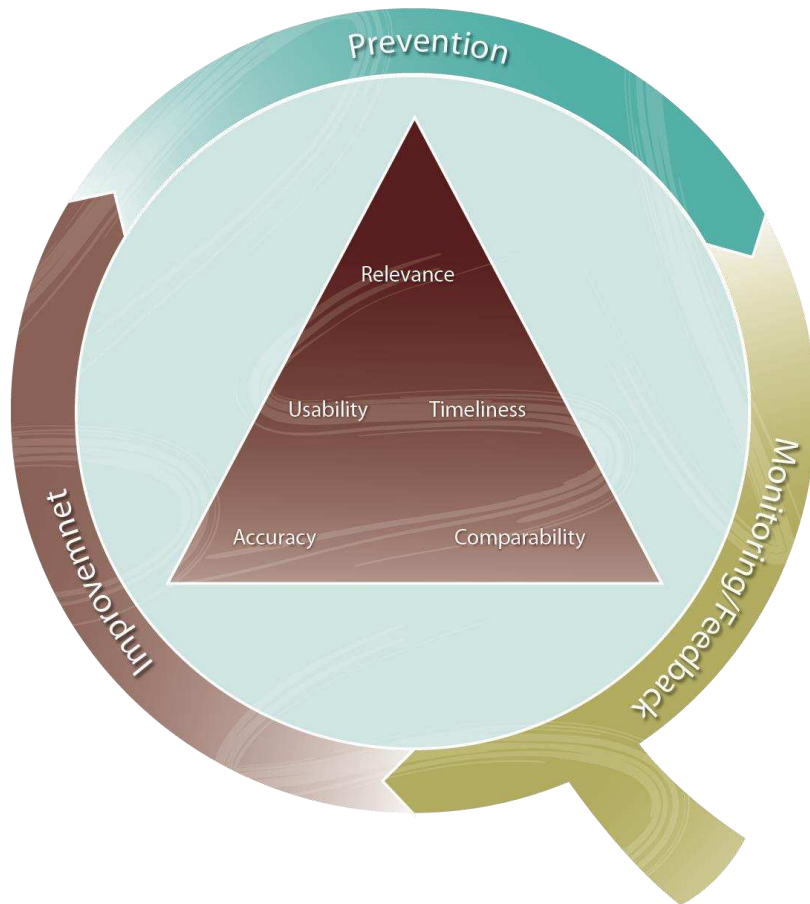


What is Data Quality?

Fitness for Use

- Can you do what you want to do with the data?
- Is it the right data?
- Is the data right (enough)?

CIHI's Five Dimensions of Quality



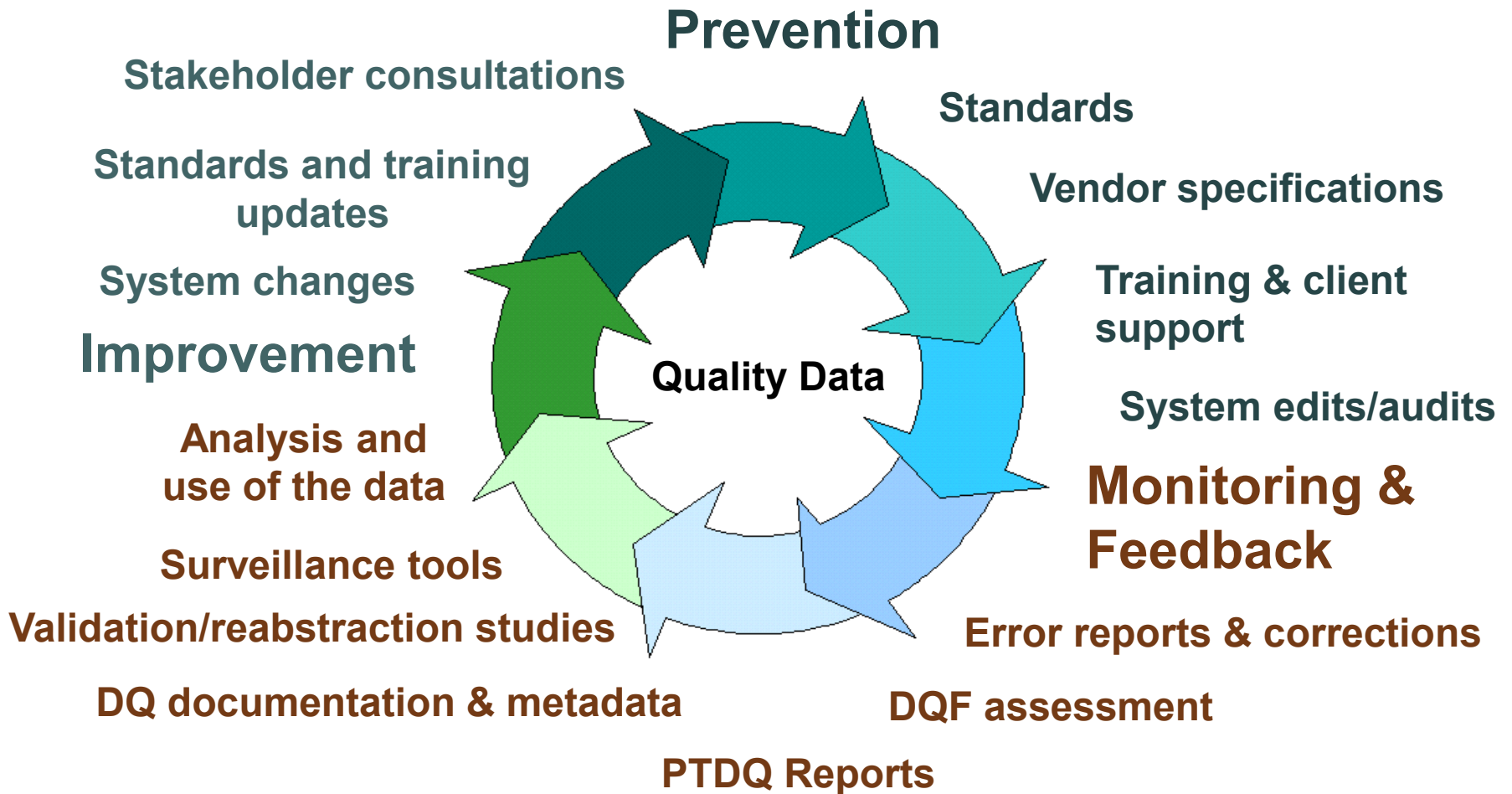
- **Relevance**—Does the data meets users' current and potential future needs?
- **Usability**—Can the data can be easily accessed and understood?
- **Timeliness**—How current is the data?
- **Accuracy**—How well does the data reflect what it was designed to measure?
- **Comparability**—Is the data consistent over time and to other sources?

Data Quality is a Shared Responsibility



Many people touch the data along its journey
Everyone has a responsibility for its quality

CIHI's Role Begins With Prevention



Using Data Improves It

Data is never perfect, but by using it:

- People appreciate the value of the data
- People pay more attention when important decisions are made with data
- Can identify data issues and improve quality

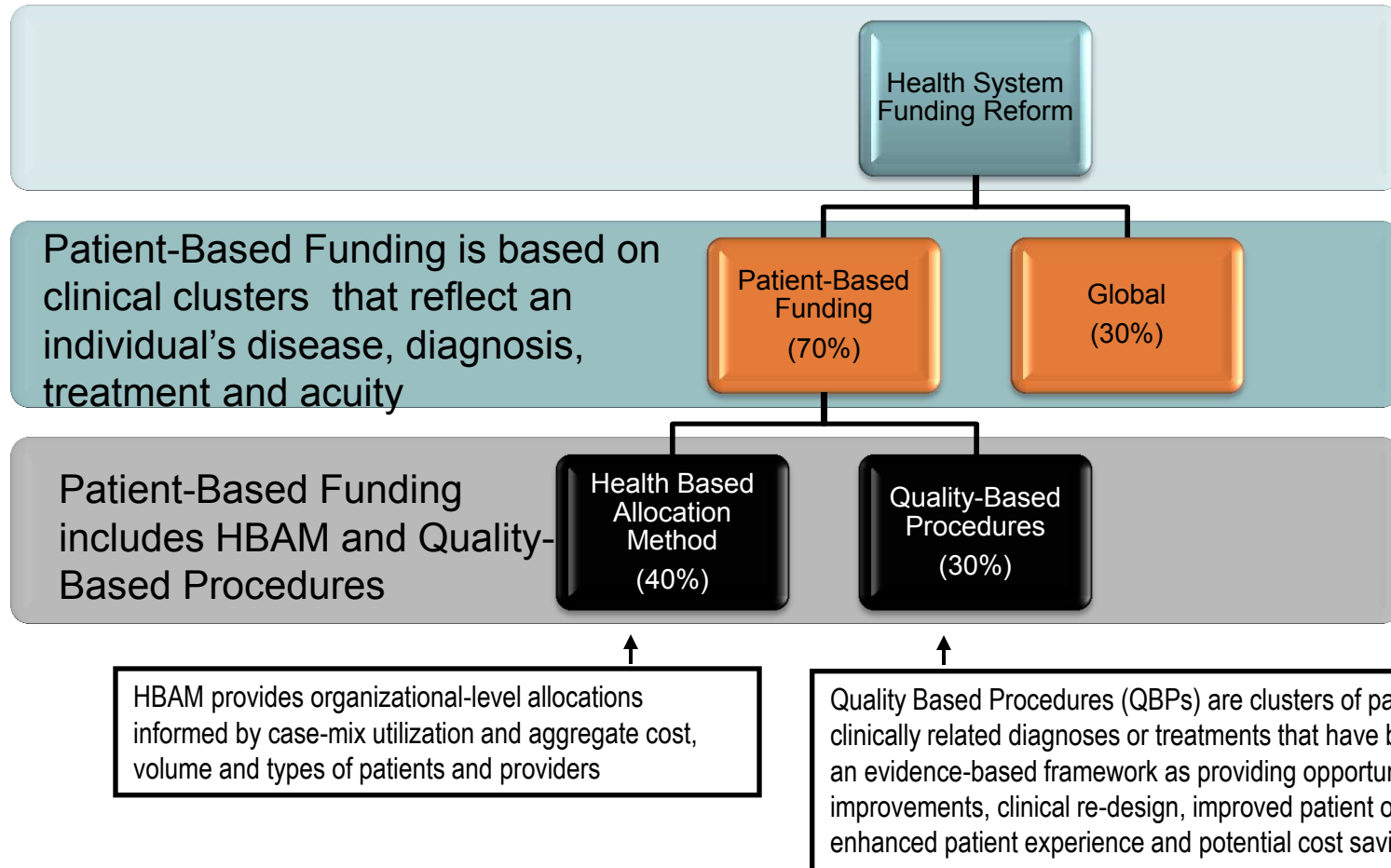




Data Quality for Ontario Funding Reforms



Health System Funding Reform in Ontario



CIHI Clinical Databases Used

Health Sector	Database
Inpatient Acute Care	Discharge Abstract Database (DAD)
Emergency Departments Day Surgery Outpatient Clinics	National Ambulatory Care Reporting System (NACRS)
Inpatient Mental Health	Ontario Mental Health Reporting System (OMHRS)
Inpatient Rehabilitation	National Rehabilitation Reporting System (NRS)
Inpatient Complex Continuing Care Long-Term Care	Continuing Care Reporting System (CCRS)



Increased Focus on Data Quality

Patient-based funding needs

- Processes to ensure data quality and integrity are maintained
- Practical reporting tools that enable facilities to identify issues and take action
- To build a data quality culture where data quality is a shared responsibility



New Approach to 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.

OMHRS Data Quality Monitoring Project (DQMP) - Site Report

Select a Facility Name:

Report Release Date: June 10, 2013

Master Number: 1234

Fiscal Year: 2012-13

Facility Number: 0

LHIN Code: RHA01

Forensics Filter†:

LHIN: Dummy Region 01

Indicator Name	Optimal Value	Q1			Q2			Q3			Q4		
		A	B	(A/B*100)	A	B	(A/B*100)	A	B	(A/B*100)	A	B	(A/B*100)
Data submitted by MOHLTC Quarterly Deadline	Yes	Yes			Yes			Yes			Yes		
A=Numerator B=Denominator													
Missed Assessments or Discharges	0%	0	127	0.00%	0	137	0.00%	0	136	0.00%	1	132	0.76%
Late Assessments	0%	5	216	2.31%	9	213	4.23%	13	209	6.22%	21	207	10.14%
Availability of Date of Birth	100%	286	287	99.65%	281	281	100.00%	286	286	100.00%	268	269	99.63%
Availability of Postal Code	100%	237	287	82.58%	233	281	82.92%	249	286	87.06%	232	269	86.25%
Availability of Health Care Number	100%	282	287	98.26%	276	281	98.22%	283	286	98.95%	267	269	99.26%

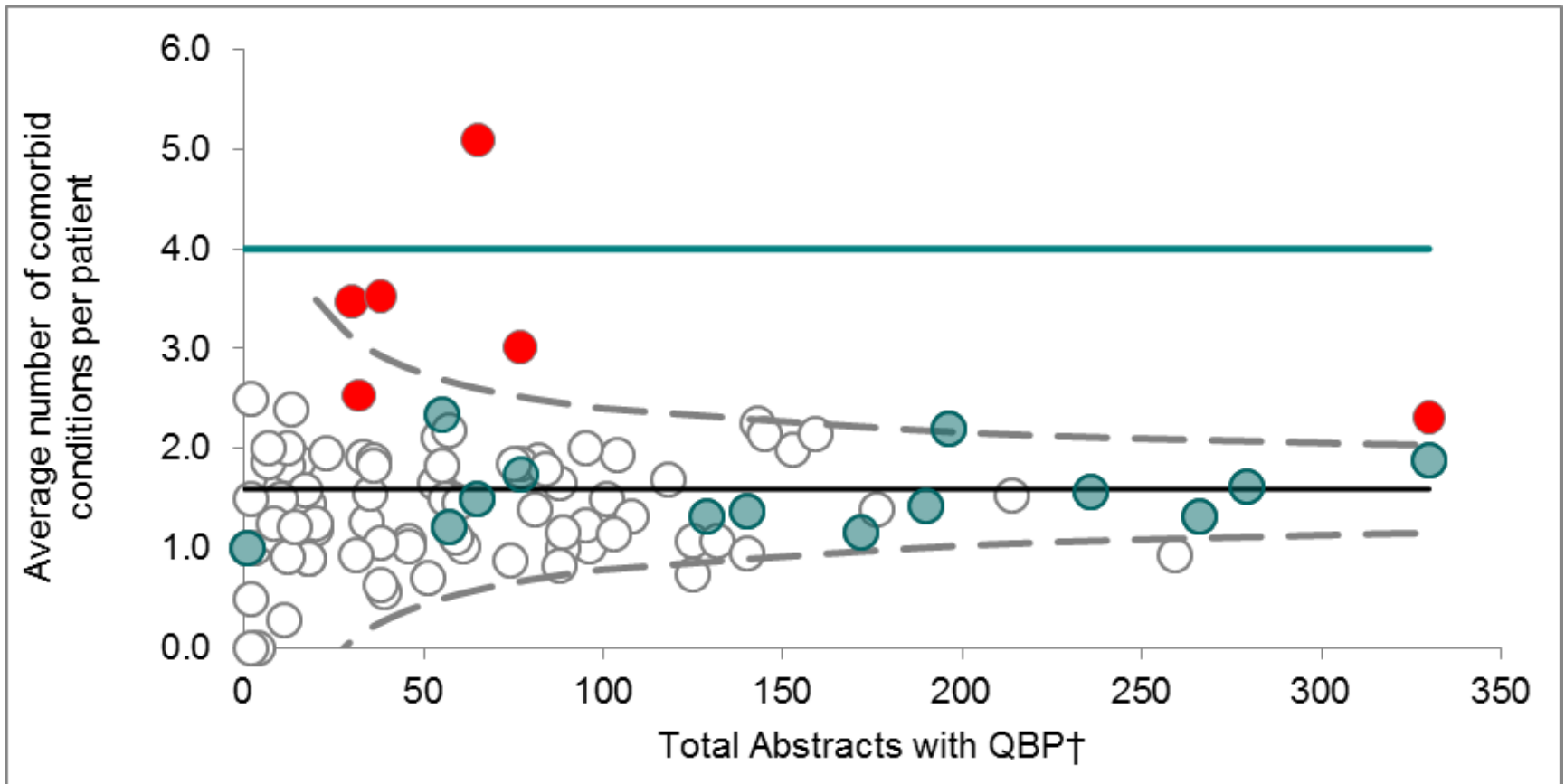
†Use the Forensics Filter to include or exclude Forensic Patient Type from the calculation of Availability of Date of Birth, Availability of Postal Code and Availability of Health Care Number. Please note that prior to 2010, submission of Patient Type was not mandatory for all assessment types.

Monitoring Key Clinical Data

Sector	Data Quality Indicator
Inpatient Acute Care (DAD)	Pre and Post-admit Comorbid Conditions
Emergency Departments, Day Surgery, Outpatient Clinics (NACRS)	MIS Functional Centre Reporting for Select Procedures
Inpatient Mental Health (OMHRS)	Days Away from Bed
Inpatient Complex Continuing Care, Long-Term Care (CCRS)	Relationship between Activities of Daily Living and Cognitive Performance
Inpatient Rehabilitation (NRS)	Comorbid Conditions

Identifying Outliers in Acute Care

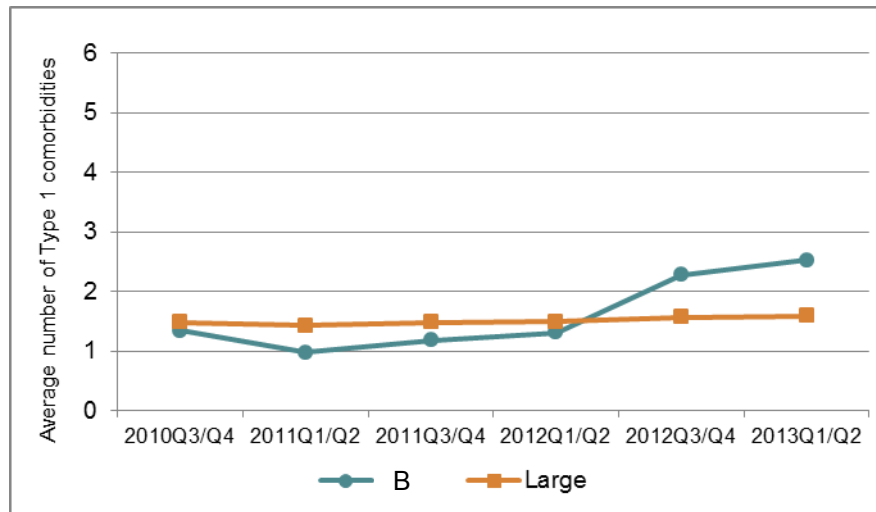
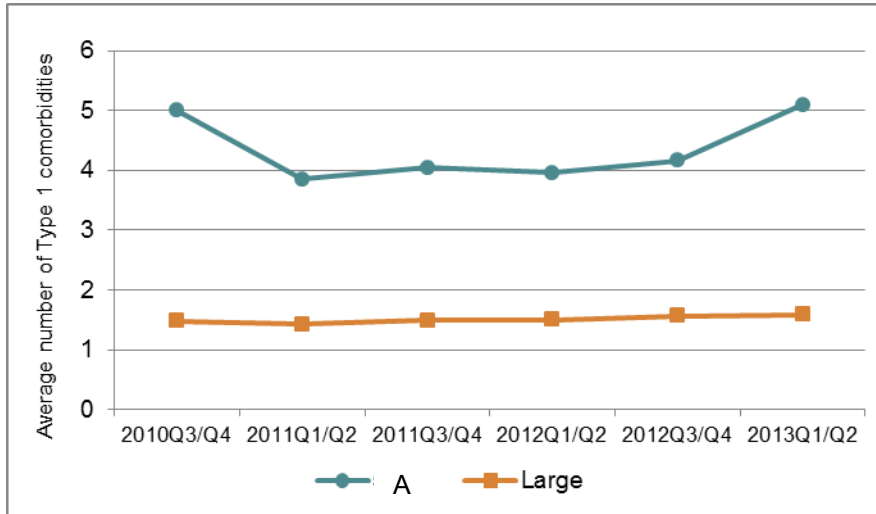
Average number of Type 1 comorbidities for Stroke Quality Based Procedure patients, Large Facilities, Ontario, 2013-2014 Q1/Q2



- Outlier hospital
- Community hospital (non-outlier)
- Teaching hospital (non-outlier)

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

Next Steps

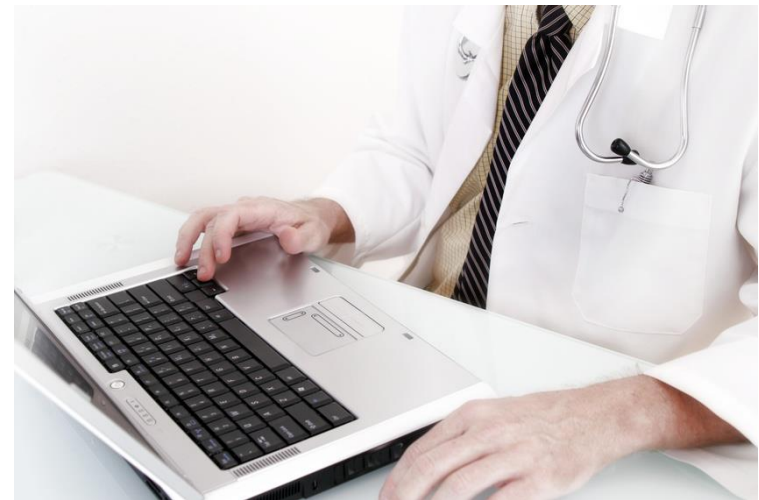
- Identified facilities with different coding
- Need to understand **why** they exist
 - Data quality issues
 - More accurate/complete coding
 - Real differences in patient populations
- Discuss results with ministry and facilities and develop appropriate strategies

Next Steps

- CIHI is also developing further analytical techniques to identify:
 - Changes in coding practices to maximize payment
 - Unfavourable changes in clinical practice (e.g. early discharge leading to more readmissions) that are reflected in data
- Currently exploring Ontario DAD data
 - Beyond QBP populations and comorbidities
 - Combining multiple indicators
 - Prioritization of results
- Application of techniques beyond Ontario and to other databases



Other Jurisdictional and Pan-Canadian Initiatives





Supporting B.C.'s Funding Initiative

- In 2012-2013 B.C. Ministry of Health contracted CIHI to conduct a DAD reabstraction study
 - 15 acute care hospitals
 - Only included patient populations included in PFF
- CIHI Classifications Specialists conducted the reabstraction
 - Provided initial feedback on findings while on site
 - Information/observations on processes/issues within the facilities that were affecting quality
- Provided information on where to focus data quality improvement initiatives
 - Incomplete documentation; application of coding standards

Overall good quality data – issues reflecting process problems identified



	RHA A				RHA B							RHA C			RHA D				RHA E		B.C. (weighted)
	1	2	3	All	4	5	6	7	8	9	All	10	11	All	12	13	14	All	15	All	
Intervention Coding																					
Percentage of DAD interventions not confirmed in the chart review	5.2	0	1.0	1.9	4.8	1.3	2.4	7.5	1.7	0	3.0	3.5	0	2.6	0.8	1.9	1.5	1.4	0.8	0.8	2.3
Percentage of interventions recorded in the chart review, not present in DAD	11.0	4.6	5.7	6.9	3.1	2.5	3.8	3.1	10.6	11.0	5.1	8.6	3.3	7.3	3.3	5.4	13.5	6.5	5.9	5.9	5.6
CCI Coding Consistency, up to rubric level	95.9	98.8	99.0	98.0	96.8	98.7	96.1	93.5	94.9	95.5	96.1	98.0	97.7	97.9	96.6	96.2	92.2	95.5	99.2	99.2	96.3
Diagnosis Coding																					
Percentage of DAD diagnoses not confirmed in the chart review	12.7	12.0	12.1	12.2	21.6	14.0	10.7	22.9	11.8	11.6	15.3	11.6	7.8	10.3	9.3	5.2	11.7	8.5	6.9	6.9	11.8
Percentage of diagnoses recorded in the chart review, not present in DAD	14.6	10.9	14.6	13.4	8.2	10.5	12.2	9.4	35.7	28.4	17.1	16.2	7.5	13.4	12.1	8.8	36.7	19.2	8.2	8.2	15.9
ICD-10-CA Coding Consistency, All Diagnoses: up to category level	96.7	95.7	95.6	96.0	94.1	95.5	96.2	94.1	95.4	94.8	95.1	95.8	96.3	96.0	96.6	96.4	95.8	96.4	97.1	97.1	94.8
ICD-10-CA Coding Consistency MRDx: up to category level	88.7	85.7	89.1	87.8	81.5	83.6	87.9	85.1	76.0	78.0	82.8	88.0	91.9	89.4	88.2	88.4	77.0	85.0	90.6	90.6	86.9
Diagnosis Typing																					
Consistency of typing MRDx	96.2	89.3	91.8	92.4	88.0	90.0	91.2	91.1	80.0	84.0	88.0	93.0	95.5	93.9	90.9	94.0	84.0	89.9	94.0	94.0	92.2
Consistency of typing Type 1 diagnoses	75.9	75.5	75.3	75.5	62.6	71.2	80.5	56.9	79.3	84.7	72.9	82.8	82.2	82.6	81.8	89.5	74.3	83.0	90.6	90.6	75.6
Consistency of typing Type 2 diagnoses	58.8	80.0	74.1	73.0	58.3	77.5	74.7	61.3	93.8	78.1	72.0	64.4	92.9	72.3	93.8	92.5	87.5	91.6	78.6	78.6	72.4
Case Mix																					
MCC agreement (weighted)	94.7	95.2	96.2	95.5	90.6	90.3	92.4	93.7	85.2	90.7	91.0	98.0	96.2	97.2	95.1	93.0	92.9	93.7	96.3	96.3	93.5
CMG agreement (weighted)	90.8	88.5	93.6	91.5	79.6	86.8	89.8	84.4	82.5	82.7	84.4	91.8	94.7	93.0	88.3	89.5	80.1	86.3	94.3	94.3	87.6
Percentage Net Change in Patient's Expected Length of Stay (weighted)	6.3	2.1	1.3	2.9	-5.7	0.5	2.9	-0.2	19.7	15.4	2.7	1.4	1.5	1.4	4.5	2.1	9.5	5.3	1.4	1.4	3.0
Percentage Net Change in Patient's Resource Intensity Weight (weighted)	9.7	1.3	-3.2	1.3	-2.3	0.5	0.9	1.7	14.7	6.9	1.8	4.8	1.2	3.5	-1.4	2.0	4.7	1.2	-0.8	-0.8	1.7
Alternate Level of Care (ALC)																					
Agreement Rate on ALC days	100.0	100.0	99.1	99.7	98.0	100.0	100.0	100.0	92.0	94.0	97.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.3
Sample Size																					
	106	112	110	328	200	110	215	101	100	100	826	200	111	311	110	116	100	326	117	117	1,908

Evaluating New Methods to Collect Emergency Department Data

- NACRS has multiple submission levels
- Level 2 reporting recently implemented in B.C.
 - Discharge diagnosis and presenting complaint
 - Designed to be captured at point of care using pick lists
- Evaluation project in Fall 2014
 - Chart review
 - Evaluate impact of different capture methods/systems
 - Understand process issues which may affect quality
 - Feedback on pick list

Improving Comorbidity Coding in Inpatient Rehabilitation (NRS)



- Primary focus of NRS: functional measures
- Little attention paid to diagnosis information
 - NRS case mix methodology does not adjust for comorbidities, even though it is known they impact resource use
 - Inconsistency in how facilities capture comorbidities
 - Quality needs to improve before case mix methodology could be changed
- Pan-Canadian improvement initiative
 - Monitoring reports
 - Data standards, collection mechanisms, education



Improving the Continuing Care Reporting System (CCRS)

- CCRS has received data from residential care and hospital facilities since 2003
- New training and client support program
 - Supports clinicians using the RAI-MDS 2.0 assessment for clinical decision making and care planning
 - Organizational use of data
- Redeveloped CIHI system
 - Improved data quality checking and reporting
 - Enhanced eReports
 - Internal efficiencies will improve team's ability to support clients

Conclusions

- High quality data is required for evidence-based decisions: for funding, quality improvement, policy or clinical care
- 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





Thank you

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