What You Need To Know About Your eHealth Solutions: Achieving Care Delivery and Health System Use Benefits

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20 YEARS • ANS 1994 • 2014

Canadian Institute for Health Information
Institut canadien d'information sur la santé

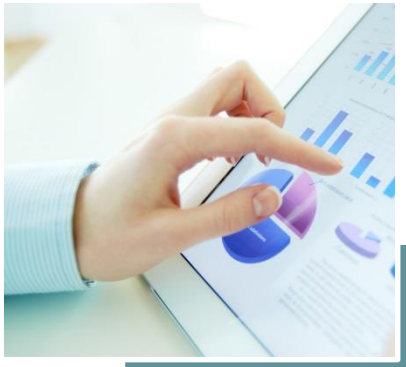
Panel Presentation Outline

- Background and changing environment
- CIHI's multi-pronged data supply strategy
- Reducing the data collection burden
- Open discussion

Key Messages

- Health care and eHealth are evolving
- Opportunities & risks to the data supply
- CIHI is pursuing opportunities with others to enhance the data supply by leveraging investments made in EHR/CIS initiatives
- Approach:
  - Benefits demonstration projects with health care organizations and vendors
  - Reducing the data collection burden
  - Promoting use of content standards

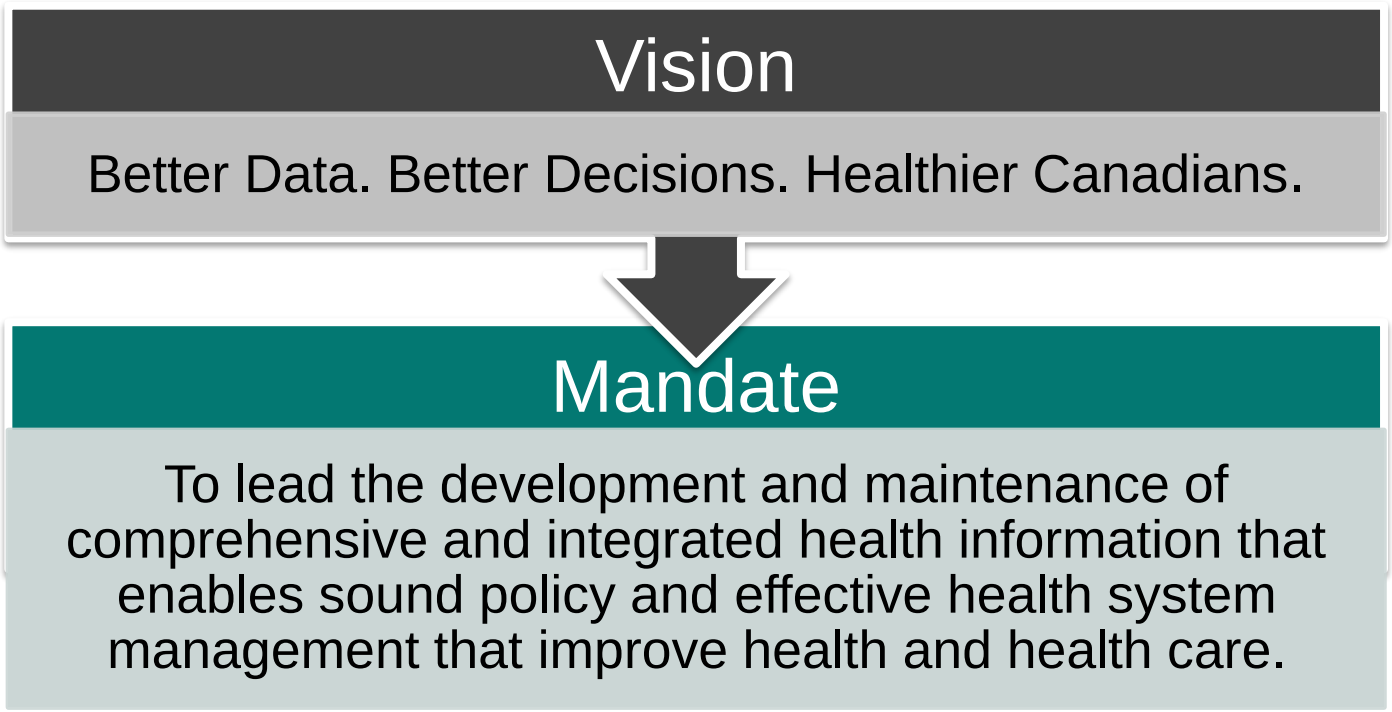
Who We Are



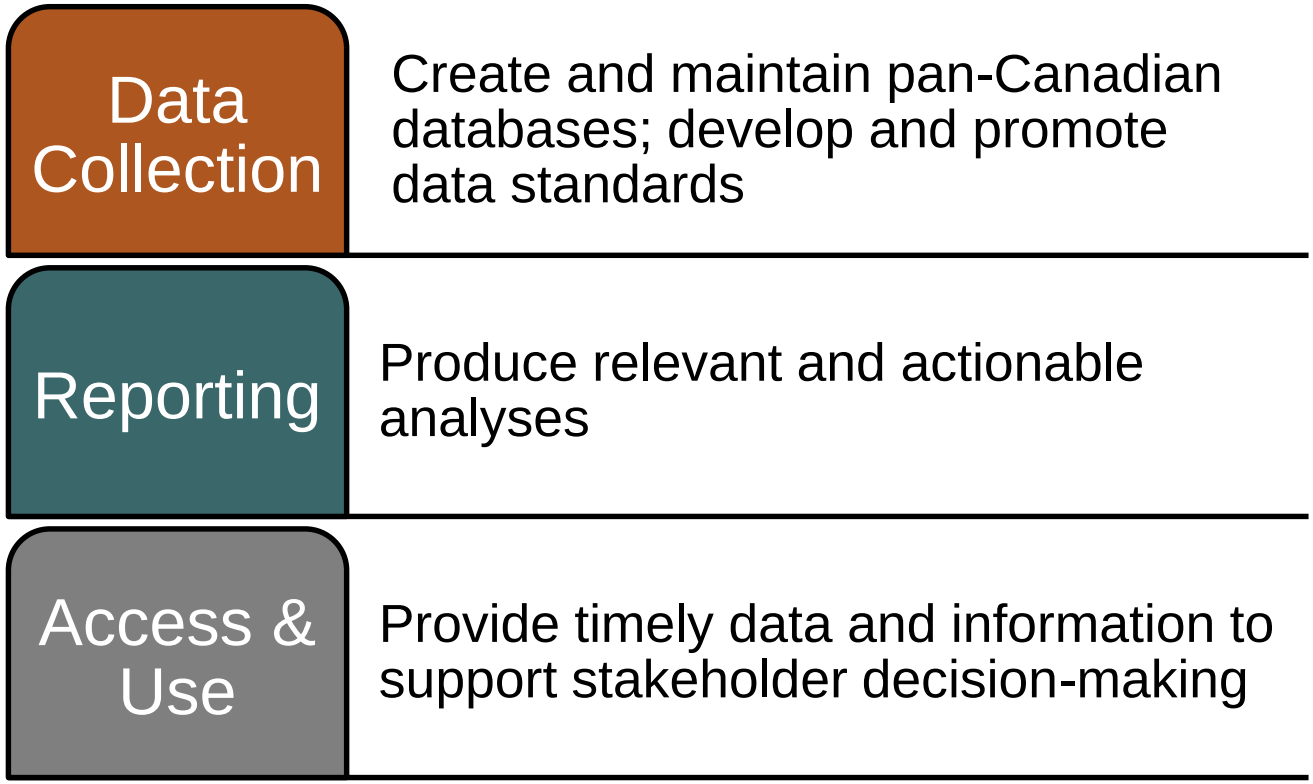
Canadian Institute for Health Information (CIHI)

- Established in 1994
- Pan-Canadian, independent, not-for-profit
- Provides unbiased, credible and comparable information on Canada`s health system and the health of Canadians
- Funded by the federal (~80%) and provincial/territorial governments (~20%)

CIHI's Vision & Mandate



CIHI's Role in Acute and Ambulatory Data



Acute and Ambulatory Care Information Services

National Ambulatory Care Reporting System (NACRS):

- ✓ Emergency Departments (EDs)
- ✓ Outpatient clinics (hospital and community)
- ✓ Day Surgery (in addition to DAD)

Discharge Abstract Database (DAD):

- ✓ Inpatient discharges
- ✓ Day Surgery (some provinces)

Multiple Clinical Registries, PREMS & PROMs

CIHI's Data Supply: Background

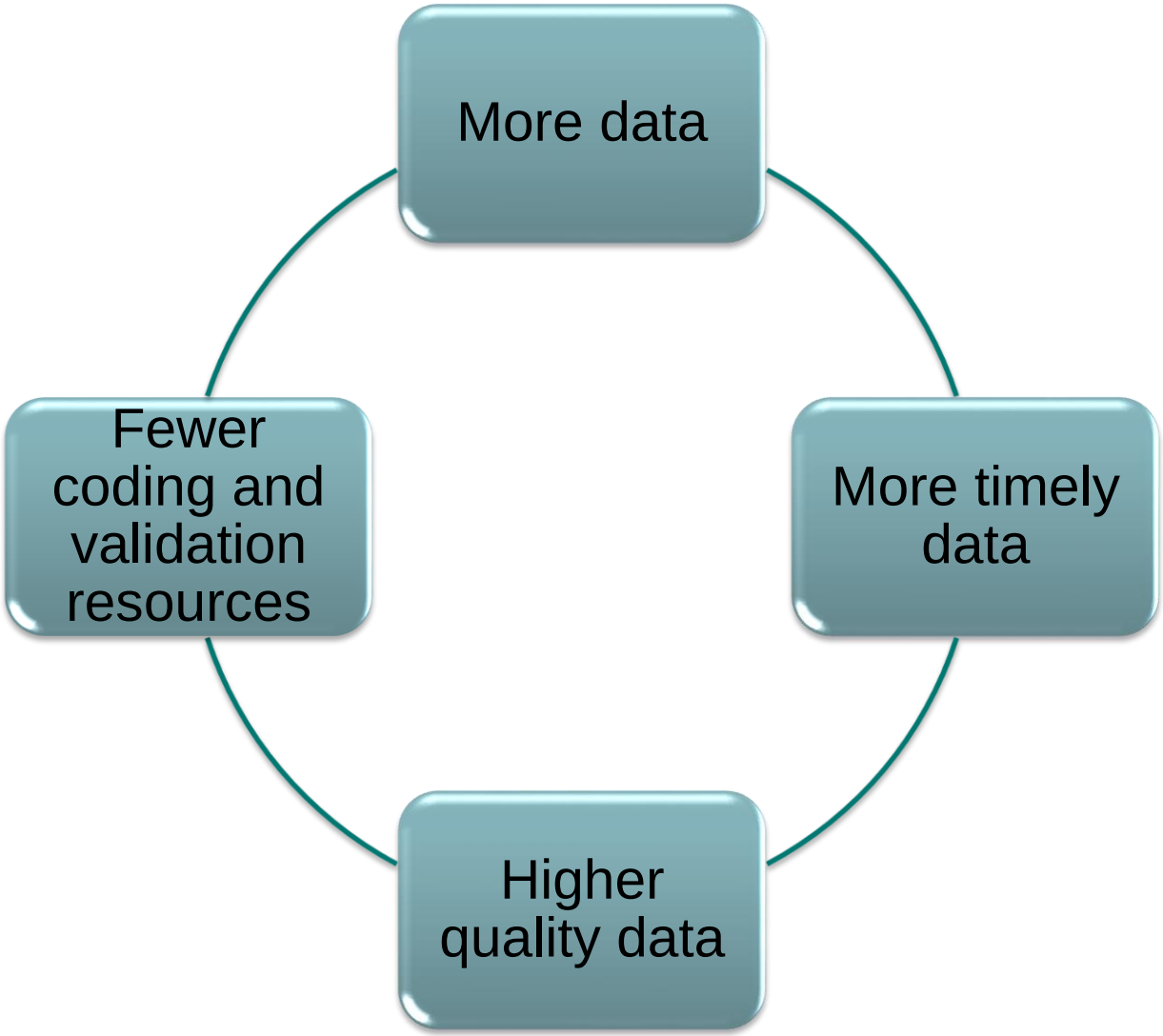
- Over the past 20 years, CIHI has become an integral part of the Canadian health care landscape by harnessing the power of data and information for comparative reporting
- We are secondary users of data, focused on supporting health system management and health policy (not direct patient care)
- CIHI's acute and ambulatory care data holdings (DAD and NACRS) provide essential data for CIHI's top-tier customers and priority programs
- Significant changes are occurring in acute and ambulatory care delivery: move to community-based care

CIHI's Data Supply: Strategic Objectives

Maintain and grow current data supply in priority areas:

- Maintain provincial and territorial mandating of data supply
- Collect new data in priority areas
- More efficient data acquisition
- Reduce data collection effort/burden
- Take a flexible, nimble and responsive approach

CIHI's Data Supply: Benefits Framework



eHealth Advancements

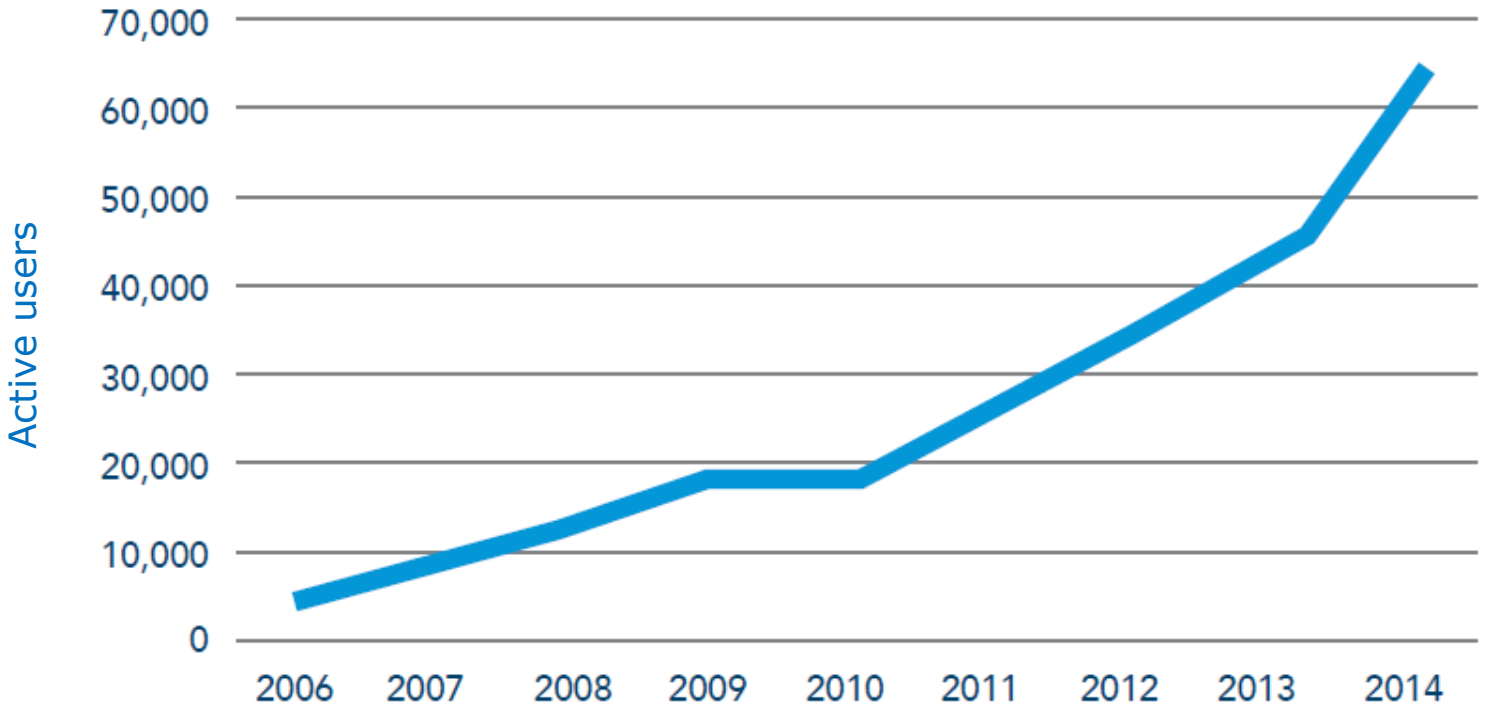
Hospital Information System and Integration Vendors

- Dramatically increasing importance and influence as EHR systems and integrations build momentum
- Need to support direct HIS and EHR data feeds to CIHI that match the scope, content and quality of current submissions and also lead to expanded data sources

Abstracting and Coding Health Records Vendors

- Currently dominates CIHI Vendor Activity
- Should decline as EHR and direct HIS options increase
- May always have a place, but want to focus on the right subset of data that needs coding / interpretation

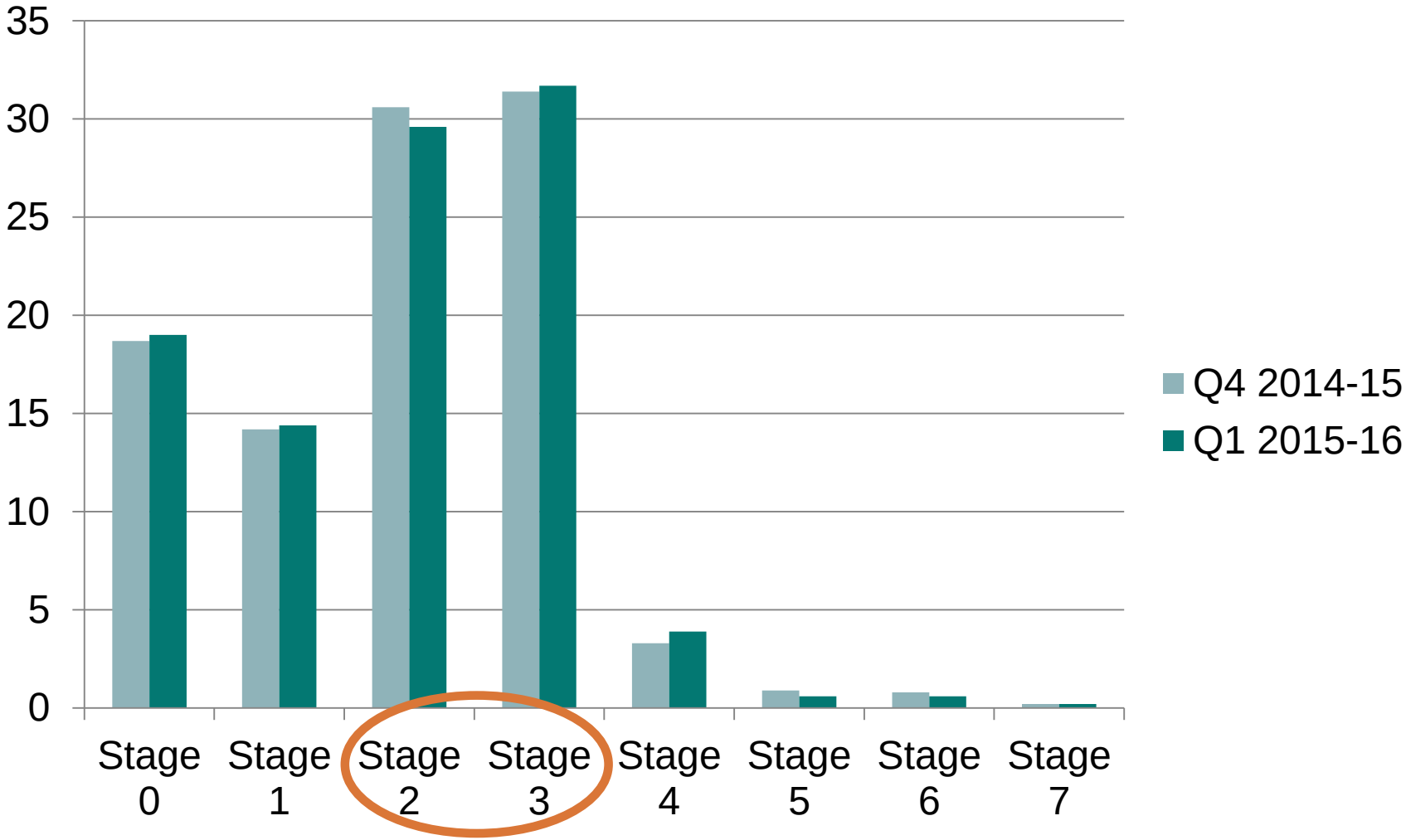
EHR Use in Canada



This graph shows the number of active users with access to two or more integrated provincial data assets (e.g., lab information system, drug information system, diagnostic imaging repository). Active users are health care professionals who have accessed the system a minimum of one time per month or three times per quarter. This graph does not include the number of users of individual data assets that are not integrated with other systems.

Source: Canada Health Infoway, Annual Report 2013-2014

HIMSS Analytics Electronic Medical Record Adoption Model Trends



Source: HIMSS Analytics(R) Database 2015

Stages of HIMSS Analytics Electronic Medical Record Adoption Model

Stage 7	Knowledge driven engagement for a dynamic, multi-vendor, multi-organizational interconnected healthcare delivery model. *Medical record fully electronic; able to contribute Continuity of Care Document as byproduct of EMR; data warehousing in use.*
Stage 6	Closed loop care coordination across care team members. *Physician documentation (structured templates), full CDSS (variance and compliance), full R-PACS.*
Stage 5	Community-wide patient record using applied information with patient engagement focus. *Closed loop medication administration.*
Stage 4	Care coordination based on actionable data using a sematic interoperable patient record. *CPOE, CDSS (clinical protocols).*
Stage 3	Normalized patient record using structural interoperability. *Clinical documentation (flow sheets), CDSS (error checking), PACS available outside radiology.*
Stage 2	Patient-centered clinical data using basic system-to-system exchange. *Clinical Data Repository, Controlled Medical Vocabulary, Clinical Decision Support System inference engine, may have document imaging, HIE capable.*
Stage 1	Basic peer-to-peer data exchange. *Ancillaries - lab, rad, pharmacy - all installed.*
Stage 0	Limited to no e-communication. *All three ancillaries not installed.*

Source: HIMSS Analytics,2015

CIHI's Data Supply: Emerging Trends

Observations:

- Small group of vendors with multiple implementations
- Often augmented and integrated with in-house software development by hospital IT staff and specialized point of care systems (EDIS, etc.)
- Integrated with different vendor modules for decision support and health records.

CIHI's Data Supply: Collaboration

- CIHI will increasingly rely on vendors with clinical/point of service systems and integration services for its data supply, gradually replacing "built for CIHI data submission" vendor software.

- CIHI is actively seeking collaboration & demonstration projects to increase value and benefits of alternate data collection channels.

CIHI Stakeholder Consultation: Winter 2015

Goal: to identify options and new tools to streamline/ minimize coding and collection burden for DAD and NACRS while ensuring data is useful and fit for use.

Findings:

- Extensive use of DAD and NACRS data.
- Data users want full specificity of ICD-10-CA/CCI.
- Short-term:
  - Electronic templates to allow coders to edit pre-populated data instead of entering from scratch.
  - Pick-list development for routine, high-volume interventions to reduce data collection burden.
- Long-term: Capturing data close to the source viewed as eventually reducing coding burden

Current State Schematic

Registration

ADT System

CIS/EDIS

Receive care

Visit Disposition

Diagnostic Imaging

Paper chart

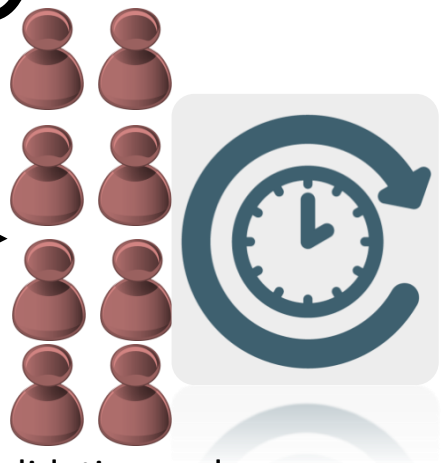
Labs

Pharmacy

Abstracting System

NACRS

DAD



Validation and Manual Coding

Future State Schematic

Registration

Receive care

ADT System

Pharmacy

CDR

Labs

Paper chart

PACS

Local EHR/HIS

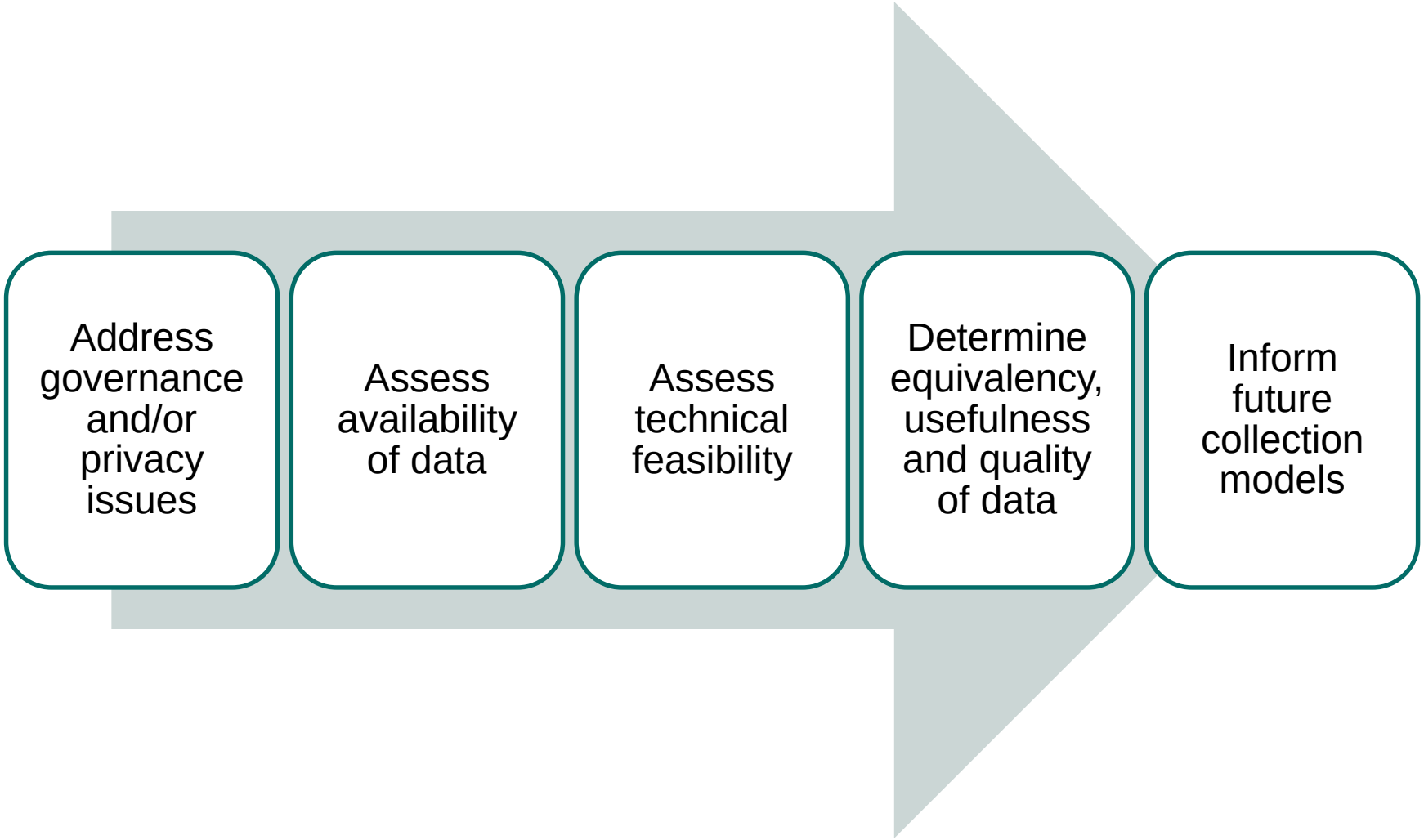
DAD/NACRS Abstracting System

Validation and Manual Coding

DAD

NACRS

How Will We Get There?



What is Our Progress to Date?

- ✓ Built awareness among health care leaders about the continued usefulness and relevance of health system use and CIHI's data standards.
- ✓ Vendor engagement to build awareness of importance of incorporating CIHI data content standards in point of service systems to "collect once, use many".
- ✓ Monitored eHealth progress in jurisdictions/health care delivery organizations.
- ✓ Identified and reached out to early leaders to collaborate and demonstrate benefits realization in proactive planning for health system use data collection purposes concurrent with EHR/CIS implementations.

Progress to Date Cont'd.

- ✓ Significant progress has been made in information exchange and positive movement towards a partnership.
- ✓ Two first wave partners remain in active discussion with CIHI in the planning and agreement stage with data exchange targeted for Summer/Fall 2015.
- ✓ CIHI is fine-tuning data exchange and administrative logistics to progress these pilots.

Pilot Projects

What are they?

- Collaboration with early adopters to demonstrate new collection and submission channels which leverage data already captured at the point of care in electronic health record (EHR) systems.

What are the goals?

- Demonstrate feasibility of alternate data collection channels.
- Demonstrate reduced data collection burden.
- Inform and influence incorporation of health system use data standards in source EHR systems.
- Leverage existing investments in EHR systems.

What is the approach?

- Target early EHR adopters that understand the value of data reporting for health system management, and that are at the optimal phase of EHR implementation.
- Develop a project chart to outline scope, goals and major deliverables.
- Obtain data extract and complete gap assessment.

Two Potential Data Streams for Demonstration Projects

Inpatient Data Via DAD Lite

- An early/partial inpatient discharge record derived from an eHealth solution;
- A record created before HIM coding is required
- 18 mandatory data elements vs. 80
- Provide early, comparative data for service planning and delivery as well as identification of anomalies

Ambulatory Data Via NACRS Lite

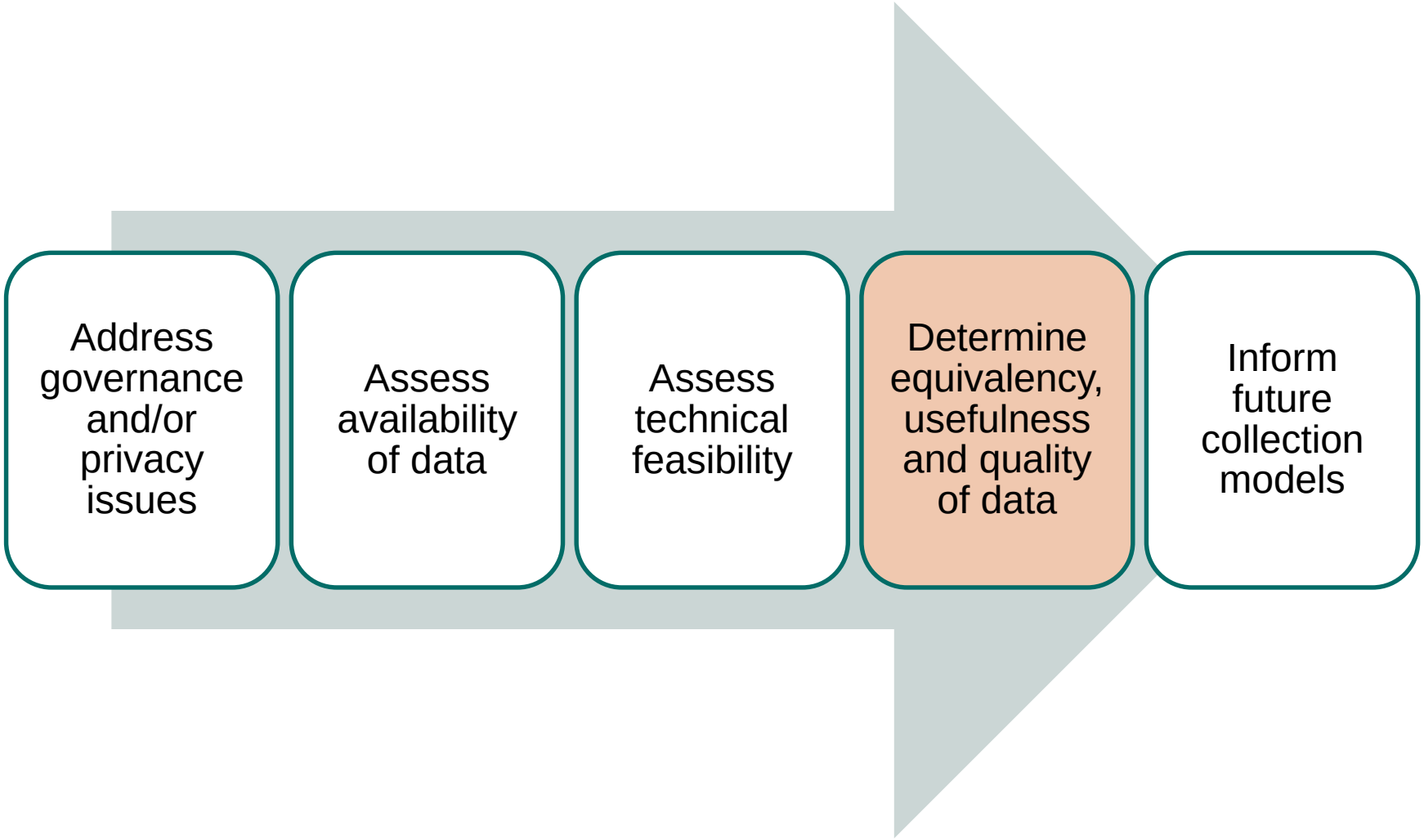
- Lite version of current NACRS clinic option
- 17 mandatory data elements vs. 51
- Basic data on patient, service provided/for what reason, provider
- Leverages available digitized data; alternate rudimentary data collection option
- Adds patient level dimension to aggregate statistics for decision-making/accountability.

Demonstration/Collaboration Pilots Status

Strategy/Activities	Status
New Data Stream: Early/Partial DAD • Inpatient record derived from EHR/POC • 18 mandatory data elements for early record submission • Full record (received later; 80 mandatory data elements) contains HIM coded data • Early/Partial DAD reduces data collection burden; data received sooner	• Completed: DAD Early/Partial Submission Content and Process • Completed: Overlap/gap assessment with cGTA CDR Input Specification • Ready for assessment/validation by demonstration/ pilot site(s)

Recruit Collaboration Sites for Demos/Pilots
• EHR ready organizations to pilot alternate data collection streams:
  • Validate/refine EHR sourcing assumptions
  • Inform future collection models
  • Assess availability of data
  • Influence EHR implementations
  • Address governance/privacy
  • Assess technical feasibility
  • Evaluate data equivalency, usefulness and quality
	• Outreach/initial meetings:
	  • Humber River
	  • cGTA/select GTA sites
	  • London HSC; other cSWO sites
	  • BC Lower Mainland & Island
	• In progress:
	  • Island Health project scoping
	  • NYGH project scoping
	• Planned:
	  • Lower BC Mainland outreach
	  • Outreach to EHR ready sites in other provinces

How Will We Get There?



Assessing the quality of data captured using Emergency Department pick lists

- Overview of Emergency Department pick lists
- Findings from recent data validation study
- Observations to inform support tools and future implementations

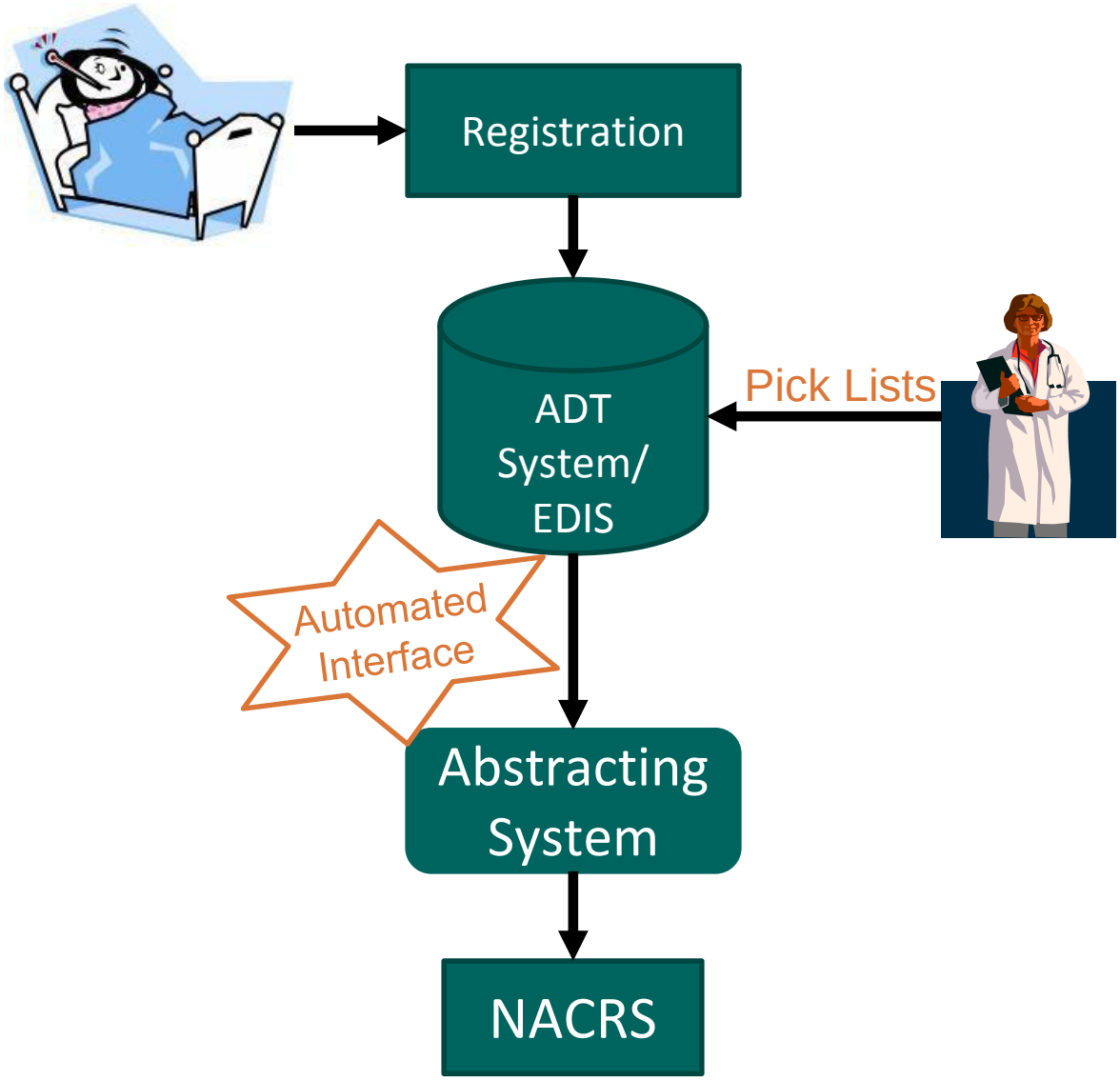
CIHI Emergency Department Pick Lists

Developed by the Canadian Association of Emergency Physicians

Presenting Compliant List	Discharge Diagnosis List
• 165 common patient complaints in the ED (e.g. cough/congestion) • Complaints grouped in categories, assigned a 3-digit number • Captured by ED nurse at triage	• 845 diagnostic conditions • 35% Injury related concepts • Canadian Approved Standard (CAS) for Reporting ED Discharge Diagnosis and Health System Use • 919 clinician-friendly terms mapped to ICD-10-CA • Captured by ED clinician at discharge

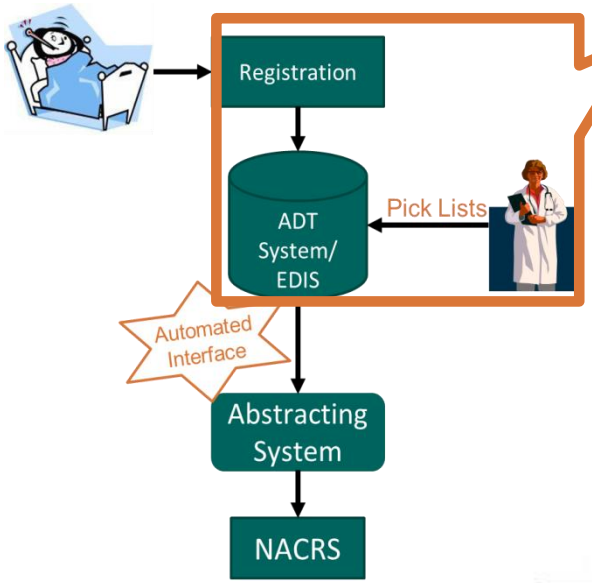
Data submitted to NACRS without manual coding or abstracting

Pick Lists: Current State



Pick Lists: In Depth

Template: electronic form for the capture of specific data elements for a diagnosis



Field-Level Pick-List: User-friendly display names linked to coded values

ICD-10-CA Code	Display Name
J4590	Asthma
J209	Bronchitis, acute
J050	Croup
J118	Influenza
J189	Pneumonia

Field-level Reference Set: subset of valid codes and associated synonyms for a given data element

NACRS Data Review Project
Objectives & Approach

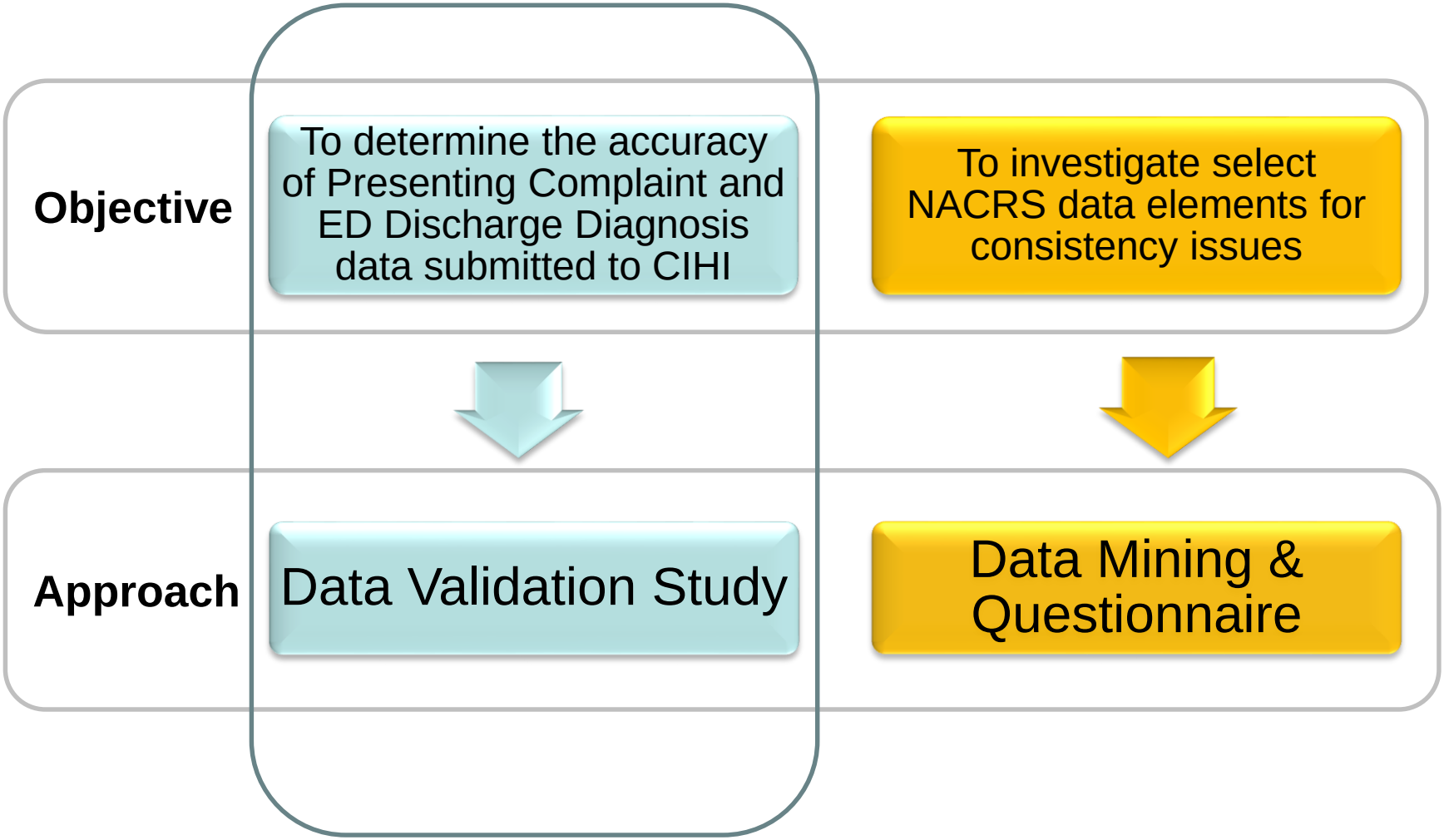
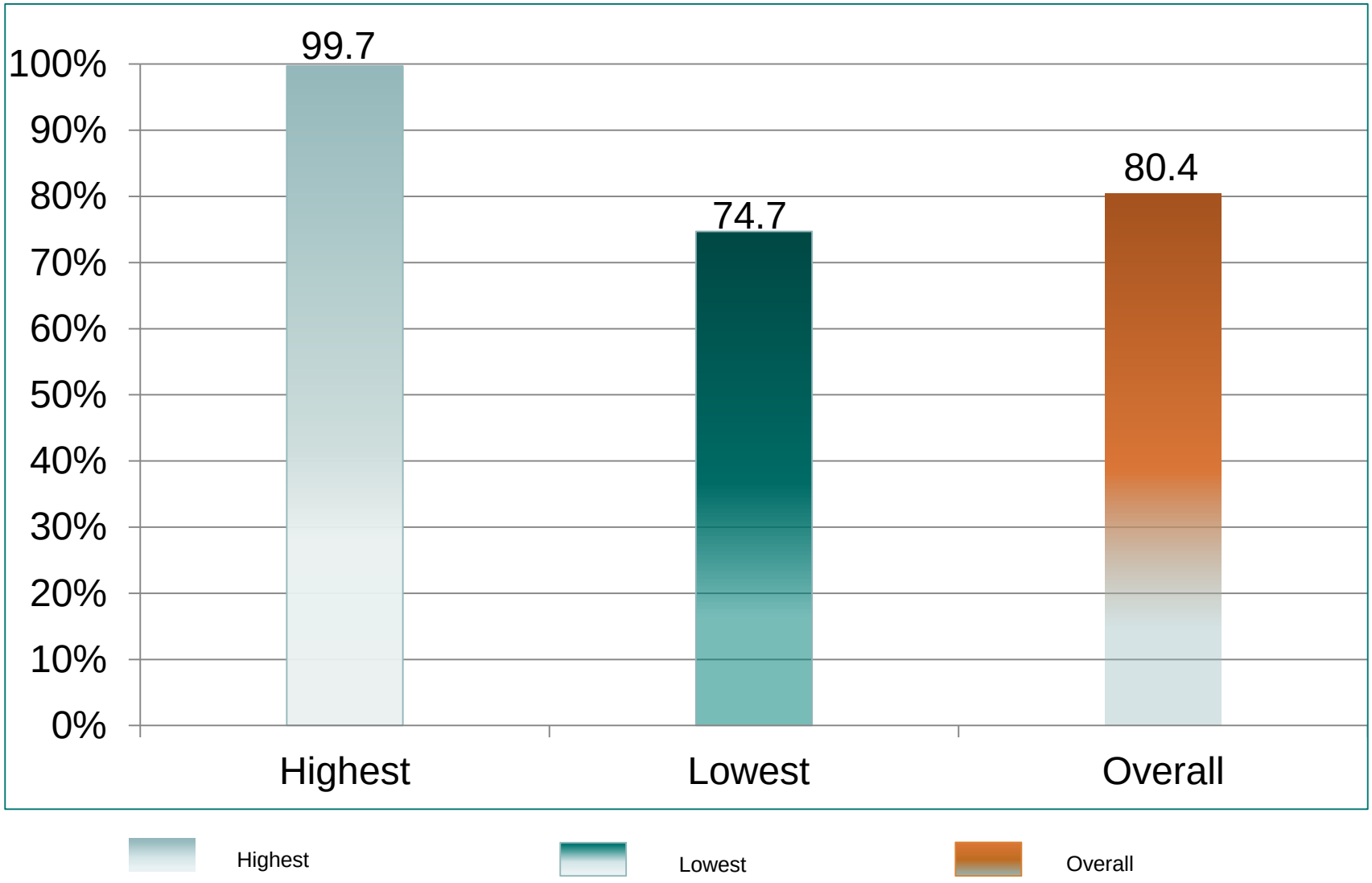


Chart review: Conducted to validate data collected using pick lists.

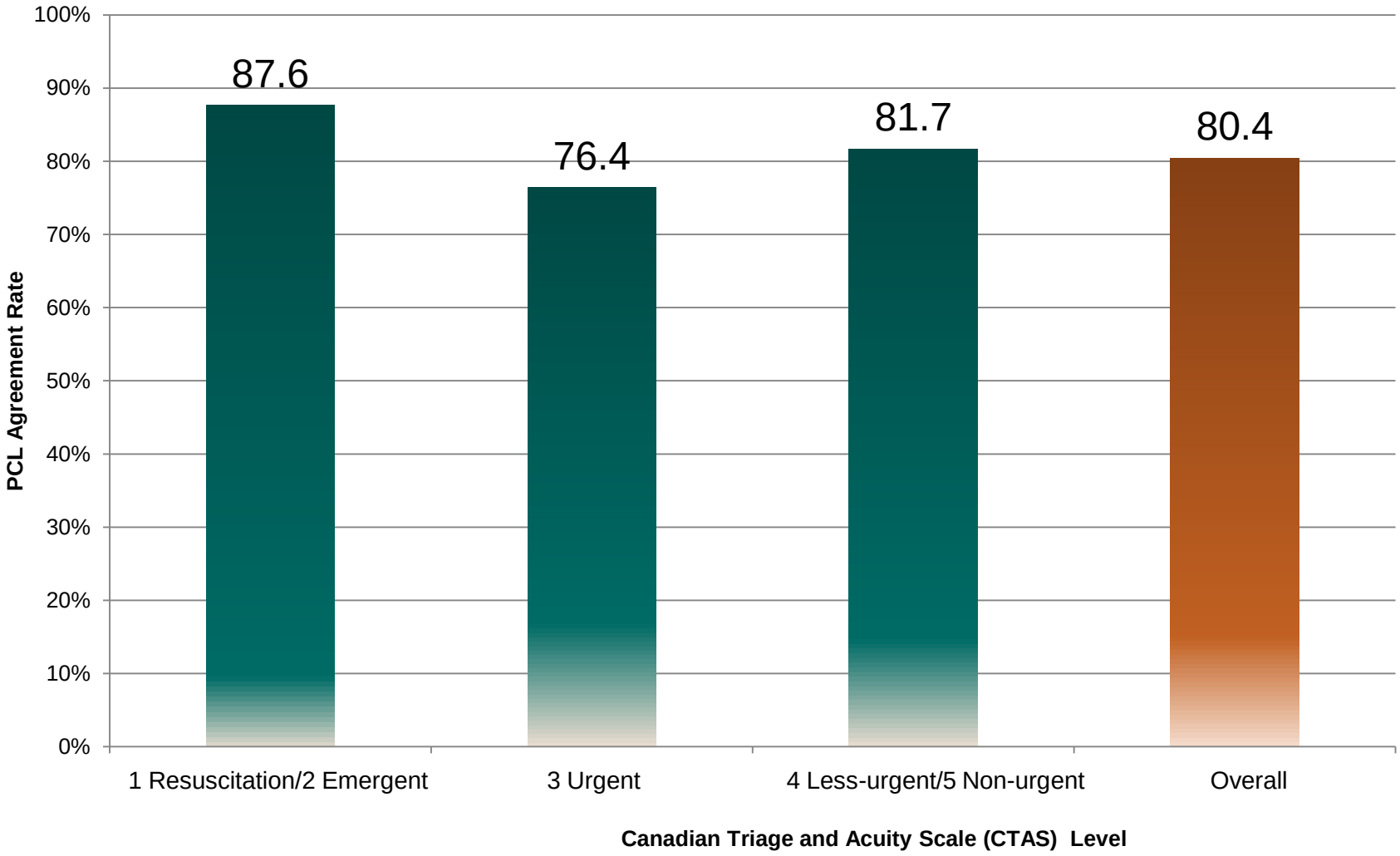
- 1,753 records reviewed from fiscal year 2013-14
- Questionnaire to participating facilities to understand data capture process
- CIHI Classification Specialists selected presenting complaint and ED discharge diagnosis from pick lists based on chart documentation then compared to data submitted to NACRS.

Agreement Rates for Presenting Complaint

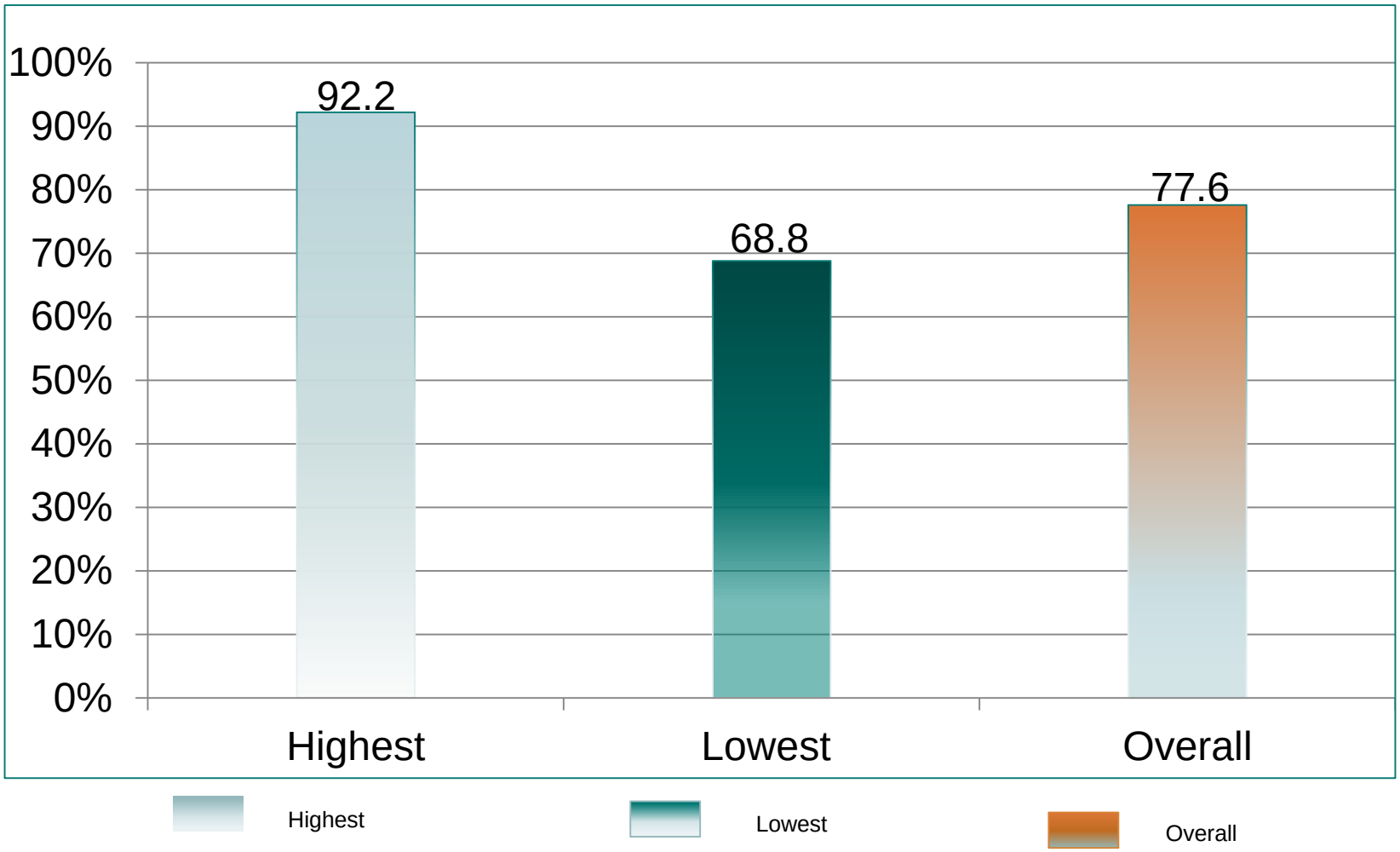


Agreement Rates for Facilities

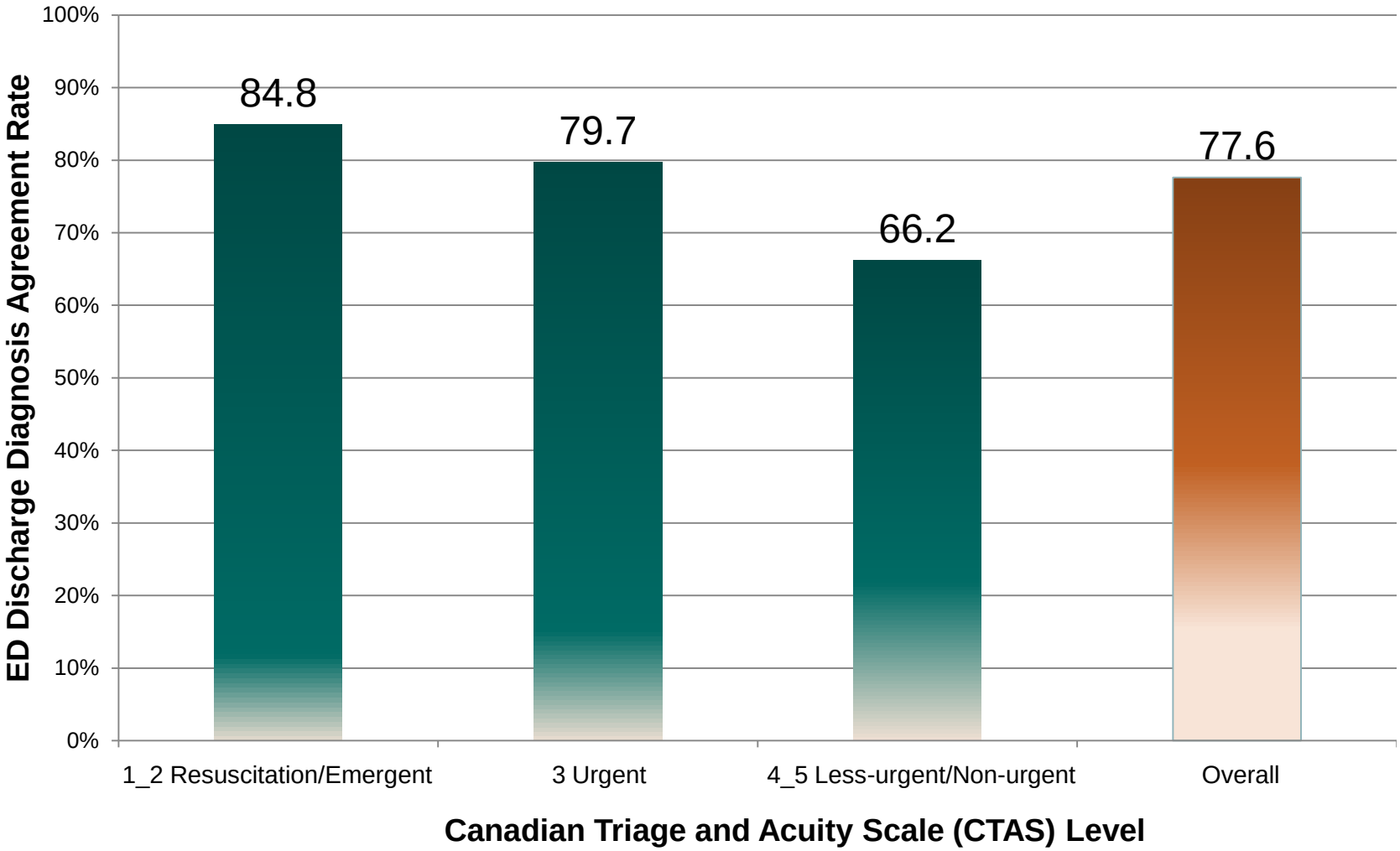
Presenting Complaint Agreement Rate by CTAS Level



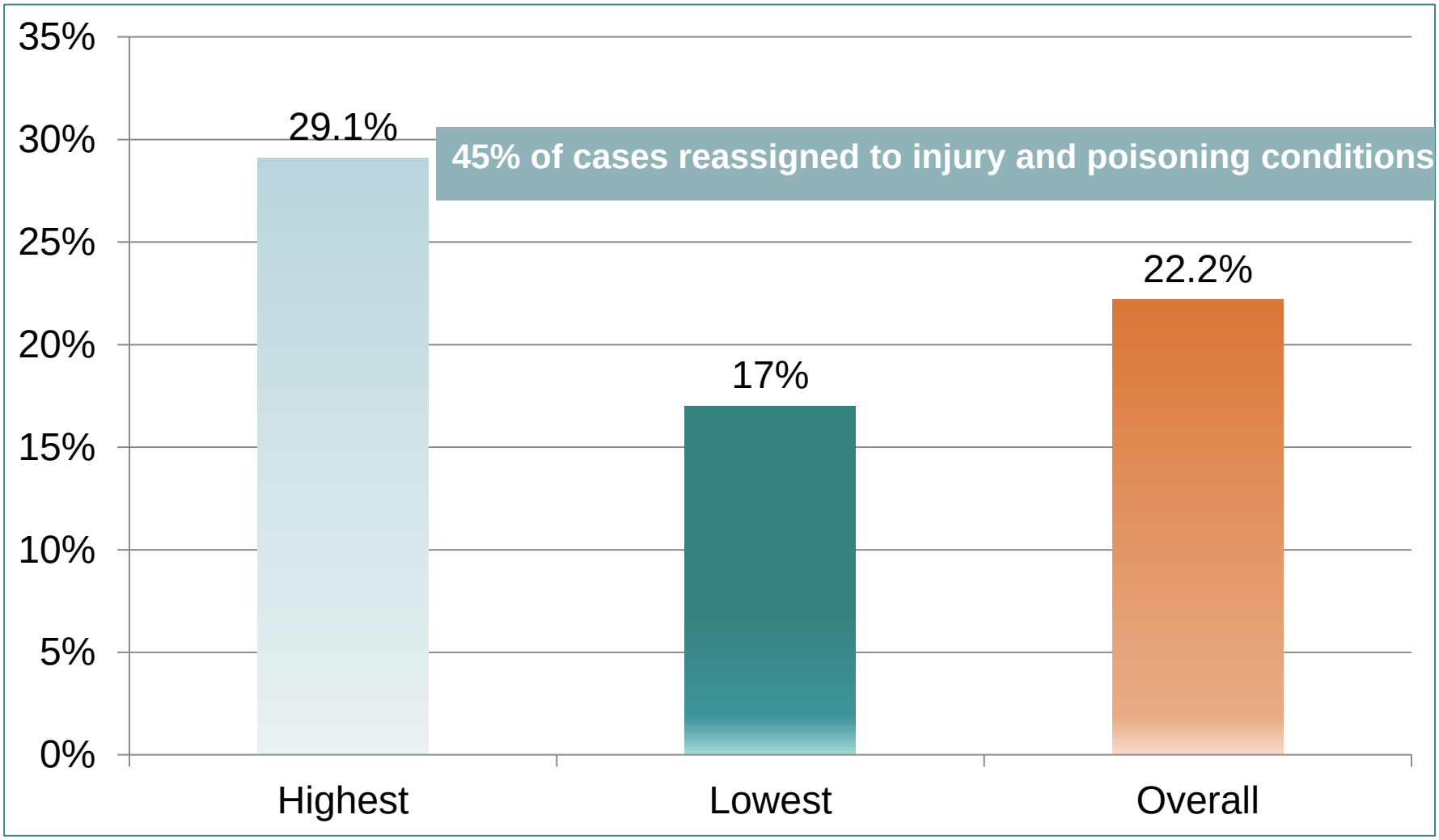
Agreement Rates for ED Discharge Diagnosis



ED Discharge Diagnosis Agreement Rate by CTAS Level



Agreement Rates for cases reported as Diagnosis Not on the List (R690)



Validation Study Observations

Pick list implementation approaches appear to influence the quality of the data

- Higher agreement rates in facilities with:
  - Electronic term search
  - Physician and ED clinician data capture

Approaches to use of clerical staff to capture discharge diagnosis varied

- In facilities utilizing clerical staff, higher agreement rates were seen when tools were available to assist in finding synonyms or correct code.

Local mapping of terms

- Variation in terms used across regions and facilities
- Vendor solutions introduced challenges with using CIHI common terms and codes

For the most part there were high agreement rates, with opportunities to improve

- Implementation guidance to inform use of pick lists
- Vendor engagement to provide implementation support
- Training and tools for selection of:
  - - R69 Diagnosis not on the list
  - - Other medical care
- Emphasis on searching common terms and not ICD code titles

CIHI's 2015-2016 Plan

- Provide alternative data collection options for automated, more timely, efficient information that is useful/fit for use.
- Collaborate on demonstration projects, and assess feasibility and benefits.
- Continue to influence both vendors and jurisdictions to adhere to Content Standards within Health Information Solutions to support data submission to DAD & NACRS.
- Work with CIHI data suppliers on shared and efficient vendor functionality procurement strategies.
- Publish and disseminate success stories.

Planned Engagement Approach

Influencers

- Obtain support for embedding CIHI standards into point-of-service systems
- Identify emerging opportunities

Partners

- Collaborate on emerging opportunities
- Build awareness about the importance of “collect once, use many”

Clients

- Build awareness about the benefits of “collect once, use many”
- Participate in demonstration projects and collaborate on HIS implementation projects

Key Messages

- Health care and eHealth are evolving
- Opportunities & risks to the data supply
- CIHI is pursuing opportunities with others to enhance the data supply by leveraging investments made in EHR/CIS initiatives
- Approach:
  - Benefits demonstration projects with health care organizations and vendors
  - Reducing the data collection burden (e.g., through automation & pick lists)
  - Promoting use of content standards

Discussion Questions

- Are the trends that we identified today what you are seeing and hearing?

- Considering the rapid changes in the environment, which emerging opportunities do you think have the most potential for transforming the health care system?

- Are there suggestions for collaboration?

Thank You & Contact Information

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