



Nursing Data Standards: Landscape and Directions in Canada

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A bit of history...

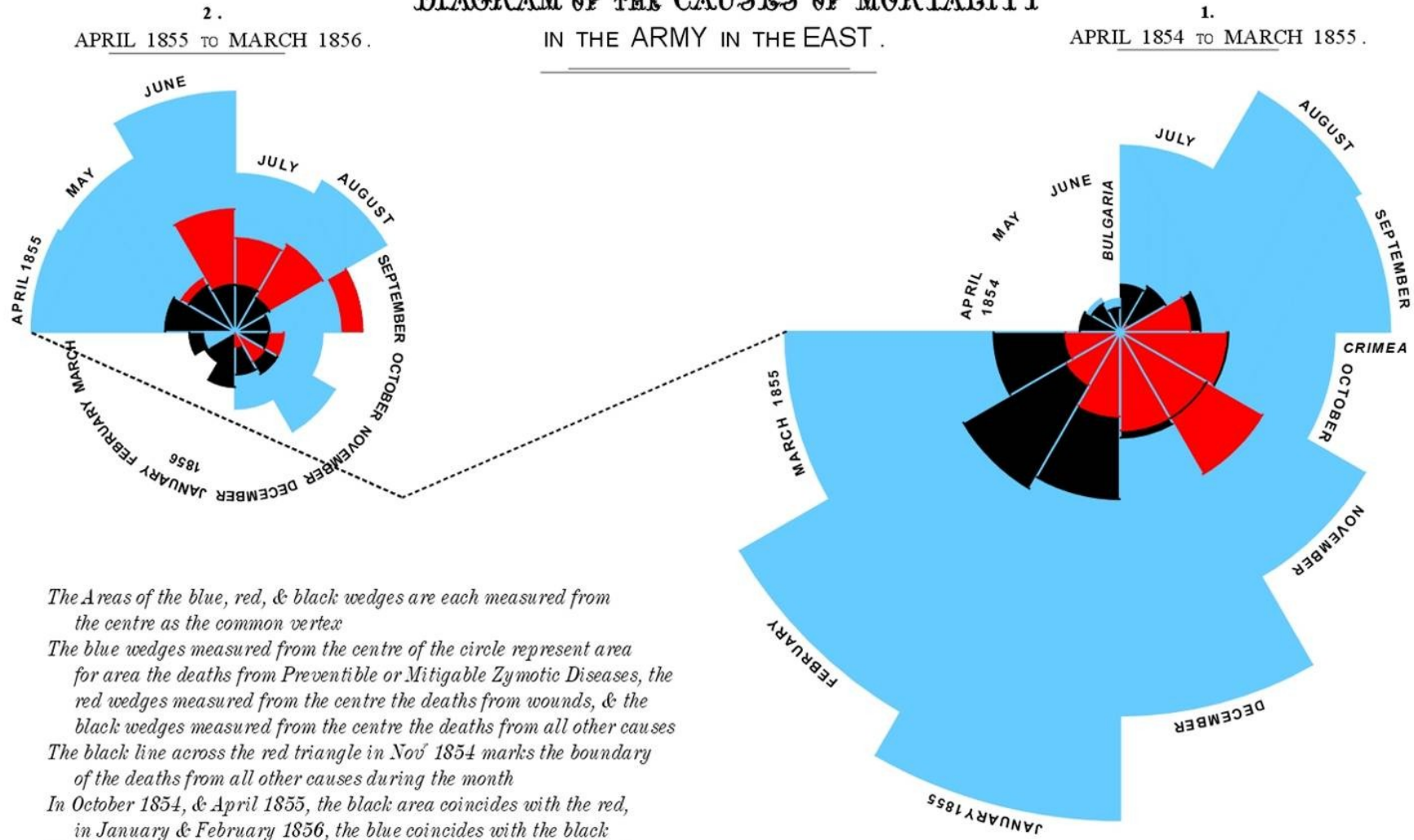
“In attempting to arrive at the truth, I have applied everywhere for information, but in scarcely an instance have I been able to obtain hospital records fit for any purpose of comparison...”

Nightingale, 1863. Notes on Hospitals





DIAGRAM OF THE CAUSES OF MORTALITY IN THE ARMY IN THE EAST.



The Areas of the blue, red, & black wedges are each measured from the centre as the common vertex

The blue wedges measured from the centre of the circle represent area for area the deaths from Preventible or Mitigable Zymotic Diseases, the red wedges measured from the centre the deaths from wounds, & the black wedges measured from the centre the deaths from all other causes

The black line across the red triangle in Nov^r 1854 marks the boundary of the deaths from all other causes during the month

In October 1854, & April 1855, the black area coincides with the red, in January & February 1856, the blue coincides with the black

The entire areas may be compared by following the blue, the red & the black lines enclosing them

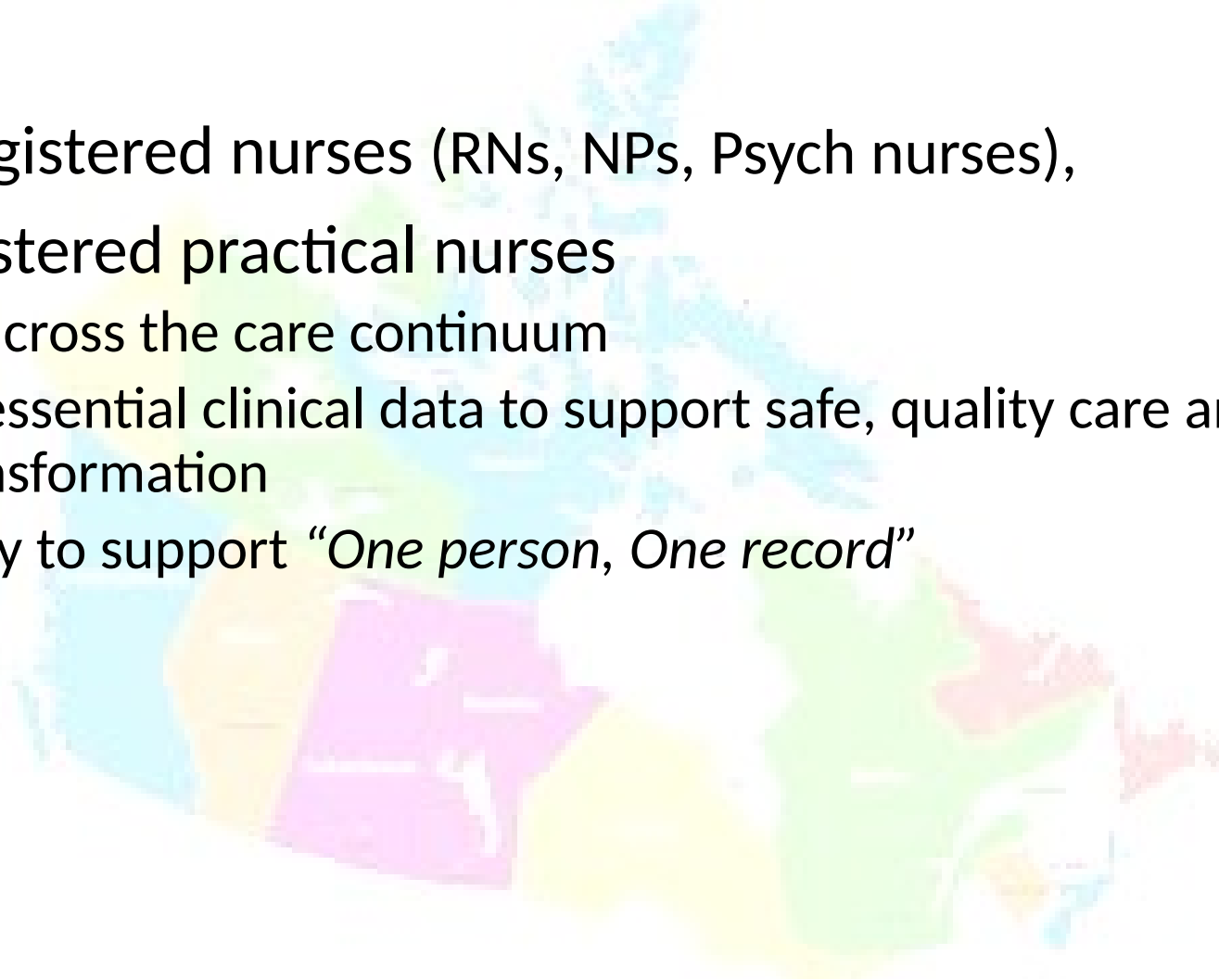
**"If we cannot name it...
we cannot control it, finance it,
teach it, research it or put it into
public policy"**

(Clark and Lang, 1992, p. 109)

Clark, J., and Lang, N. Nursing's next advance: An international classification for nursing practice. *International Journal of Nursing* 1992;39(4):102-112, 128

Nursing in Canada

- > 300,000 registered nurses (RNs, NPs, Psych nurses),
- 120,000 registered practical nurses
 - Practicing across the care continuum
 - Collecting essential clinical data to support safe, quality care and health system transformation
 - Opportunity to support “*One person, One record*”



Advancing an Essential Clinical Data Set in Canada

The use of evidence-based clinical data standards ensures the collection of consistent, comparable clinical information from patients. Standardized data provides value to patients, clinicians and administrators and helps improve the health-care system. Standardized clinical data can support accountability by providing information that highlights effective care and reveals opportunities for improvement.

'Data rich but information poor'

Consistent data is required because "if we cannot name it, we cannot control it, finance it, teach it, research it or put it into public policy."¹

Data gathering process

- **Over 2.7 million patients admitted to acute care every year**
- **200 data items assessed on average for each admission**
- **40-60 minutes per admission spent by nurses collecting data**

According to one study,² only about 25% of this data is useful. We can do better.

use of health care resources
(e.g., nurse staffing and skill mix)

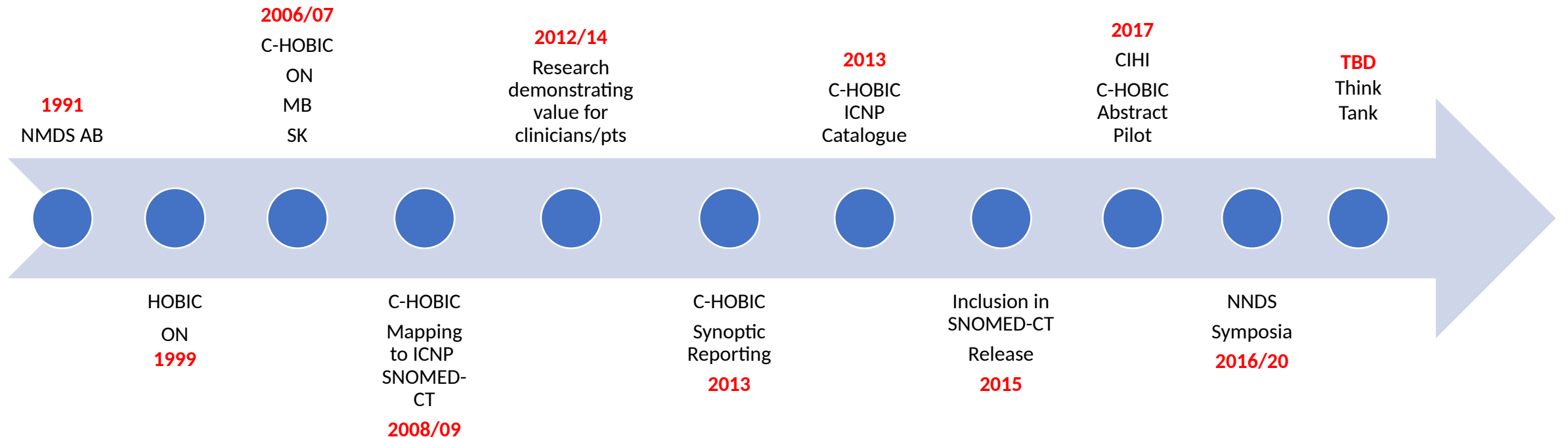
system transformation

What can you do?

Support and advocate for clinical data standards in your organization. Learn more and get involved by visiting cna-aiic.ca/informatics & cna.ca/standards.

¹ Clark, J., & Lang, N. (1992). Nursing's next advance: an international classification for nursing practice. *International Journal of Nursing*, 38(4), 102-112, 128. ² Effken, J., & Weaver, C. (July, 2016). Spring cleaning — the informatics version. *Online Journal of Nursing Informatics*, 20(2). Retrieved from <http://www.himss.org/ojs>

Milestones in Canadian nursing data standards...



Nursing Informatics

Nursing informatics refers to the practice and science of integrating nursing information and knowledge with technology to manage and integrate health information. The goal of nursing informatics is to improve the health of people and communities while reducing costs. Learn more:

- Read our [position statement](#) [PDF, 177 KB]
- Visit the [Canadian Nursing Informatics Association](#)
- Read about national nursing data standards and related [community discussions](#) on Canada Health Infoway's InfoCentral site
- Read the Canadian Institute for Health Information's [Information Sheet on Clinical Data Standards](#)

Collection and use of national nursing data standards (NNDS)

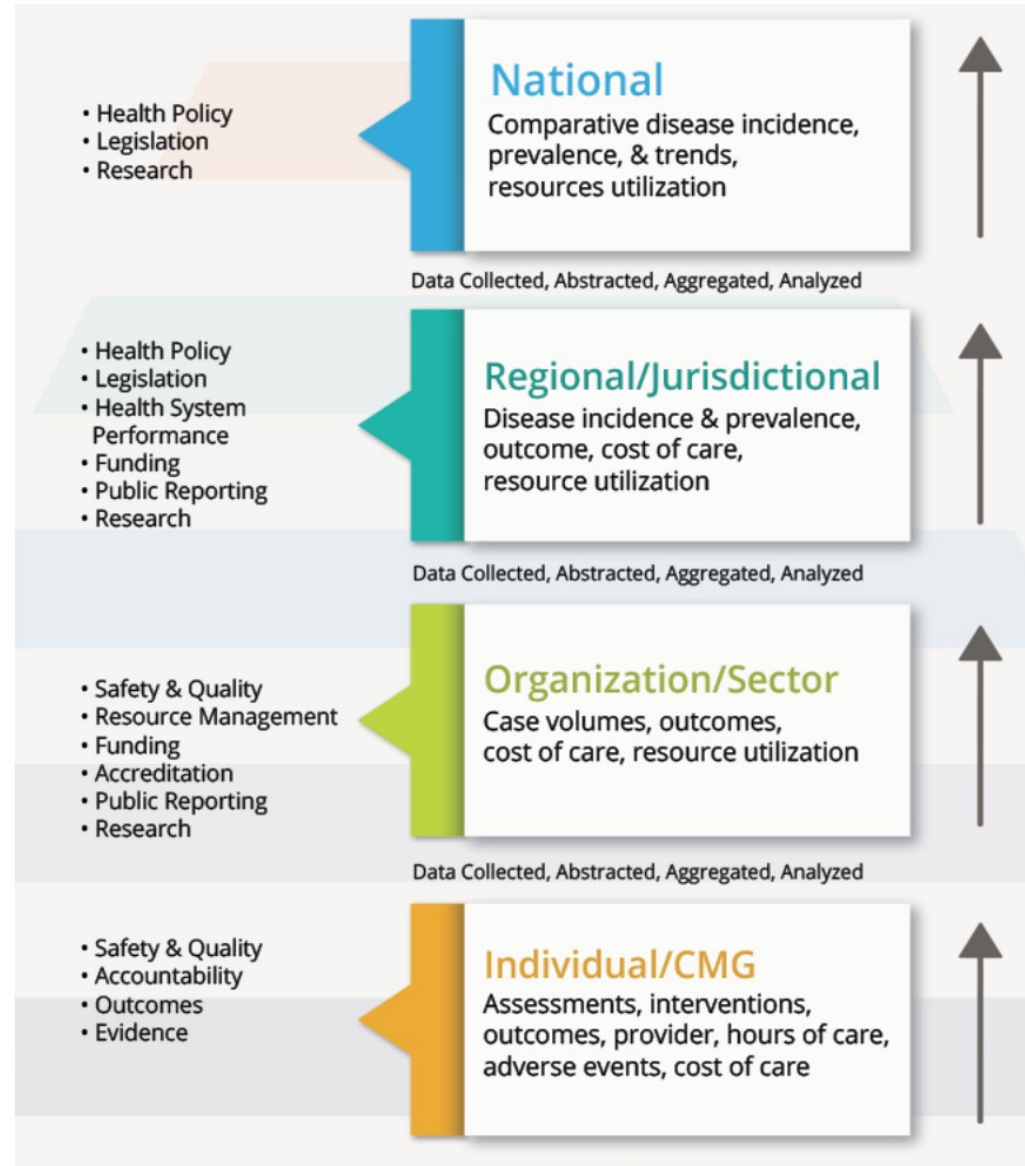
Since April 2016, nursing leaders from across Canada have gathered annually in Toronto to discuss the collection and use of nursing data standards in Canada. The NNDS symposiums have been sponsored by CNA, the Canadian Institute for Health Information and Canada Health Infoway and held with the support of the Canadian Nursing Informatics Association and the University of Toronto's Lawrence S. Bloomberg faculty of nursing. The symposiums focus on the area of nursing/clinical data standards in clinical practice, administration, nursing education, research and policy.



This infographic, [Advancing an Essential Clinical Data Set in Canada](#), shows how standardized data provides value to patients, clinicians and administrators

The Vision...

Standardized Data - Collected Once, Used for Many Purposes



(Nagle & White, 2015)

National Nursing Data Standards (NNDS) Symposia

- Annually since 2016...virtually in 2020.
- Over 5 years, participation of more than 150 nursing and health care leaders representing all jurisdictions and health care sectors across Canada, as well as selected national health care organizations.

Objective

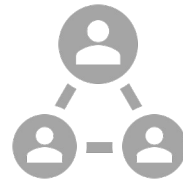
To develop a national strategy to promote the adoption of a core set of standardized nursing data. More specifically, to identify:

- short-term objectives and action plans to promote adoption in clinical, administration, practice, education and research and health policy domains
- the stakeholders, accountability and sponsorship for advancing this work in Canada



Partner

Canadian Nurses Association
Canada Health Infoway
Canadian Institute for Health Information
Vendor community



Engage

Leaders in Practice, Administration, Education, Research & Policy
CPSI, Accreditation Canada, CCRNR, Provincial Chief Nurses
HIS renewal initiatives
Presentations to groups/organizations across Canada



Communicate

Proceedings/recording from 2016-2020 symposia
Whiteboard on nursing data standards
Nursing data standards page on Infoway & CNIA websites
NNDS open site & working groups on Infocentral
Articles in Canadian Nurse & Canadian Healthcare Technology
Conference presentations

Examples of Symposia Outputs...

Practice	Working towards concepts for common admission assessment across sectors and jurisdictions
Administration	Consensus on informatics competencies for nurse leaders
Education	Development of support for curricular integration of clinical data standards
Research	Identification of research priorities to advance clinical data standards in nursing
Policy	CNA resolution endorsing adoption and use of clinical data standards (e.g., C-HOBIC, LOINC, interRAI)



John's data journey

A use case...

Canadian Health Outcomes for Better Information & Care (C-HOBIC) Measures

Acute care
 Long term care
 Complex Continuing Care
 Home care

C-HOBIC Concept		AC	CCC	LTC	HC
Function – ADL/iADL*		√	√	√	√*
<ul style="list-style-type: none"> Bathing Personal Hygiene Walking Toilet Transfer Toilet Use 	<ul style="list-style-type: none"> Bed Mobility Eating Dressing Bladder Continence 				
Symptoms					
• Pain - Frequency		√	√	√	√
• Pain - Intensity		√	√	√	√
• Fatigue		√	√	√	√
• Dyspnea		√	√	√	√
• Nausea		√	√	√	√
Safety					
• Falls		√	√	√	√
• Pressure Ulcer		√	√	√	√
Therapeutic Self-Care					
• Knowledge of current medications		√			√
• Knowledge about why you are taking current medications		√			√
• Ability to take medications as prescribed		√			√
• Recognition of changes in body (symptoms) related to health		√			√
• Carry out treatments to manage symptoms		√			√
• Ability to do everyday things like bathing, shopping		√			√
• Someone to call if help is needed		√			√
• Knowledge of whom to contact in case of a medical emergency		√			√

Speaking **One Language** for High Quality Care Worldwide

What We Do



WebTV



Manuals

experience



35+

Countries with interRAI



1,400+

Scientific publications



135+

interRAI Fellows

C-HOBIC Dataset: Mapping for Inclusion in EHRs – ICNP®

- Initially mapped to ICNP® version 1
- With the release of ICNP® version 2 the C-HOBIC concepts were mapped to ICNP Version 2
- Mapping validated by international ICNP® experts and C-HOBIC team
- Release of International Catalogue on March 6, 2012



International Classification
for Nursing Practice (ICNP®)
Catalogue



C-HOBIC Dataset: Mapping for Inclusion in EHRs - SNOMED CT

- A major aim of this work was to investigate potential approaches to harmonisation of the ICNP[®] and SNOMED-CT while meeting the Canadian requirements for SNOMED CT (SCT) and ICNP[®] outcome concepts to be used to represent the content of the C-HOBIC dataset
- A draft document was prepared and on June 22nd 2012, 16 nursing terminology experts - four from the IHTSDO Nursing SIG, five from the International Council of Nurses ICNP[®] Programme and seven from Canada
- Mapping of C-HOBIC to SCT Observables was completed at this meeting and over the following months the mapping to SCT Findings was completed

Results

- Nursing Special Interest Group (SIG) requested addition of 13 new observable concepts to the SNOMED CT international core content. These 13 concepts were added and included in the January 2015 release of SNOMED CT

A Diagnosis...

Chronic Obstructive Lung Disease
13645005



Chronic Airflow
Limitation (CAFL)

Chronic
Obstructive Lung
Disease (COLD)

Chronic Airflow
Obstruction
(CAO)

Admission to acute care assessment...

- Able to walk very short distances and unsteady
- Shortness of breath present at rest, unable to manage his bathing alone
- Has swollen ankles
- Extreme fatigue such that it is difficult to perform many ADLs
- Some confusion about his medications
- Referrals to PT/OT for exercise & energy management
- Diuretic prescribed



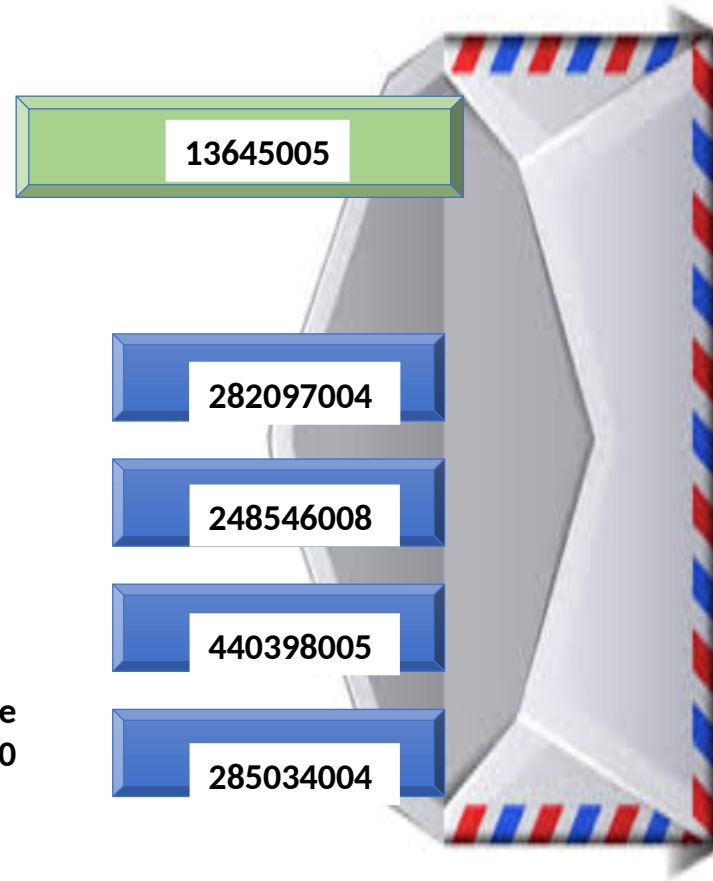
Dx

Function Walking = 2

Symptoms Dyspnea = 4

 Fatigue = 4

Self-care Able to manage medications = 0



Discharge to home care...



- Nurse repeats C-HOBIC measures prior to discharge
- After 8 days in hospital, SOB is less, absent at rest but present with moderate activity
- Ambulation assessed by physio prior to D/C
- Fatigue is much reduced and is more easily able to complete ADL
- More knowledgeable about medications – understands importance of diuretic and has received teaching from pharmacist and nurses
- Meets with dietician about low salt diet & fluid restriction

Admission		Discharge	
<i>Function</i>	Walking = 2	<i>Function</i>	Walking = 0
<i>Symptoms</i>	Dyspnea = 4	<i>Symptoms</i>	Dyspnea = 2
	Fatigue = 4		Fatigue = 1
<i>Self-care</i>	Able to manage medications = 0	<i>Self-care</i>	Able to manage medications = 2

Home care visit assessment...



- Nurse repeats C-HOBIC measures upon admission to homecare 1 week post-discharge
- Dyspnea remains unchanged but having some difficulty completing self-care; made referral for homecare worker support
- Reports no adverse effects from new medication
- Fatigue is somewhat increased
- Nurse recommends a follow-up visit to GP

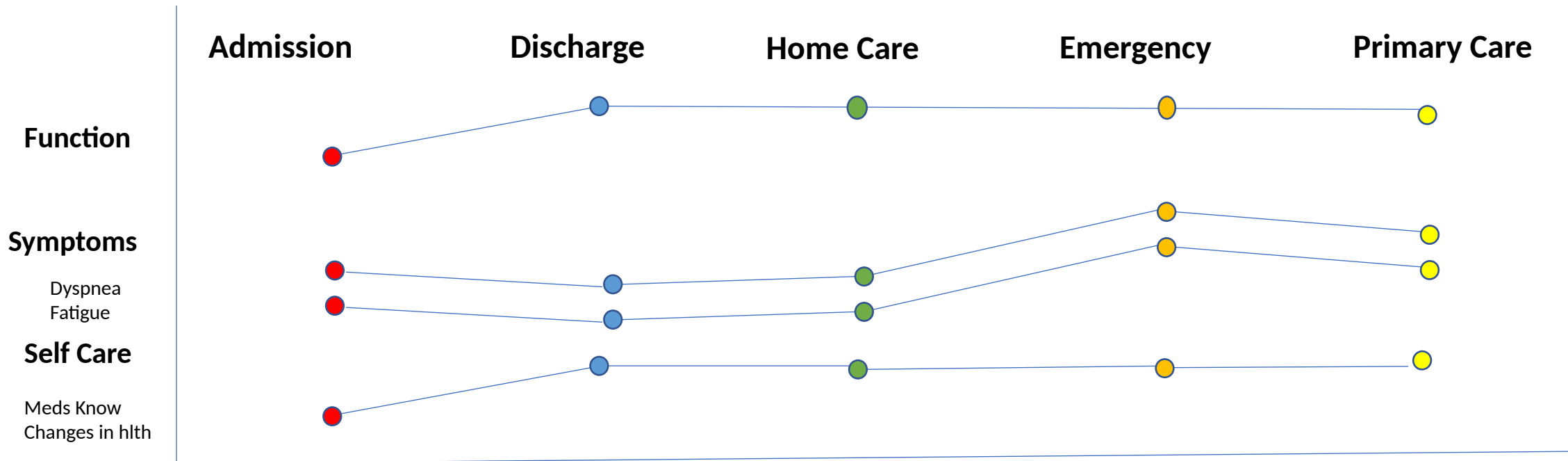
Discharge

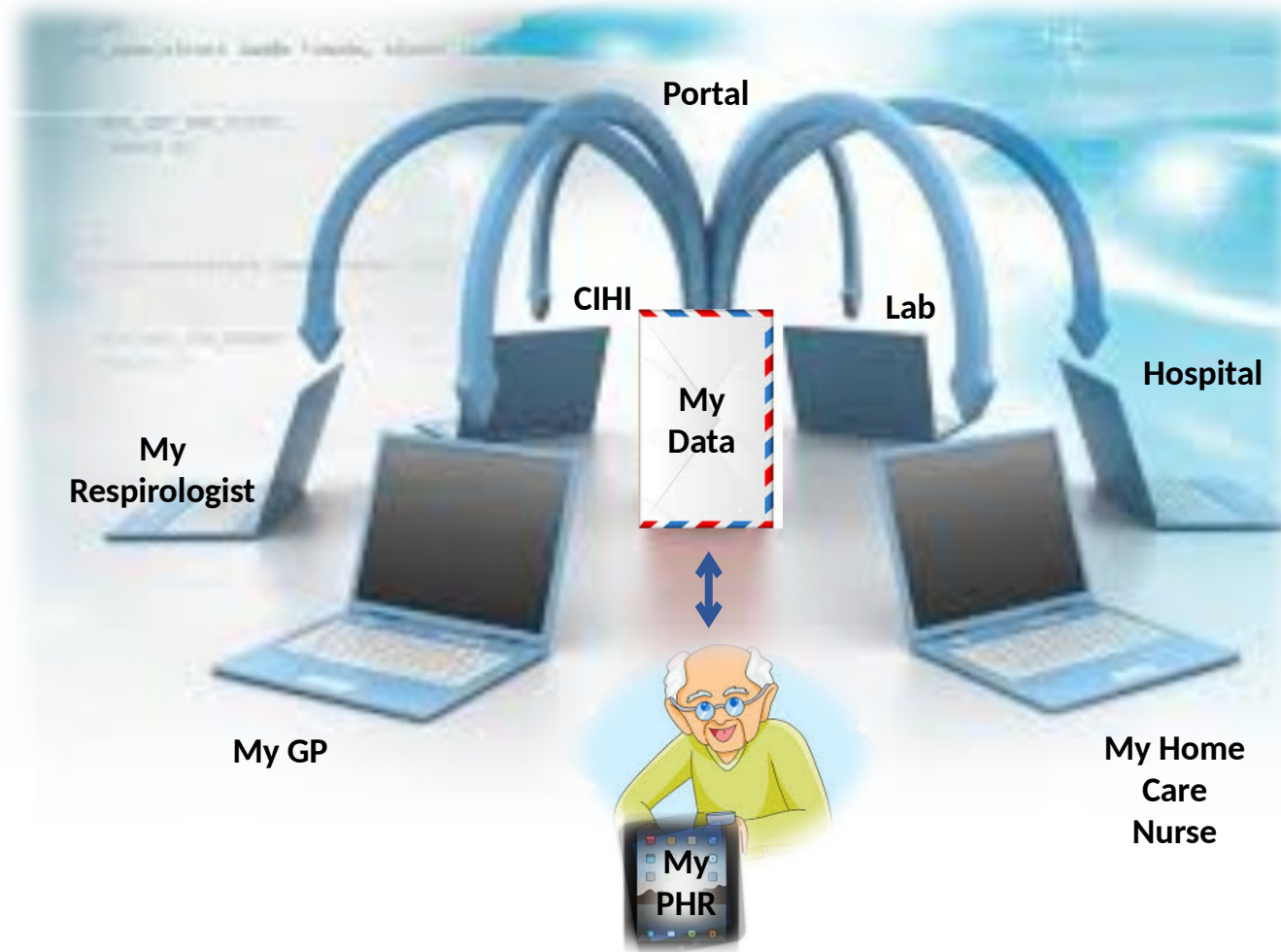
<i>Function</i>	Walking = 0
<i>Symptoms</i>	Dyspnea = 2
	Fatigue = 1
<i>Self-care</i>	Able to manage medications = 2

Home Care Admission

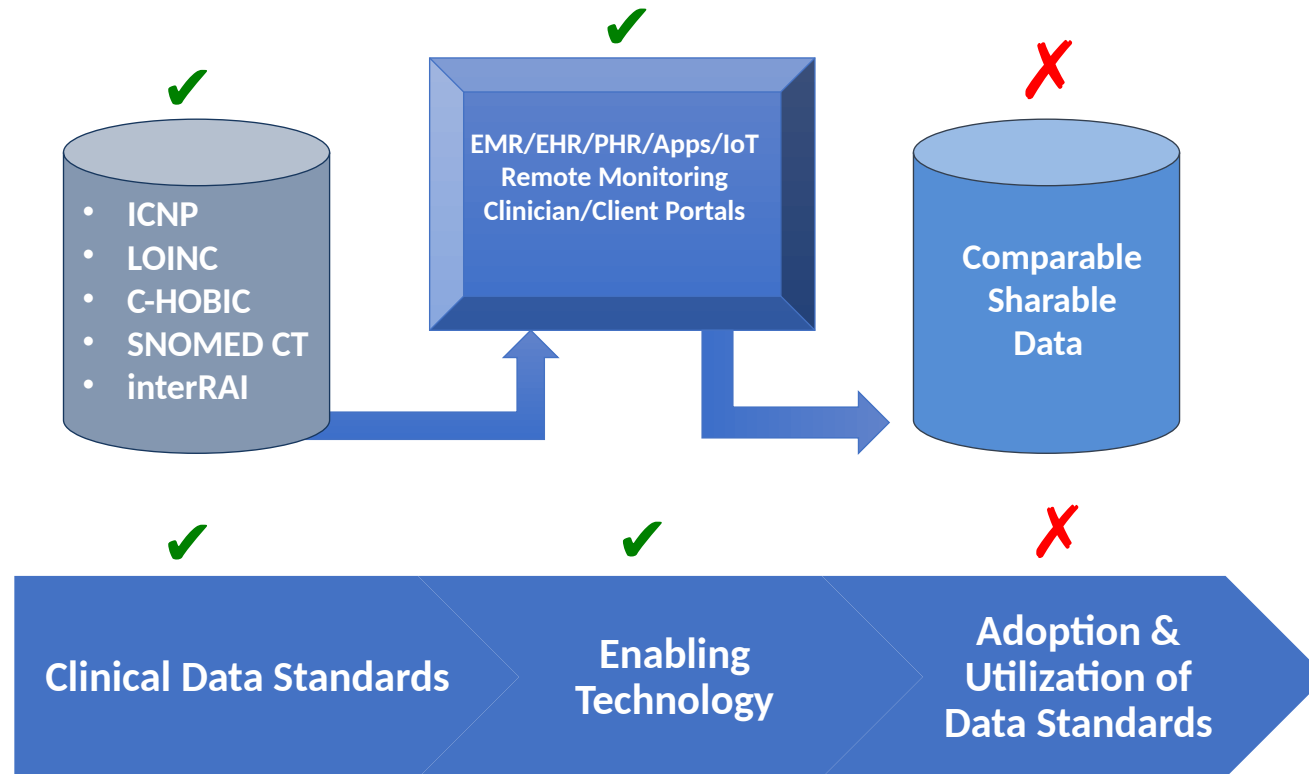
<i>Function</i>	Walking = 0
<i>Symptoms</i>	Dyspnea = 2
	Fatigue = 2
<i>Self-care</i>	Able to manage medications = 2

Managing care over time...





Adapted from: A. MacLean, Canada Health Infoway



Informing...

- Appropriate allocation of number and type of health human resources
- Care transitions
- Most effective interventions
- Best setting for care delivery
 - Quality
 - Safety
 - Cost
- Health Care Policy
- Nursing research – generating new knowledge, questions and innovations

Supporting the future of health information management for...

- Clinical Decision-making
- Administrative Decision-making
- Continuity of care
- Predictive Modeling
- Clinical Intelligence
- Health human resource management
- Big Data inclusive of nurses' contributions to care

Better, safer, quality, evidence-informed care...

What we know for certain...

- Leadership and clinician engagement are key
- Partnerships are essential to success
- Consistent and continuous communication of the value proposition and benefits to be realized from the use of data standards for patients, healthcare providers, organizations, and the healthcare system is necessary.

The adoption of National Clinical Data Standards will:

- Allow for *consistent monitoring of outcomes* across the continuum of care, thereby facilitating safe, quality care and continuity of care;
- Enable *national, peer-group comparability*, providing both macro and micro insights to guide decision-making and inform funding requirements and health human resource planning;
- Enable individuals to use *consistently named, defined, and measured* clinical outcomes data to understand and manage illness and improve their health.

Recent & Upcoming Events

- The pan-Canadian Health Data Strategy: Expert Advisory Group Reports:
<https://www.canada.ca/en/public-health/corporate/mandate/about-agency/external-advisory-bodies/list/pan-canadian-health-data-strategy-reports-summaries.html>
- International Council of Nurses releases position paper: **Digital health transformation and nursing practice.**
https://www.icn.ch/sites/default/files/2023-08/ICN%20Position%20Statement%20Digital%20Health%20FINAL%2030.06_EN.pdf
- Updating the Nursing Informatics Position Statement – a collaboration between the Canadian Nurses Association and the Canadian Nursing Informatics Association: **Nursing Practice in Digitally Enabled Care Environments to be released in Fall 2024**
- Federal Govt Announces Bill to Secure Patient Health Data – June 6, 2024.
<https://www.cpac.ca/headline-politics/episode/federal-govt-announces-bill-to-secure-patient-health-data--june-6-2024?id=06d1dcfa-4684-49a0-90ae-743e04444a9f>



Questions?

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For additional information see:

<https://www.cna-aiic.ca/en/nursing/nursing-tools-and-resources/nursing-informatics>