

Canadian - Health Outcomes for Better Information and Care

Creating the Case for Data Standards for Clinicians

Agenda

- The need for data standards
- C-HOBIC Dataset Mapping to ICNP® and SNOMED-CT for inclusion in EHRs
- C-HOBIC Implementation in Canada – Evaluation & Lessons Learned
- Future directions: C-HOBIC inclusion in the DAD
- Value of this dataset

Why Collect Standardized Measures

- Clinical accountability is part of the larger movement of accountability driven by the public and policy makers, whereby all healthcare professionals must provide evidence of the role they play in patient outcomes
- Standardized measures are essential to:
 - Evaluate clinical interventions, and
 - Implement informed quality improvement initiatives
- Standardized data such as C-HOBIC assists clinicians in communicating with team members at shift change and when patients are being transferred home or to another organization
- Collection of standardized data, linked with other administrative data, contributes to health care policy, planning and research to improve the health of Canadians

C-HOBIC Measures

A suite of evidence based clinical concepts that can be collected systematically and **standardized** across the health care system

Acute Care and Home Care Measures

- **Functional Status:** ADL* & Bladder Contenance* (IADL* for home care)
- **Symptom management:** Pain, Fatigue*, Dyspnea*, Nausea*
- **Safety Outcomes:** Falls*, Pressure Ulcers*
- **Therapeutic Self-care** (Sidani & Doran)
- Collected on admission & discharge
- * interRAI measures

Long-term Care and Complex Continuing Care Measures

- **Functional Status:** ADL* & Bladder Contenance*
- **Symptom management:** Pain*, Fatigue*, Dyspnea*, Nausea*
- **Safety Outcomes:** Falls*, Pressure Ulcers*
- Collected on admission, quarterly, client condition changes, & discharge.

C-HOBIC Dataset

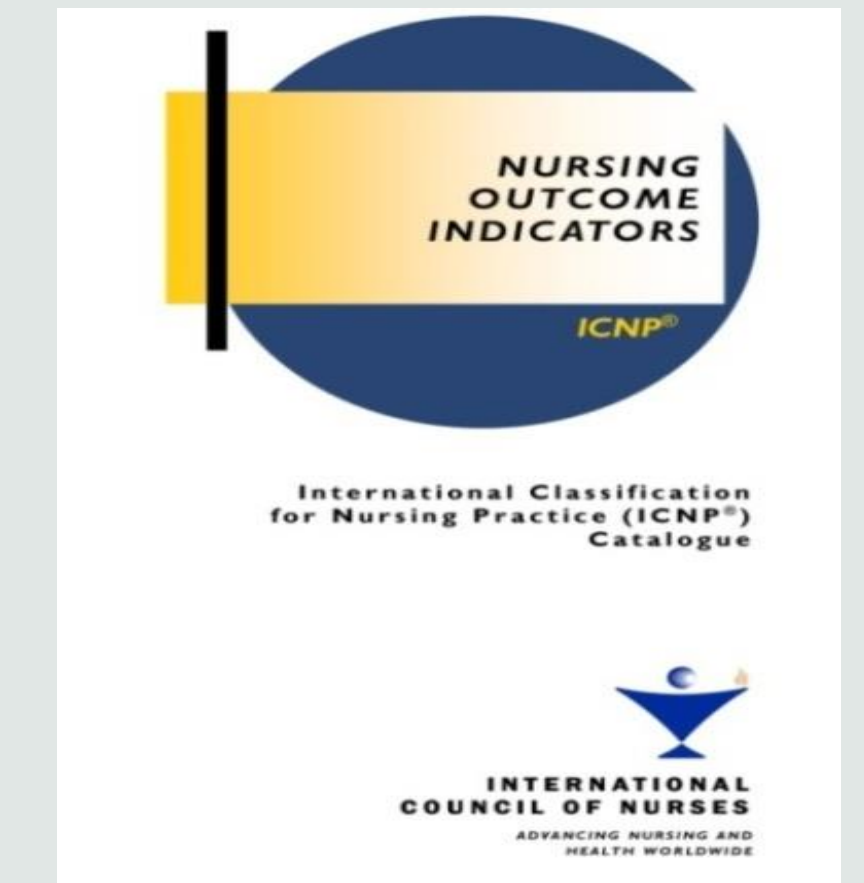
- Formally endorsed by the Canadian Nurses Association and the Canadian Nursing Informatics Association
- Selected C-HOBIC data elements are being included in the National Nursing Quality Report for Canada (NNQR-C), work that is being lead by the Academy of Chief Executive Nurses and the Canadian Nurses Association
- On January 11, 2012 the C-HOBIC data set was designated as a Canada Approved Standard (CAS)

“This is important information regarding the patient. If we are going to develop care plans we need to know the patient”

Clinician in Ontario

Standardization Supports Mapping

- Mapped to ICNP® version 2 - Release of International Catalogue on March 6, 2012
- Subsequent to this the team investigated potential approaches to the harmonisation of the ICNP® catalogue 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
- Meeting of international experts held on June 22, 2012 and mapping of C-HOBIC to SCT Observables was completed at this meeting and over the following months the mapping to SCT Findings was completed



Supports Mapping...continued

- There were exact SCT matches for the majority of the concepts. Several SCT concepts were broader than C-HOBIC and 13 C-HOBIC concepts were not present. For example:
 - Ability to carry out the treatments or activities that you have been taught SCT term is “Unable to comply with treatment”
 - Understand why you experience some changes in your body (symptoms) related to your illness – recommended a new term
- **Recommendations**
 - Nursing Special Interest Group (SIG) requested addition of new observable concepts
 - These 13 concepts have added and will be included in the **January 2015** release of SNOMED CT
 - No new findings concepts to be requested until the IHTSDO review of SCT Functions and ADLs model is completed
 - IHTSDO Nursing SIG motion passed at Fall 2013 meeting that the maps to C-HOBIC be published as a Refset by the IHTSDO

Implementing the Standardized Dataset

Participants

- Sponsor: Canadian Nurses Association
- Funders: Canada Health Infoway and Participating Provincial Partners:
 - Ontario: Ministry of Health and Long Term Care, ClinicalConnect, Hinext, Institute for Clinical Evaluative Sciences
 - Saskatchewan: Saskatchewan Health - Health Information Solutions Centre and Health Human Resource Planning Branch
 - Manitoba: Winnipeg Regional Health Authority, Manitoba ehealth, St. Boniface

Standardization: Underlying Principles

- Emphasis on data for which there is empirical evidence that clinicians impact patient care (outcomes).
- Focus on consistent collection of data electronically at the point of care – to provide *real-time feedback* of information that clinicians can use in planning for and evaluating care
- Maximize electronic capture through existing systems – work to build these questions into existing assessments – avoid duplication
- Provide access to information for nurses and other clinicians, healthcare managers, researchers and ministry planners
- Work with clinicians regarding the value of this data to their practice

C-HOBIC Implementation: Phase 1 – 2007- 2009

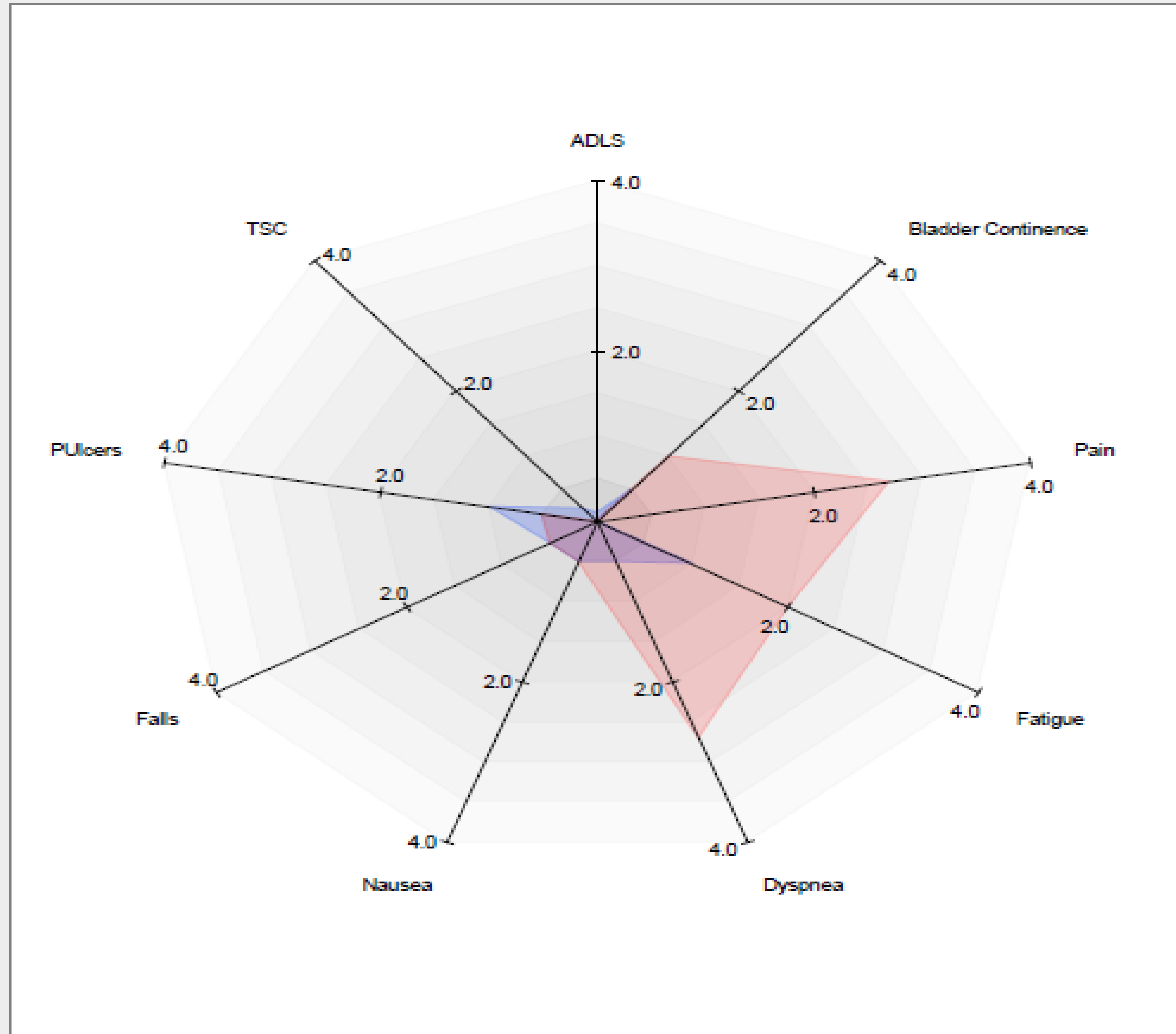
- **Ontario** (funded by Ministry of Health and Long-term Care) approximately 180 sites collecting the C-HOBIC suite of measures – database housed at Institute for Clinical Evaluative Sciences - real time database providing nurses with access to information about their patients and providing unit level reports for organizations
- **Saskatchewan:** Implementation in **30** facilities ranging from 17 to 237 beds for a total of 2131 LTC beds in Saskatoon Health Region
- **Manitoba:** Implementation in **2** long-term care homes for a total of 1005 long-term care beds and **6** home care offices - approximately 3,300 clients in home care in Winnipeg Regional Health Authority
- Prior to C-HOBIC, both Saskatchewan and Manitoba this information was being entered into a database and submitted to CIHI but the information was not provided back to clinicians – standardization allows for unit level reports on clinical outcomes at the bedside.

C-HOBIC Implementation: Phase 2 – 2012 - 2015

- This phase included the design, development and implementation of synoptic transition reports to facilitate patient transition from one sector of the health care delivery system to another: C-HOBIC Transition Synoptic Report (TSR)
- This summary is generated using the standardized C-HOBIC data and the principles of synoptic reporting

C-HOBIC Transitions Report

Scale Name	Admission	Discharge
Activities of Daily Living (ADL)	Missing	0.1
Bladder Continenence	1.0	0.5
Pain	2.7	Invalid
Fatigue	2.0	1.0
Dyspnea	2.7	0.5
Nausea	0.5	0.5
Falls	0.5	0.5
Pressure Ulcers (PUlcers)	0.5	1.0
Therapeutic Self Care (TSC)	Missing	0.2



- Admission - Discharge

C-HOBIC TSR for Ontario

- based on Nightingale's Rose Diagram
- C-HOBIC scores were normalized to represent all the concepts on admission and discharge
- Available on ClinicalConnect portal in HNHB and WW LHINs



St-Boniface
Hospital and Health Services

CHOBIC Transition Summary

CHOBIC, test2
SBGH-A7SO-A7027-02
PHIN: 252452345

58y 05-Feb-1955 Female MRN: 01501036
Attending MD: Galimova, Lena Visit: 8001918 DSC
Reg: 545234524

Language - Rajasthani Interpreter - No

This report provides a summary (i.e. a synoptic report) of the patient's C-HOBIC scores on admission and discharge.
The scores have been normalized to provide a quick visual snapshot.

C-HOBIC Scale Name	Admission	Discharge
ADL Activities of Daily Living - Higher score reflects greater need for assistance. <i>Summary ability to bath, transfer to toilet, ambulate and feed.</i> 0- independent 1- set up help/supervision 2- limited assistance 3- extensive assistance 4- total dependence	1.24	Incomplete
Bladder Continence - Higher score reflects increasing incontinence 0 - Continent 1 - Control with catheter 2 - Infrequently incontinent 3 - Frequently incontinent 4 - Incontinent	3.00	1.00
Pain - Higher score reflects greater intensity of pain 0 - No Pain 1 - Mild 2 - Moderate 3 - Severe 4 - Worst Possible	Incomplete	1.33
Fatigue - Higher score reflects greater fatigue when performing normal daily activities 0 - None 1 - Minimal, diminished energy but completes normal day-to-day activities 2 - Moderate, due to diminished energy unable to finish normal day-to-day activities 3 - Severe, due to diminished energy- unable to start normal day-to-day activities 4 - Unable to commence any normal day-to-day activities due to diminished energy	4.00	3.00
Dyspnea - Higher score reflects increasingly greater levels of dyspnea 0 - Absence of dyspnea 1 - Absence at rest but present when performed moderate activities 2 - Absent at rest but present when performed normal day-to-day activities 3 - Present at rest	1.33	2.67
Nausea - Higher score reflects increasingly greater levels of nausea 0 - No nausea 1 - Mild nausea: occasionally experienced but does not interfere with eating and/or activities 2 - Moderate nausea: interferes somewhat with eating and/or activities most days 3 - Severe nausea: interferes daily with eating and/or activities 4 - Incapacitating: remains in bed part of each day due to nausea and interferes with eating	Incomplete	2.00
Falls 0 - No falls in the last 90 days 1 - No fall in last 30 days but fell 31-90 days ago 2 - One fall in last 30 days 3 - Two or more falls in last 30 days	1.33	0.00
Pressure Ulcers 0 - No pressure ulcer 1 - Any area of persistent skin redness 2 - Partial loss of skin layers 3 - Deep craters in skin 4 - Breaks in skin exposing muscle or bone 5 - Unstaged	2.00	2.00
Therapeutic Self-Care - Higher score reflects the greater need for assistance. Summary of a person's knowledge and ability to take their medications, manage their symptoms and perform everyday activities and ability to contact someone if there is an emergency. 0 - Assistance not required 1 - Minimal Assistance Required 2 - Heavy Assistance required	Incomplete	Incomplete

Confidential Patient Information

Report Requested By: Fradkov, Marianna (Analyst)

Printed From: SBGH-zNonpatient - EPRCIS

Printed On: 05-Jul-2013 9:18

End of Report

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C-HOBIC TSR for Manitoba

- Technology and software within the Allscripts™ system did not permit Manitoba to create a graphic C-HOBIC TSR similar to the Ontario snapshot, so they developed an alternate synoptic report: C-HOBIC Transition Summary Report
- Printed and included in Discharge Package

Key Lessons Learned from Implementations

- Leadership is key
- Clinician need to understand why they are collecting information in a standardized way and receive this information back – reports- in a timely manner to support practice
- While there is a lot of focus on transitions and the flow if information across the continuum - there is a need to continue to examine opportunities to share outcomes information as clients move between sectors of care and engage in multi-sector discussions regarding the value outcomes in supporting care transitions

Standardized Data: Analysis of Aggregated Data

Changes in HOBIC scores from admission and discharge scores

- Significant improvements in all of the HOBIC outcomes, with the exception of pressure ulcers.
- Suggests that nursing care interventions are having the desired effect on clinical outcomes, leading to an improvement in the outcomes by discharge.

Changes in Patient Health Outcomes from Admission to Discharge in Acute Care (2013).
Journal of Nursing Care Quality 28 (1). McGillis Hall, Wodchis, Ma, & Johnson

Analysis of Aggregated Data ...continued

HOBIC dataset linked to other datasets held at the ICES (Wodchis, 2012)

- Therapeutic self-care (TSC) scores showed a consistent and significant protective effect for readmission to acute care at 7, 30 and 90 days.
- TSC scores was associated with approximately a 10% reduction in the likelihood of readmission.
- Nausea was more strongly related to early readmissions (3, 7, and 30 days)
- Dyspnea was more strongly related to readmission at later stages (30 and 90 days).

Analysis of Aggregated Data ...continued

TSC scores in relation to: (Sun & Doran, 2014)

- the use of health care resources, including new emergency room visits /unplanned hospital readmissions;
- safety outcomes, including client falls; unintended weight loss; new urinary tract infection; ADL decline; new pressure ulcer or ulcer deterioration; non-compliance/adherence with medication; and new caregiver decline
- Found that clients with high TSC ability experienced fewer adverse events
- Need to focus on improving client self-care functioning, a domain frequently overlooked by all health care professionals

Analysis of Aggregated Data ...continued

Admission data as a predictor of ALC and LOS (Jefferis et al., 2013)

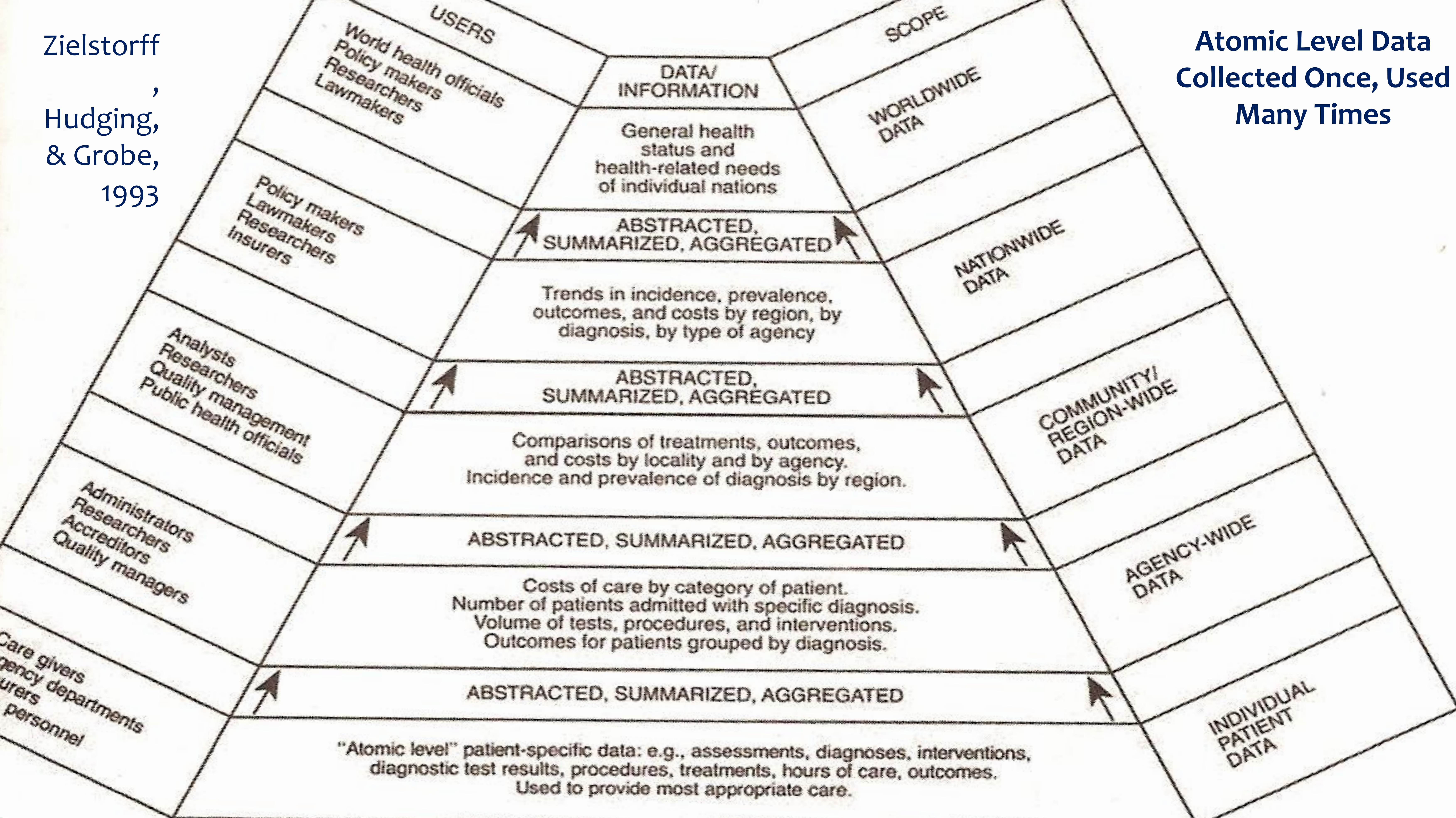
- higher fatigue and dyspnea scores on admission were significantly related to a longer length of stay.
- higher scores for fatigue and falls and ADL composite score on admission were more likely to be discharged to either complex continuing care, long-term care homes or rehabilitation facilities than discharged home.

Aggregating the Standardized Data

- Atomic to global level data that provides
 - Person-specific comparative information across the continuum of care
 - Consistent measurement of outcomes
 - Correlational and predictive analytics
 - Local to national to international comparisons
 - Information that leads to new knowledge and understandings about the impact of specific interventions and outcomes

Zielstorff
,
Hudging,
& Grobe,
1993

Atomic Level Data
Collected Once, Used
Many Times



The opportunity for Healthcare Leaders

- **Standardized data**
 - Accountability: Clinicians/managers/organizations need data to know where they are doing well and where practice needs to improve
 - Allows for the capability to analyze health service outcomes on the basis of: Diagnoses, Age, Region/Sector, Cost of care, Skill mix, Staff ratios
 - Provides information to inform: Health Care Policy, Allocation of Resources, Delivery of Services, Quality of Care

Standardization - Supports Inclusion in the DAD

- Recognition of the value in being able to link this dataset with other datasets such as the home care dataset and long-term care homes dataset to understand clinical outcomes across the continuum of care
- Model will see the submission of the C-HOBIC dataset by 2 acute care sites using the special projects fields in the DAD to identify resources required for the submission - Once this work is completed, other sites that are collecting the C-HOBIC dataset will be able to include these data with their DAD special projects fields submission
- Eventually the C-HOBIC dataset would be part of the DAD core submission and available on the CIHI portal to support:
 - Health System Use and benchmarking at a system level
 - Health policy related to “how well is the system doing in improving outcomes for people within the system?”
- **First time clinical data beyond physician data** is included in the DAD

Standardized Data

- Patient safety – standardized clinical information at the point of care (falls, symptoms, pressure ulcers)
- Standardized clinical information across the continuum – improved continuity & *coordination of care for the patient during transitions*
- Better information on patient needs ... *the right information at the right time*
- Better information on clinical patient outcomes ... *ability for facilities to use in benchmarking and to compare effectiveness of treatments*
- Opportunity to **transform** the delivery of care through use of standardized clinical patient outcomes to support evidence informed practice

Benefits to the Health Care System

- Patient Safety & Quality of Care
- Primary Health Care Reform
- Clinical Accountability
- Care Planning, Continuity of Care & Continuity of Information
- Senior Care and Transitions
- Data Aggregation

“These are simple concepts to convey and demonstrate the informational value to clinicians”

Clinician in Ontario

For more information including access to the reports visit the C-HOBIC webpage at:

http://c-hobic.cna-aiic.ca/about/default_e.aspx

