



Nursing Data Standards: Landscape and Directions in Canada

Lynn M. Nagle, RN, PhD, FAAN, FCAN

June 9, 2022

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





IN THE NORTH OF THE EAST

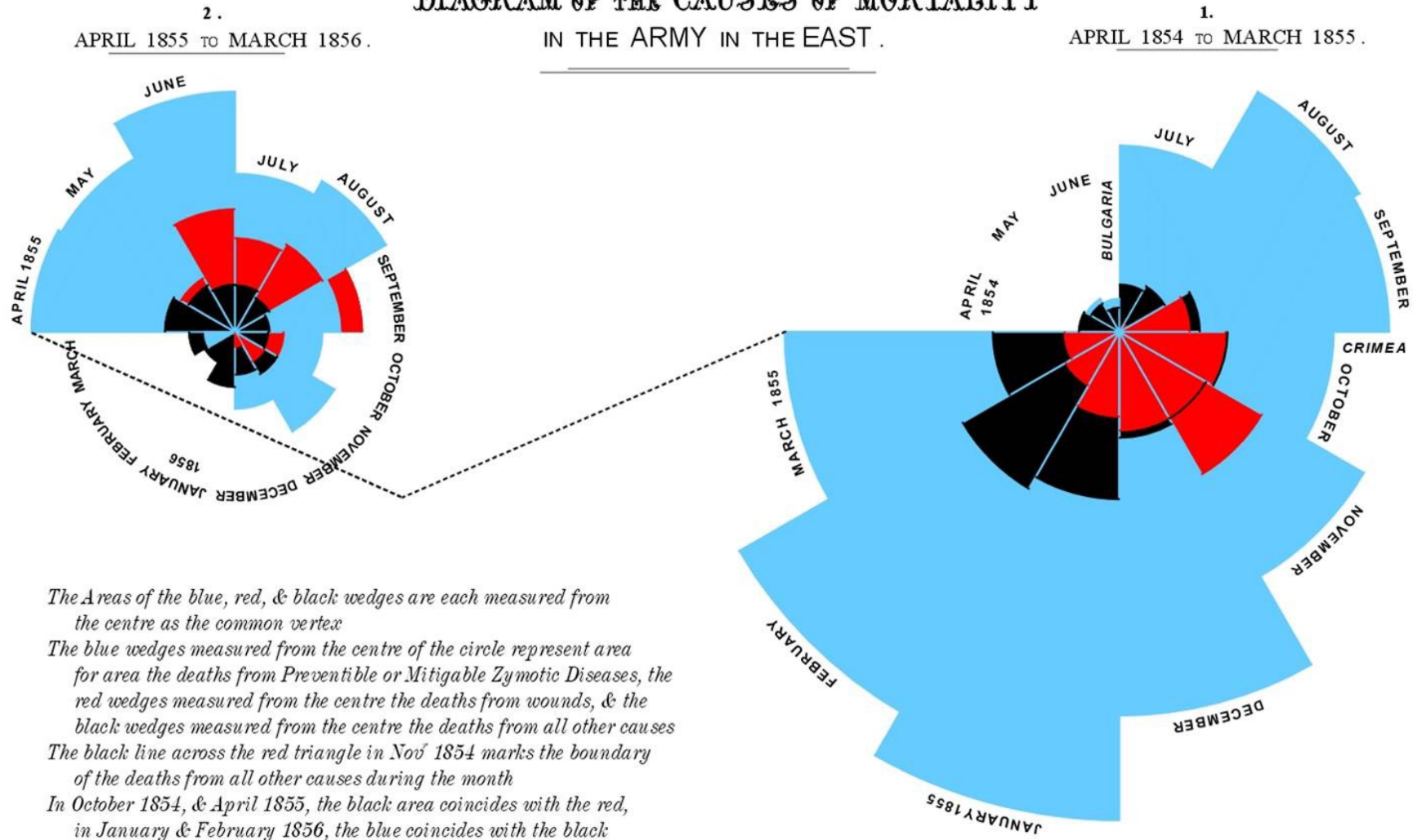
APRIL 1853 - WALKER'S RUN

APRIL 1853 - WALKER'S RUN

Walker's Run - Northwest of the Pacific Ocean
Walker's Run - Northwest of the Pacific Ocean
Walker's Run - Northwest of the Pacific Ocean



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

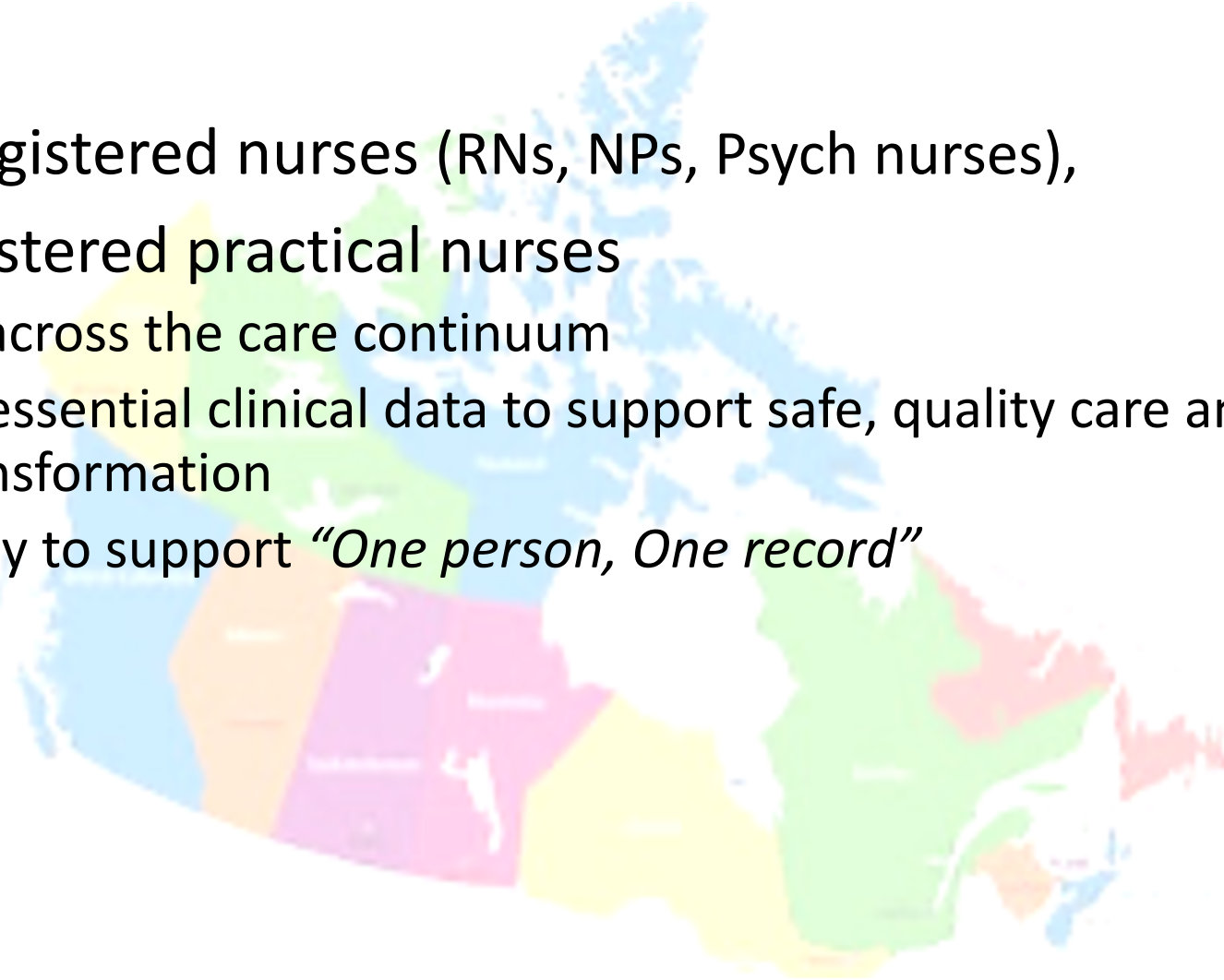
**"If we cannot name it...
we cannot control it, finance it,
teach it, research it or put it into
public policy"**

(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)

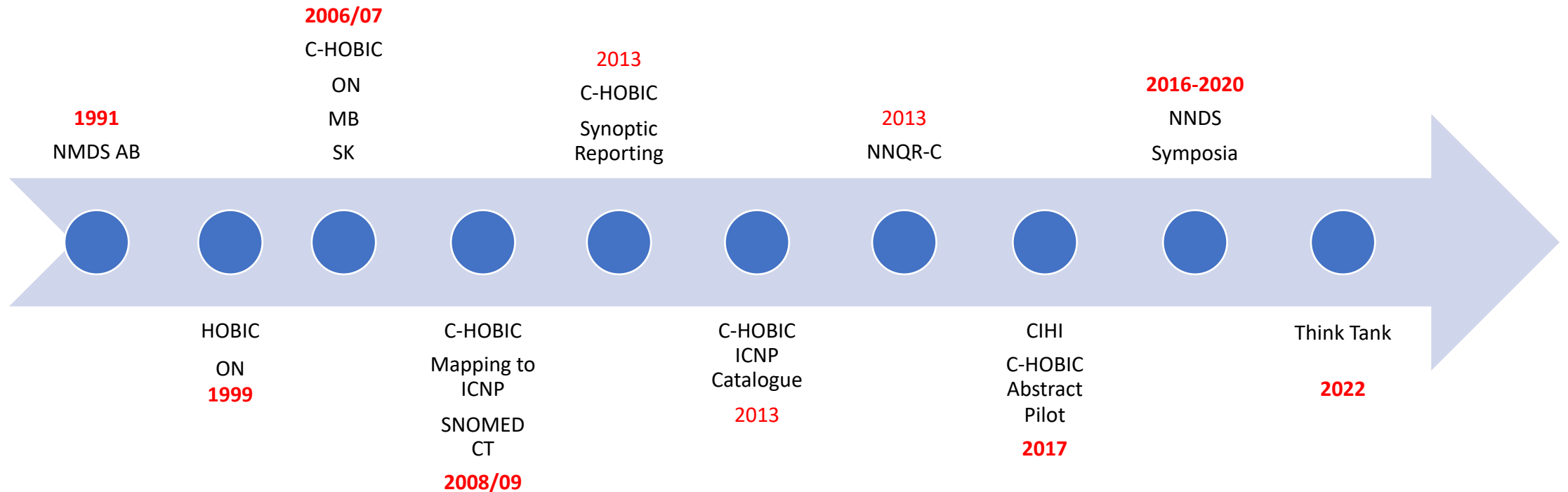
system transformation

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.

¹Clark, J., & Lang, N. (1992). Nursing's next advance: an international classification for nursing practice. *International Journal of Nursing*, 33(4), 102-112, 128. ²Elftouh, J., & Weaver, C. (July, 2016). Spring cleaning — the informatics version. *Online Journal of Nursing Informatics*, 20(2). Retrieved from <http://www.himss.org/ojni>

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)

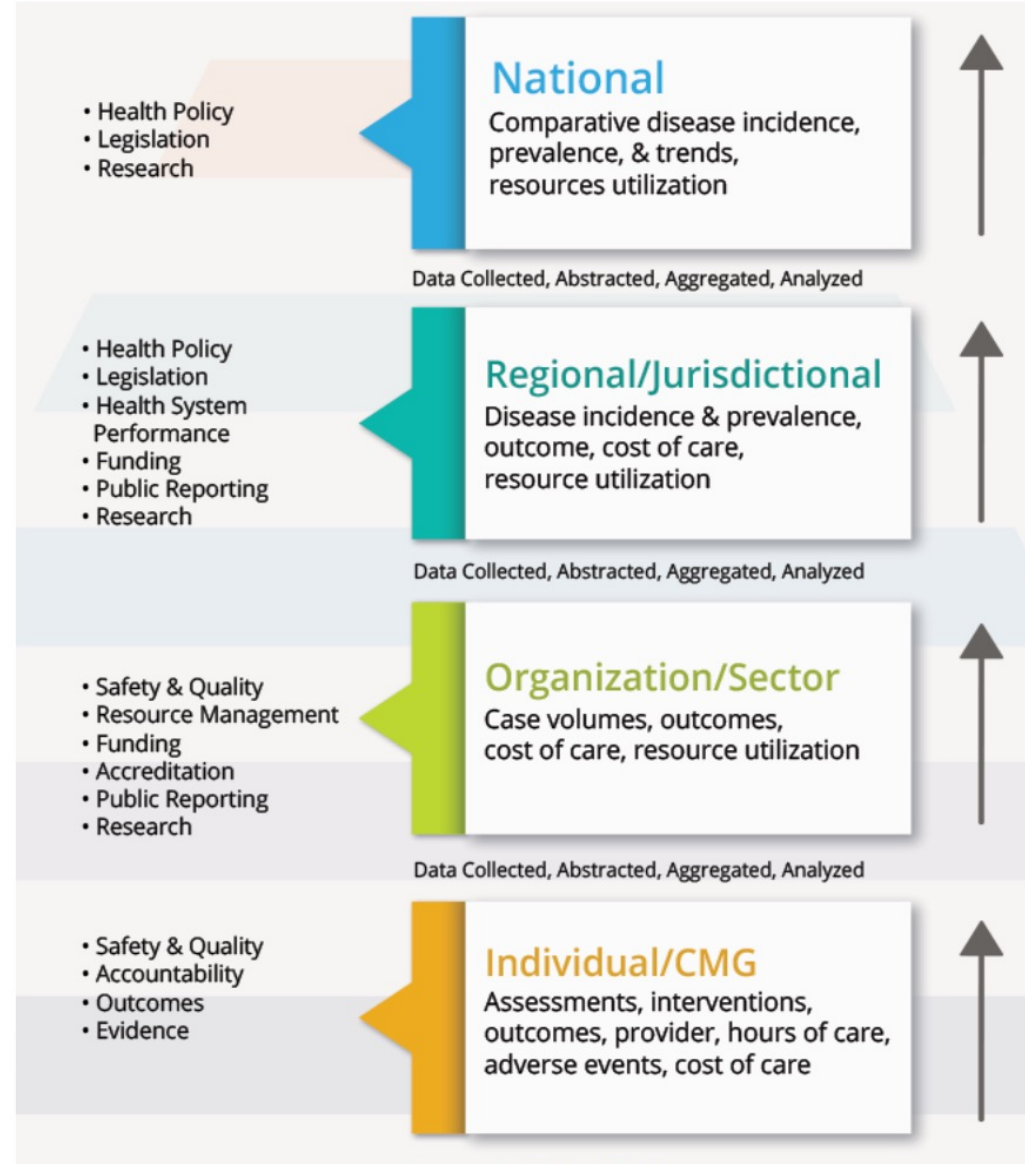
Since April 2016, nursing leaders from across Canada have gathered annually in Toronto to discuss the collection and use of nursing data standards in Canada. The NNDS symposiums have been sponsored by CNA, the Canadian Institute for Health Information and Canada Health Infoway and held with the support 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, Prov. Chief Nurses
- HIS renewal initiatives
- Presentations to groups/organizations across Canada to connect with people regarding this work and how they can be involved

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

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

13645005

282097004

248546008

440398005

285034004

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

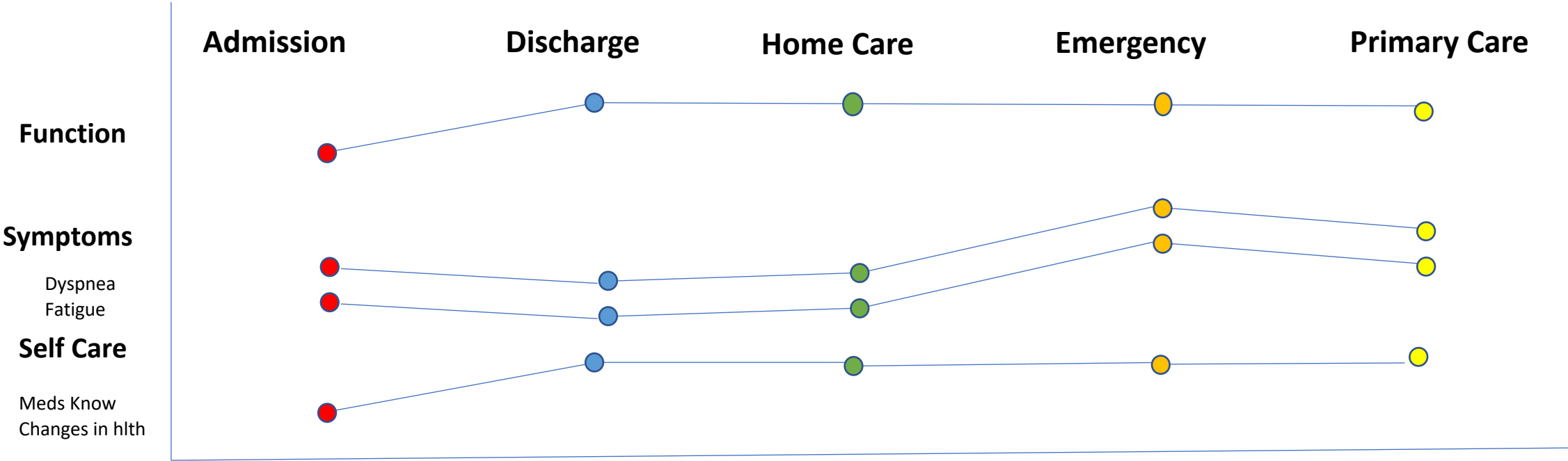
Discharge

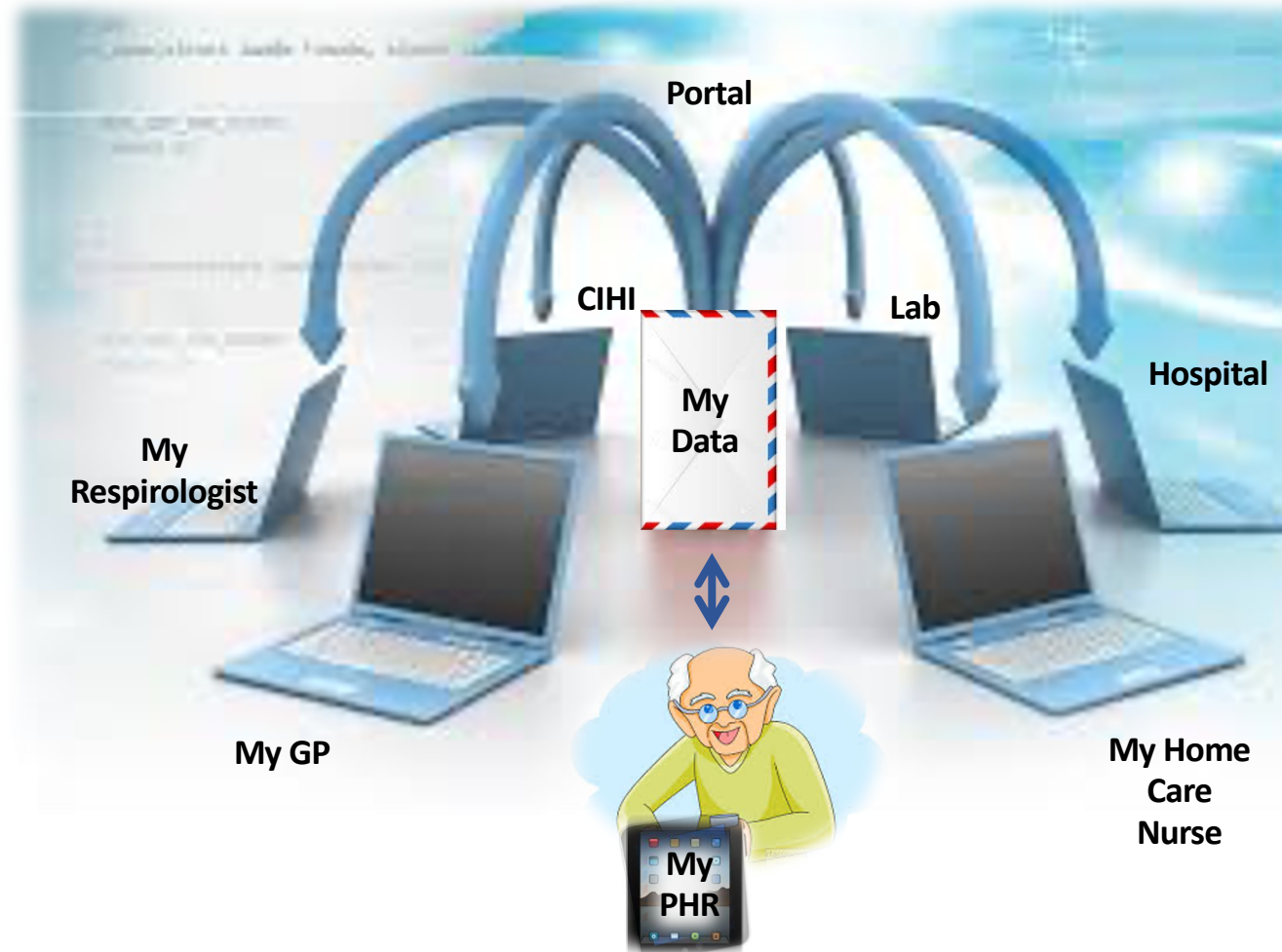
<i>Function</i>	Walking = 0
<i>Symptoms</i>	Dyspnea = 2
	Fatigue = 1
<i>Self-care</i>	Able to manage medications = 2

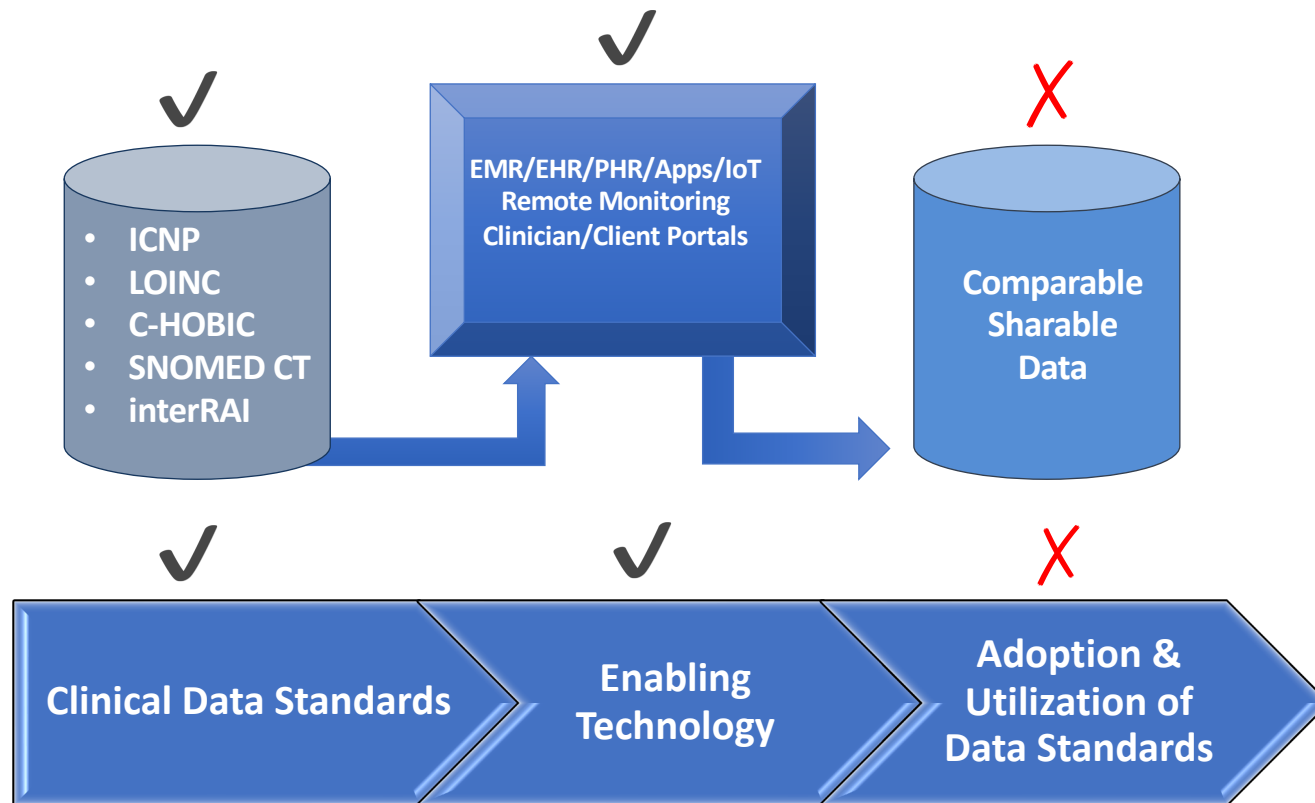
Home Care Admission

<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...







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.



Questions?

Lynn Nagle - lnagle@nagleassoc.ca

Peggy White - pwhite@hobic-outcomes.ca

For additional information see:

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