



BLOOMBERG

LAWRENCE S. BLOOMBERG
FACULTY OF NURSING

UNIVERSITY OF TORONTO

Changes in Outcomes from Admission to Discharge: Lessons Learned from the Canadian HOBIC Data

**5th Annual NDNQI Conference,
Miami, Florida. January 26-28, 2011**

Linda McGillis Hall, RN, PhD, FAAN, FCAHS
Professor, Associate Dean of Research
Adjunct Scientist, ICES

Background

- *Nursing Task Force* established to recommend actions needed to improve nurses' work life & retention of staff, & to increase recruitment of students into nursing careers

Recommended:

- Development of an information system that reflects nurses' contribution to patient care:
 - responsive to the needs of the healthcare consumer
 - based on performance standards that provide high quality outcomes

Background

- HOBIC originally established in September 1999 as the *Nursing and Health Outcomes Project* in response to these recommendations
- Over the last few years its broader potential has been recognized and the scope of the initiative has been expanded – *Health Outcomes for Better Information and Care (HOBIC)*

Aim of HOBIC

- Standardize the assessment, documentation and collection of clinical outcomes reflective of nursing practice
- Demonstrate contribution to patient care reflective of nursing practice
- Development of a database to support research and decision-making



HOBIC

- We know that nurses have tremendous influence on patients experience and outcomes
- **HOBIC** allows us to collect similar data to NQF and NDNQI
- Substantial interest in Canada in understanding the impact of nurses care and nursing interventions on the patient care process and on patient health outcomes

Outcome Selection

- Expert panel
- Review of literature on concept of patient outcomes
- Consultations with nursing stakeholders
- Critical appraisal of health outcomes research- concept definition, valid and reliable measure and empirical evidence linking the outcome to some aspect of nursing (indicator/intervention)

Pilot Projects – 6 months

- Acute care, long-term care, complex continuing care and home care
- Nurses trained on standardized assessments -admission, quarterly and discharge
- Quantitative, qualitative, longitudinal data collected
- Assess the feasibility, utility, quality, costs associated with collection of health outcomes
- **Conclusion:** it was possible to collect high quality, reliable information on nursing-sensitive patient outcomes as part of routine nursing assessments

The slide features a light blue background with a faint, semi-transparent image of classical columns on the left side. The title 'Guiding Principles' is written in a bold, dark red serif font. Below the title, there is a list of three bullet points in a dark blue serif font. The entire content is enclosed in a thin white border, which is itself within a larger brown border.

Guiding Principles

- Integrate outcomes capture with existing nursing assessments - avoid duplication
- Maximize electronic capture through existing systems
- Provide access to information for nurses, healthcare managers, researchers and ministry planners

*Performed on: 02/28/2008 0724

By: Vosper, Cathy

ADL Self Performance

Therapeutic Self Care

ADL Self Performance

Assess for performance over full 24 hour periods, considering all occurrences of activity

	Independent	Set up help only	Limited assistance	Extensive assistance	Maximal assistance	Total dependence	Activity did not occur
Bathing	<input type="text"/>						
Personal Hygiene							
Walking							
Transfer Toilet							
Toilet Use							
Bed Mobility							
Eating							

*See below for clarification of grid components

Bladder Continence (Assess for last 24 hrs)

- ☐ 0. Continent
☐ 1. Control
☐ 2. Infrequently incontinent
☐ 3. Frequently incontinent
☐ 4. Incontinent
☐ 5. Did not occur

(?)

Pain Symptoms (Assess for last 24 hours)

- ☐ 0. No Pain
☐ 1. Present but not exhibited in last 24 hrs
☐ 2. Exhibited in last 24 hrs

(?)

Pain Intensity

- ☐ 10 = Worst possible pain
☐ 9
☐ 8 = Horrible
☐ 7
☐ 6 = Distressing
☐ 5 = Moderate pain
☐ 4 = Discomforting
☐ 3
☐ 2 = Mild
☐ 1
☐ 0 = No pain

Fatigue (Assess for last 24 hours)

- ☐ 0. None
☐ 1. Minimal
☐ 2. Moderate
☐ 3. Severe
☐ 4. Unable to commence day to day activities

(?)

Nausea (Assess for last 24 hours)

- ☐ 0. No nausea
☐ 1. Mild nausea
☐ 2. Moderate nausea
☐ 3. Severe nausea
☐ 4. Incapacitating

(?)

Falls

- ☐ 0. No fall in 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

Most Severe Pressure Ulcer

- ☐ 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. Not codeable, e.g. necrotic eschar predominant

*Performed on: 02/28/2008

0724

By: Vosper, Cathy

ADL Self Performance

Therapeutic Self Care

Therapeutic Self Care

Do you know
what medications
you have to take?

- ☒ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Do you
understand the
purpose of the
medications
prescribed to
you?

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Are you able to
take the
medications as
prescribed?

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Can you recognize
changes in your
body that are
related to your
illness or health
condition?

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Do you understand
why you experience
some changes in
your body related to
your illness or
health condition?

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Do you know and
understand what
to do to control
these changes in
your body?

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Are you able to
carry out the
treatments or
activities that you
have been taught
to manage these
changes in your
body?

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Are you able to do
things or activities
to look after
yourself and to
maintain your
health in general?

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Do you know
whom to contact
to get help in
carrying out your
daily activities?

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Do you know
whom to contact
in case of a
medical
emergency?

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Are you able to
perform regular
activities? e.g.
Bathing, shopping,
preparing meals,
visiting with friends

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Are you able to
adjust your
regular activities
when you
experience body
changes related to
your illness or
health condition?

- ☐ 0 Not at all
☐ 1
☐ 2
☐ 3
☐ 4
☐ 5 Very much so

Providing 'Real time' Access to HOBIC

Database housed at Institute for Clinical
Evaluative Sciences (ICES)

- Nurses can go in and view individual patient information, i.e. admission and discharge HOBIC scores
- Managers have access to reports:
 - Mean Indicator by Unit
 - Mean Indicators (composite) by Diagnosis & Age
 - Mean Indicators by Diagnosis & Age (detailed)
 - Patient Detail by Encounter
 - Percentages per Question on Admission & Discharge
 - Mean Indicators over time
 - Submission Report
 - Graphing Feature



Authentication

User ID:

Password:

Organisation ID:

Log On

Tools

Results

Find Client

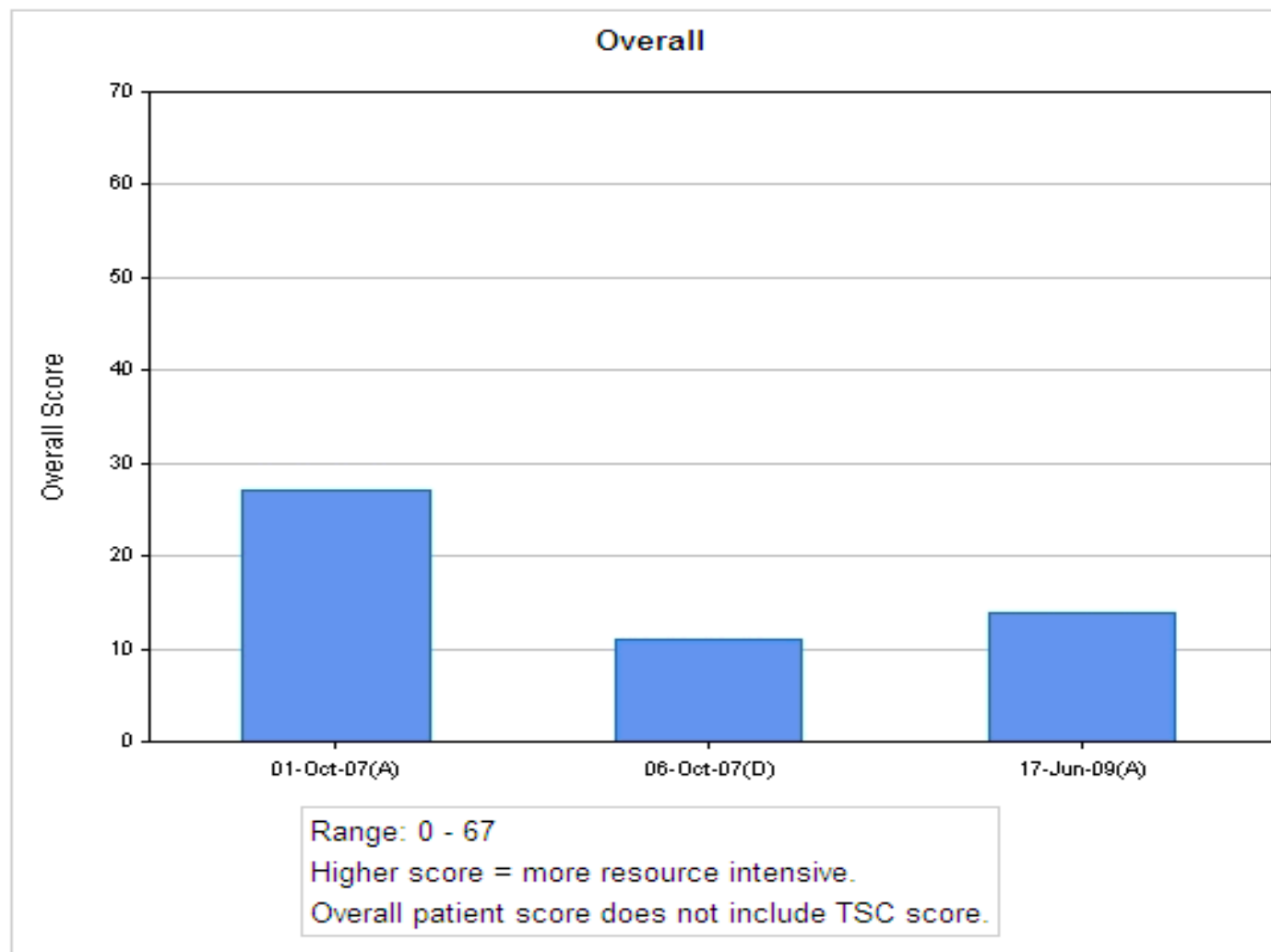
Data Centre

Help

Logoff

Client: Bill Sample MRN: 12345

HOBIC AC Comparison Chart



Implementation Status

	Organizations	Assessments
Acute care & CCC	62	361,245
Long-Term Care	122	137,075
Visiting Nursing org	4	4,124
Total	188	502,444

The background of the slide features a faint, blue-tinted image of classical architectural columns, likely from a government or institutional building, which adds a sense of formality and academic rigor to the presentation.

Purpose of This Study

- How can **HOBIC** data be used to examine important questions about nurse's impact on health outcomes in acute care settings in Ontario
- Conduct initial data quality assessments of **HOBIC** database
- Explore sensitivity of **HOBIC** outcome measures to change



Data Sources

- **HOBIC** data collected by nurses in 62 acute care settings in Ontario
- Data collected between May 2007 and March 2010 (in this data analysis)
- Representing 11 LHINs
- Majority are non-teaching sites

HOBIC Measures

Acute Care & Home Care Measures

- **Functional Status:**
ADL* & Bladder Continence*
- **Symptom management:**
Pain, Fatigue, Dyspnea, Nausea
- **Safety Outcomes:**
Falls*, Pressure Ulcers*
- **Therapeutic Self-care**
- Collected on admission & discharge
- * InterRAI measures used

Long-term Care & Complex Continuing Care Measures

- **Functional Status:**
ADL* & Bladder Continence*
- **Symptom management:** Pain*, Fatigue, Dyspnea, Nausea
- **Safety Outcomes:** Falls*, Pressure Ulcers*
- Collected on admission, quarterly & client condition changes
- * InterRAI measures used

Activities of Daily Living

ADL SELF-PERFORMANCE - Assess for performance over full 24-hour periods, considering all occurrences of the activity

0. **INDEPENDENT** – No assistance, set-up, or supervision in any episode
1. **SET-UP HELP ONLY** – Article or device provided or placed within reach but no episode with supervision or physical assistance
2. **SUPERVISION** – Oversight/cueing 3+ times – OR– Oversight/cueing 1+ time and physical assistance 1–2 times
3. **LIMITED ASSISTANCE** – Guided manoeuvring of limbs 3+ times –OR– Combination of guided manoeuvring and more help 1 – 2 times
4. **EXTENSIVE ASSISTANCE** – Weight-bearing support 3+ times by 1 helper where person still performs 50% or more of subtasks
5. **MAXIMAL ASSISTANCE** – Weight bearing support 3+ times by 2+ helpers –OR– weight-bearing support for more than 50% of subtasks
6. **TOTAL DEPENDENCE** – Full performance by other(s) during entire period
8. **ACTIVITY DID NOT OCCUR** – during entire period

Bladder Continence

BLADDER CONTINENCE – Assess for last 24 hours

0. **Continent** – Complete control; DOES NOT USE any type of catheter or other urinary collection device
1. **Control with any catheter or ostomy over last 24 hours**
2. **Infrequently incontinent** – Not incontinent over 24 hours, but does have incontinent episodes
3. **Frequently incontinent** – had incontinent episode(s), but some control present
4. **Incontinent** – No control present
8. **Did not occur** – No urine output from bladder in last 24 hours

Pain

PAIN SYMPTOMS – Assess for last 24 hours

Frequency with which person complains or show evidence of pain (including grimacing, teeth clenching, moaning, withdrawal when touched, other non-verbal signs suggesting pain)

- 0. No pain
- 1. Present but not exhibited in last 24 hours
- 2. Exhibited in last 24 hours

Intensity of highest level of pain present

No Pain

Worst Possible Pain



0 1 2 3 4 5 6 7 8 9 10

Fatigue

FATIGUE – Assess for last 24 hours

Inability to complete normal daily activities – e.g., ADLs, IADLs

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 SOME normal day-to-day activities
4. Unable to commence any normal day-to-day activities – Due to diminished energy

Dyspnea

DYSPNEA – Assess for last 24 hours

0. Absence of symptom
1. Absent 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

Nausea

NAUSEA - Assess for last 24 hours

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 some 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 and activities

Falls

FALLS

0. No fall in 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

Therapeutic Self Care

‘0’ represents **Not at all** and ‘5’ represents **Very much so**. Code ‘8’ if **Activity did not occur**.

1. Do you know what medication you have to take?
2. Do you understand the purpose of the medication prescribed to you (that is, you know what the medications do for your health condition)?
3. Are you able to take the medications as prescribed?
4. Can you recognize changes in your body (symptoms) that are related to your illness or health condition?
5. Do you understand why you experience some changes in your body (symptoms) related to your illness or health condition?
6. Do you know and understand what to do (things or activities) to control these changes in your body (symptoms)?
7. Are you able to carry out the treatments or activities that you have been taught to manage these changes in your body (symptoms)?
8. Are you able to do things or activities to look after yourself and to maintain your health in general?
9. Do you know whom to contact to get help in carrying out your daily activities?
10. Do you know whom to contact in case of a medical emergency?
11. Are you able to perform regular activities (such as bathing, shopping, preparing meals, visiting with friends)?
12. Are you able to adjust your regular activities when you experience body changes (symptoms) related to your illness or health condition?



Methods

- Transfer HOBIC assessment data to ICES secure servers
- Link HOBIC assessment data to CIHI DAD based on linkage variables (Dates, Institution, and Chart Number)
- Perform initial data quality checks

The slide features a light blue background with a faint, vertical image of classical columns on the left side. The title 'Data Analysis' is centered at the top in a large, bold, dark red serif font. Below the title, there are two bullet points in a dark blue serif font. The entire content is enclosed in a thin white border, which is itself within a larger brown border.

Data Analysis

- Examine sensitivity of the patient outcome measures to change by comparing the mean scores obtained at time 1 (upon admission) and at time 2 (around discharge)
- Applicable only when there are two occasions of measurement

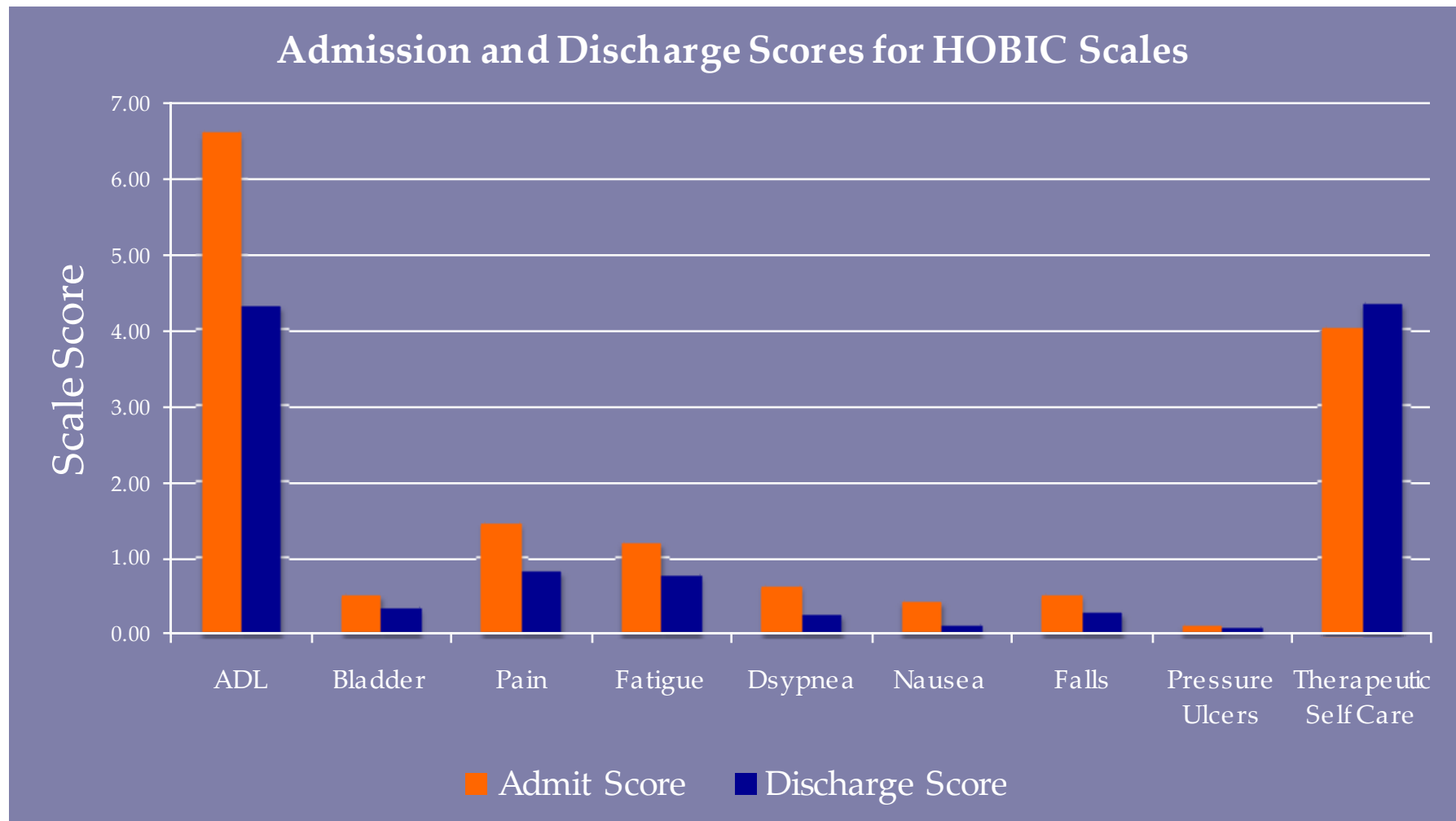
The slide features a light blue background with a faint, vertical image of classical columns on the left side. The title 'Data Analysis' is centered at the top in a large, bold, dark red serif font. Below the title, there are two bullet points in a dark blue serif font. The entire content is enclosed in a thin white border, which is itself within a larger brown border.

Data Analysis

- Analysis based on 59,157 acute care assessments (where both admission and discharge HOBIC assessment available for patients)
- Changes in HOBIC scores from admission to discharge examined

Results

Changes in HOBIC Scores (admission to discharge)



Results

Changes in HOBIC Scores (admission to discharge) 2nd run

	Admission		Discharge			
	Mean	SD	Mean	SD	SE	P
ADL	5.84	9.62	4.39	8.53	0.16	<0.001*
Bladder Continence	0.45	1.00	0.35	0.95	0.11	<0.001*
Pain	1.35	1.29	0.77	1.07	0.49	<0.001*
Fatigue	1.08	1.07	0.73	0.87	0.36	<0.001*
Dyspnea	0.53	0.95	0.24	0.63	0.36	<0.001*
Nausea	0.38	0.77	0.10	0.38	0.46	<0.001*
Falls	0.44	0.89	0.27	0.70	0.22	<0.001*
Pressure Ulcers	0.08	0.39	0.08	0.39	0	0.455
Therapeutic Self-Care	4.17	1.26	4.32	1.21	0.12	<0.001*

Discussion

- The mean scores on the *ADL* demonstrated a statistically significant change [decrease] from admission (time 1) to discharge (time 2) indicating that patient care needs changed from '*total dependence*' or full care from others at the time of admission to requiring '*extensive assistance*' such as weight-bearing support from a helper at the time of discharge

Discussion

- The mean scores for *bladder continence* demonstrated a statistically significant change [decrease] from admission (time 1) to discharge (time 2) indicating that *continence improved*, such as *from use of a catheter on admission to being continent at discharge*

Discussion

- The mean scores on the *pain symptoms* demonstrated a statistically significant change [decrease] from admission (time 1) to discharge (time 2) indicating that pain symptoms changed from '*present and exhibited in last 24 hours*' to '*no pain present or exhibited in last 24 hours*'

Discussion

- The mean scores for *fatigue* had a statistically significant change [decrease] from admission (time 1) to discharge (time 2) indicating that fatigue changed from between *minimal and moderate levels on admission*, to *below minimal or none* on discharge

Discussion

- The mean scores for *dypsnea* had a statistically significant change [decrease] from admission (time 1) to discharge (time 2) indicating that difficulty breathing changed from being *somewhat present when performing moderate activities on admission*, to *below minimal or no dypsnea* on discharge

Discussion

- The mean scores for *nausea* had a statistically significant change [decrease] from admission (time 1) to discharge (time 2) indicating that patients changed from having *occasional nausea that did not interfere with eating and/or activity* on admission, to having *no nausea at all* on discharge

The background of the slide features a faint, light blue image of classical architectural columns, possibly from a Greek or Roman temple, with detailed capitals and fluted shafts. This image is overlaid on a solid light blue background.

Discussion

- These findings indicate that the scales are able to detect change in these outcomes over time
- For each of the outcomes, all are statistically significant and, the changes in scores are all in appropriate direction

Data Quality

HOBIC Assessments	March 31, 2009	March 31, 2010
Both admission and discharge assessments	24,967 24,967	59,157 59,157
Admission assessments <u>only</u>	19,859	43,311
Discharge assessments <u>only</u>	7,685	27,120
Total records	77,478	188,745

- Some data issues noted (re: both admission and discharge assessment availability)

The background of the slide features a faint, light blue image of classical architectural columns, possibly from a hospital or institutional building, which adds a sense of formality and tradition to the presentation.

Why This Research is Important?

- Provides first understanding of how to assess nurses' contribution to quality of inpatient hospital acute care
- Enables health care leaders to identify critical outcomes and processes of care for continuous improvement that are directly influenced by nursing personnel



Other Work Underway

- Examining relationship between **HOBIC** measures and readmission to acute care focusing on *therapeutic self care* (Dr. Walter Wodchis, HPME/ICES)
- Further analysis linking these data to nurse staffing models
- Individual work being conducted by researchers in **HOBIC** site (St. Mike's)

Questions

- Research program:
 - www.mcgillishall.com
- HOBIC:
 - www.health.gov.on.ca/hobic