

# The Ontario Senior Friendly Hospital Strategy

## Delirium and Functional Decline Indicators

A Report of the Senior Friendly Hospital Indicators Working Group  
November 2012

## Acknowledgements

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The Senior Friendly Hospitals (SFH) logo is used in this report with permission from the Regional Geriatric Program of Toronto.

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## Executive Summary

The vision for the LHIN-led Ontario Senior Friendly Hospital (SFH) Strategy is to enable seniors to maintain optimal health and function while they are hospitalized so that they can transition successfully home or to the next appropriate level of care. The provincial summary report of September 2011, *Senior Friendly Hospital Care across Ontario*, described the current state of senior friendly hospital care in Ontario. The report also identified two priority areas for action: delirium and functional decline. Providing best practices in these clinical areas is linked to improved patient outcomes as well as hospital and health system efficiencies.

This document summarizes the work of the provincial SFH Indicators working group, which was tasked with identifying metrics for ongoing monitoring and evaluation of delirium and functional decline practices. A literature review and environmental scan of Ontario’s hospitals identified a large array of potential indicators. Subsequently, a Delphi panel and multiple consensus meetings engaged clinical, academic, administrative, and decision support leaders from across the province in a collaborative effort to reach consensus on accountability indicators to submit for recommendation. As a result of this process, two indicators for each of delirium and functional decline were identified. In the case of delirium, these indicators directly measure the uptake of early detection strategies and the outcome of prevention protocols. The indicators for functional decline capture the assessment of ADL function and the degree to which functional decline in hospital is minimized:

### DELIRIUM INDICATORS (FOR ALL HOSPITAL CARE SECTORS):

<b>Rate of Baseline Delirium Screening</b>	<b>Process Indicator</b>	<b>Percentage of patients (65 and older) receiving delirium screening using a validated tool upon admission to hospital</b>
<b>Rate of Hospital Acquired Delirium</b>	<b>Outcome Indicator</b>	<b>Incidence of delirium in patients (65 and older) acquired over the course of hospital admission</b>

### FUNCTIONAL DECLINE INDICATORS (FOR THE ACUTE CARE SECTOR ONLY):

<b>Rate of ADL Function Assessment at Admission and Discharge</b>	<b>Process Indicator</b>	<b>Percentage of hospitalized patients (65 and older) receiving assessment of ADL function with a validated tool AT BOTH ADMISSION AND DISCHARGE</b>
<b>Rate of No Decline in ADL Function</b>	<b>Outcome Indicator</b>	<b>Percentage of patients (65 and older) with no decline in ADL function from hospital admission to hospital discharge as measured by a validated tool</b>

The work described in this report is a synthesis of knowledge from the published literature, the experience of implemented practice in Ontario’s hospitals, and the deliberation of a diverse group of health care experts from across the province. Many important issues were given consideration during this process. Key factors leading to successful implementation include minimizing the burden of assessment on the care team, implementing electronic records to trigger assessment and to support

data retrieval and analysis, and providing ongoing education to support clinical processes. A number of common proxy measures were considered for both delirium and functional decline – length of stay, re-hospitalization rates, and discharge destination. These outcomes are related to many different variables, and it was felt that use of these measures as indicators would not drive quality improvement in practice related to delirium and functional decline. Instead, focusing on the quality of care in these two areas of clinical practice – and providing indicators that measure this – will contribute toward improved health system performance and patient outcomes.

It is important to note that a number of hospitals have already initiated work developing their clinical programs for delirium and functional decline, but have done so without a common language or common goals to provide direction. The present work brings us closer to achieving this and where questions remain – such as identifying a common ADL assessment tool – the areas of uncertainty have been outlined and targeted for further discussion and evaluation. The next step will be pilot testing of the recommended indicators to identify challenges in the implementation of data collection and reporting, assess data quality, and refine technical specifications so that these indicators can be used to best effect as measures of accountability and drivers of quality care. A sub-working group of the SFH Indicators working group has been convened to plan this process.

Several options for the implementation of these indicators can be considered. At the level of the individual hospital, these indicators provide a common direction for quality improvement in the delivery of clinical care. For evaluative purposes, the indicators can be included as measures of delirium and functional decline practice within Hospital Service Accountability Agreements (HSAAs). Alternatively, they may support SFH submissions within hospital Quality Improvement Plans (QIPs) required by the Excellent Care for All Act (ECFAA). These indicators, in draft form, have been submitted to Health Quality Ontario for possible inclusion within ECFAA guidance documents for the coming fiscal year. With the forthcoming recommendations pertaining to the Ontario Seniors' Care Strategy anticipated later this fall, it will be important to consider how the proposed SFH indicators can be leveraged within this initiative. Maintaining optimal functional status of older patients while they are hospitalized is an important contribution to the overall health system's ability to support the well-being and independence of seniors in the community – representing a key partnership of hospitals within a well-integrated and senior friendly health system.

Hospital practice addressing complex clinical areas such as delirium and functional decline requires clinical training, teamwork, and organizational will. To help sustain these and other senior friendly hospital priorities identified in the future, a provincial governance structure and collaborative has been proposed. With appropriate SFH indicators supporting evaluation, enablers such as the SFH "Promising Practices" Toolkit, and committed leadership, the province can continue to work together toward better health outcomes for our growing population of seniors.

# 1 Background: The Ontario Senior Friendly Hospital Strategy

The Ontario Senior Friendly Hospital (SFH) Strategy is an initiative led by the Local Health Integration Networks (LHINs) of Ontario, coordinated by the Regional Geriatric Program (RGP) of Toronto, and supported by geriatrics and health care expertise across the province. The overall vision of the SFH Strategy is to enable seniors to maintain optimal health and function while they are hospitalized so that they can transition successfully home or to the next appropriate (and lowest) level of care.

In winter 2011, the RGP of Toronto provided assistance to the LHINs and RGPs across Ontario to generate self-assessment summary reports of SFH care within each LHIN. The information in these reports informed a provincial summary completed in September 2011 entitled *Senior Friendly Hospital Care across Ontario*.<sup>1</sup> This report identified promising SFH practices across the province, described opportunities to improve practice, and provided recommendations to hospitals and to LHINs to advance SFH care. The report also listed the following clinical areas as priorities on which to focus action: (1) functional decline, (2) delirium, and (3) transitions in care.

Subsequently, the LHINs convened two provincial working groups co-chaired by the RGP of Toronto and Baycrest: the SFH “Promising Practices” Toolkit working group and the SFH Indicators working group. The SFH “Promising Practices” Toolkit working group was tasked with developing web-based toolkit modules for delirium and functional decline. Clinical experts representing the diversity of practice around the province voted on assessment tools and clinical practice resources that are evidence-informed, feasible, inter-professional in scope and, ultimately, likely to enhance care for patients. The result, launched in May 2012, is a compilation of these tools hosted on the RGP of Toronto’s Senior Friendly Hospital Toolkit at [www.seniorfriendlyhospitals.ca](http://www.seniorfriendlyhospitals.ca).

The role of the SFH Indicators working group is to identify metrics that will support the ongoing monitoring and evaluation of SFH care targeting delirium and functional decline. A modified Delphi panel-consensus meeting protocol involving clinical, research, administrative, and decision support experts across the province was orchestrated to fulfill this task. This report defines indicators relevant to clinical practices addressing delirium and functional decline – practices that, when sustained, have been shown to improve care, satisfaction, and health outcomes for frail hospitalized seniors whilst generating efficiencies for the health system. The report proposes pilot testing of these indicators so that they can be used to best effect as accountability measures and drivers of quality improvement.

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<sup>1</sup> Wong K, D Ryan, and B Liu (2011). *Senior Friendly Hospital Care Across Ontario: Summary Report and Recommendations*. Toronto, ON: Ontario Local Health Integration Networks. Retrieved Sep 12 2012 from [http://seniorfriendlyhospitals.ca/files/SFH%20Provincial%20Report%20-%20FINAL\\_1.pdf](http://seniorfriendlyhospitals.ca/files/SFH%20Provincial%20Report%20-%20FINAL_1.pdf)

## 2 Indicator Development Process

The SFH indicator development process was designed as an adapted Delphi panel-consensus meeting protocol involving clinical, research, administrative, and decision support personnel from across the province. Delphi methodology is frequently employed to answer queries for which the available evidence does not offer a definitive conclusion. It is predicated on the enrollment of a group of participants who together possess the diversity of knowledge needed to give thoughtful consideration to a problem and its areas of uncertainty. It also functions well to consolidate subject matter expertise from geographically diverse regions. Delphi methodology consists of a series of questionnaires, or “rounds,” that synthesize expert opinion to bring about consensus, and has been used in the development of healthcare performance and quality indicators.<sup>2</sup>

An overview of the four phases of the SFH indicator development process is provided below:



### Phase 1

#### GENERATION OF INDICATOR SHORTLISTS

The initial shortlists of candidate indicators – for both delirium and functional decline – were generated using data gathered from a comprehensive literature review and an environmental scan of Ontario’s hospitals.

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<sup>2</sup> Boukdedid R, H Abdoul, M Loustau, O Sibony, and C Alberti (2011). Using and Reporting the Delphi Method of Selecting Healthcare Quality Indicators: A Systematic Review. *PLoS ONE* 6(6): e20476. Doi: 10.1371/journal.pone.0020476.

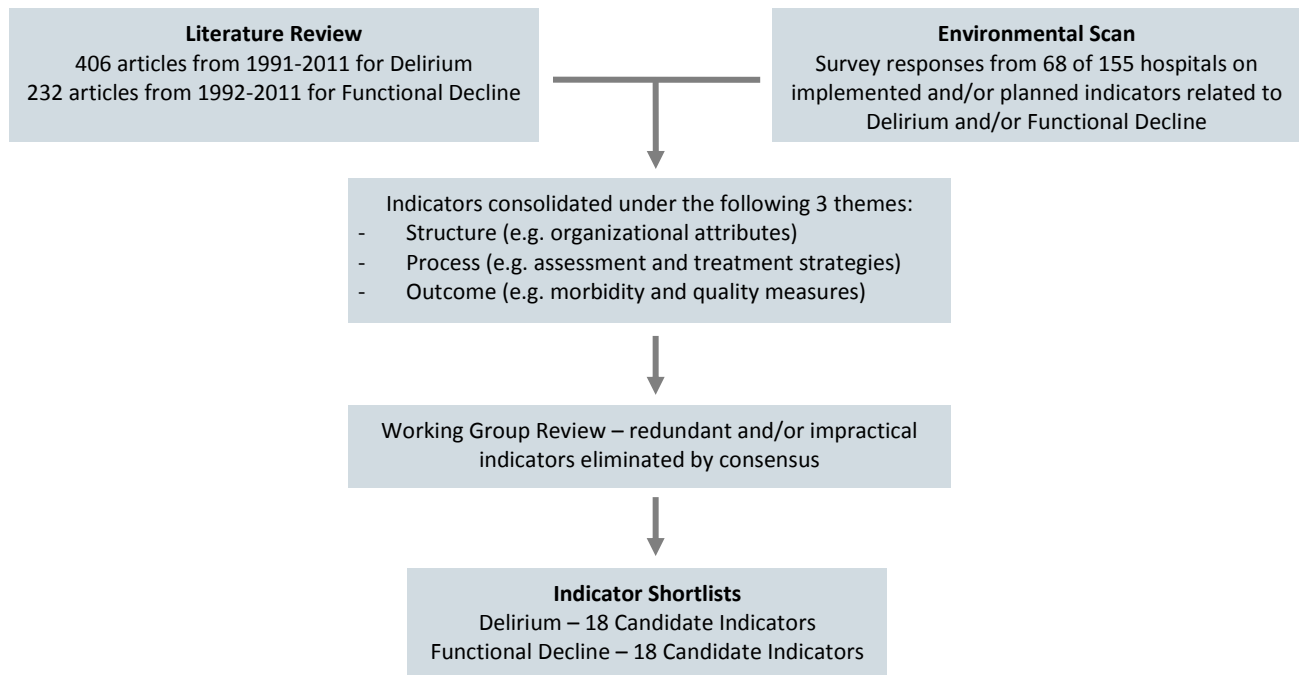
## Literature Review

Articles published between 1991 and 2011 pertaining to the care of older adults in acute care, rehabilitation, and other post-acute hospitals were retrieved from the Medline, CINAHL, Cochrane Central Register of Controlled Trials, and Embase repositories. For delirium, abstracts that were included addressed the topics of risk factors, outcomes, management, assessment, screening, indicators, guidelines, measures, algorithms, and evaluations. For functional decline, included abstracts were related to exercise, activation, mobilization, activity, rehabilitation, function, ambulation, and assessment tools. Full-text articles were included in the scoping review based upon the criteria outlined in the flowcharts in Appendix A.

## Environmental Scan

To identify existing practices in Ontario hospitals, a questionnaire was sent out in winter 2012 by all LHINs to the hospital organizations within their geographic boundaries. Hospitals were asked to describe implemented or developing practices pertaining to the measurement of delirium and mobility/activities of daily living (ADL) functional status (please refer to the Appendix B for the Environmental Scan Questionnaire). Sixty-eight hospitals across the province provided responses to the survey and described their practices in these areas.

The information extracted from the literature review and environmental scan was used to generate the initial candidate indicator shortlists (see Appendices C and D) as summarized below:





## DELPHI VOTING – ON-LINE QUESTIONNAIRE

In preparation for the first round of appraisal – the on-line Delphi voting – a questionnaire was developed for participants to rate the candidate indicators for those most practical for implementation. Eight characteristics were scored on a 9-point numeric scale: validity, reliability, feasibility, responsiveness, ease of reporting, clarity, action-ability, and appropriateness. The complete set of questions utilized in the Delphi voting stage is included in Appendix E.

### Phase 2

Phase 2 marked the launch of the Delphi voting process for delirium and functional decline indicators. In addition to the SFH Indicators working group members, more experts were invited in order to better represent the diversity of hospital practice across the province. The additional participants – together with the working group – formed the group of experts that would participate in Delphi voting and consensus meeting discussion and guide the development of these indicators. The subject matter expertise and hospital practice settings represented by this voting membership are listed below (a list of all the voting participants is included in Appendix G):

Professional Expertise	Hospital Practice Settings
Clinician: Front-Line	Urban
Clinician: Champion/Educator	Rural/Small Community
Health Care Research	Teaching Hospital
Data Management/Decision Support	Community Hospital
Hospital Administration	Acute Care
Local Health Integration Network Administration	Rehabilitation
	Complex Continuing Care

All voting members attended a kick-off meeting in May 2012 in which they were provided with the background surrounding the development of these indicators, presented with the initial indicator shortlists, and given instructions on how to complete the on-line Delphi surveys. Participants were asked to answer the survey based on the hospital setting and area of practice in which they were most familiar, giving consideration to the availability of resources in this setting. Participants were given three weeks to complete the on-line Delphi surveys, providing a score and written comments for each candidate indicator.

In July 2012, an in-person consensus meeting was held with all of the voting members to review the results of the Delphi voting process. A meeting facilitator, recruited from Health Quality Ontario and external to this process, moderated the discussion. At this meeting, candidate indicators were categorized as “strong,” “moderate,” or “weak” based on the overall average scores they received during on-line voting (see Appendices C and D). After discussing pertinent issues, each participant was asked to re-rank each indicator for inclusion into the next round of discussions. As an outcome, reduced numbers of candidate indicators for both delirium and functional decline were generated.

## Phases 3 and 4

Two additional consensus meetings were held with all voting members in August and September 2012 to select final indicators, refine their definitions, and discuss technical details related to implementation. In preparation for these meetings, participating members had also been asked to solicit feedback from colleagues within their organizations. This input encouraged very rich discussion on the strengths and weaknesses of the various options being explored. The discussion from the consensus meetings is summarized in sections 3 and 4 of this report. The indicators identified are those recommended by the working group as accountability measures related to SFH practices addressing delirium and functional decline.

### 3 Delirium Indicators (for all Hospital Care Sectors)

The Delphi process and subsequent consensus discussions led to the identification of two indicators, one process and one outcome, for hospital practice addressing delirium. These indicators and their characteristics are summarized below:

Process	Rate of Baseline Delirium Screening
<b>Description</b>	<b>Percentage of patients (65 and older) receiving delirium screening using a validated tool upon admission to hospital</b>
<b>Numerator</b>	# of patients (65 and older) receiving at least one delirium screen within 48h of admission to hospital
<b>Denominator</b>	# of patients (65 and older) discharged/separated from hospital
<b>Improvement Noted As</b>	An increase in delirium screening rates
<b>Data Source and/or Tool</b>	Inpatient Units: Confusion Assessment Method (CAM) Intensive/Critical Care Units: CAM-ICU or Intensive Care Delirium Screening Checklist (ICDSC)
<b>Exclusions</b>	(1) Patients whose level of consciousness is (a) unresponsive or (b) requiring vigorous stimulation for a response (2) Patients in palliative care

Outcome	Rate of Hospital Acquired Delirium
<b>Description</b>	<b>Incidence of delirium in patients (65 and older) acquired over the course of hospital admission</b>
<b>Numerator</b>	# of discharged patients (65 and older) who screen positive for delirium at any point during hospitalization after a negative baseline screen on admission
<b>Denominator</b>	# of patients (65 and older) discharged/separated from hospital with a negative baseline screen for delirium on admission
<b>Improvement Noted As</b>	A decrease in delirium incidence
<b>Data Source and/or Tool</b>	Inpatient Units: Confusion Assessment Method (CAM) Intensive/Critical Care Units: CAM-ICU or Intensive Care Delirium Screening Checklist (ICDSC)
<b>Exclusions</b>	(1) Patients whose level of consciousness is (a) unresponsive or (b) requiring vigorous stimulation for a response (2) Patients in palliative care
<b>Considerations</b>	Minimum frequency of screening to capture incidence – at least daily after the initial baseline screen

## Clinical Rationale for Selected Indicators

The literature informs us that delirium is an under-recognized and under-reported clinical condition, and feedback from the environmental scan suggests the same. Detecting delirium and monitoring the incidence rate – the rate of delirium that develops in hospital – is an important first step in the prevention and management of this possible consequence of hospitalization. There are published strategies for preventing delirium in hospital that demonstrate successful outcomes for patients and the health system,<sup>3,4</sup> and protocols are being piloted and evaluated in a number of Ontario hospitals. The process indicator defined in this work – the rate of baseline delirium screening – captures the uptake of early delirium detection strategies. Measuring outcome – the rate of hospital acquired delirium – reflects the success of prevention protocols.

### **Key Themes of Discussion during the Selection of Indicators**

- **Feasibility** – burden of assessment on care team, ease of data retrieval and reporting, compliance rates when using paper records compared with electronic systems
- **Proxy Indicators** (Length of Stay, Re-hospitalization Rates, Discharge Destination) – are linked to delirium but are multi-factorial; they are not appropriate measures to drive performance and quality improvement in delirium practice; “Home First” initiatives and varying levels of community support may allow some patients to return home but not reflect actual delirium practice in hospital
- **Need for Education** – implementation of delirium screening, prevention, and management activities requires ongoing education; the provision of staff education was considered as a structure indicator – however, the process and outcome indicators selected implicitly capture staff education as it is a necessary element leading to improved clinical practice and, in turn, improved performance in these indicators
- **Existing Practice** – education, screening, prevention, and management has been implemented in some hospitals in Ontario; early metrics commonly show an increase in delirium incidence rates likely reflecting improved detection rather than an increase in patients with delirium

## Implementation Considerations

Several systematic reviews have identified the Confusion Assessment Method (CAM)<sup>5</sup> as a preferred tool for detecting delirium in a variety of clinical and research settings, including acute care hospital

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<sup>3</sup> Inouye SK, ST Bogardus Jr, DI Baker, L Leo-Summers, and LM Cooney Jr (2000). The Hospital Elder Life Program: a model of care to prevent cognitive and functional decline in older hospitalized patients. *Journal of the American Geriatrics Society* 48: 1679-1706.

<sup>4</sup> Vidan MT, E Sanchez, M Alonso, B Montero, J Ortiz, and JA Serra (2009). An Intervention Integrated into Daily Clinical Practice Reduces the Incidence of Delirium During Hospitalization in Elderly Patients. *Journal of the American Geriatrics Society* 57: 2029-2036.

<sup>5</sup> Inouye SK, CH van Dyck, CA Alessi, S Balkin, AP Siegal, and RI Horwitz (1990). Clarifying confusion: the confusion assessment method. A new method for detecting delirium. *Annals of Internal Medicine* 113: 941-948.

wards.<sup>6,7,8</sup> In addition to being accurate, the CAM is quick to administer and can be utilized, with modest training, by different members of the inter-professional team. In order to detect delirium, the majority of research protocols describe daily screening for delirium within 24 hours of hospital admission. A smaller number of research studies used two- or three-times a day delirium screening. Similarly, many of the hospitals in Ontario who have implemented delirium screening report utilizing the CAM on a daily basis, with a smaller number reporting a delirium screening frequency of twice-daily, or with each nursing shift. For these reasons, the working group recommends daily screening (at minimum) using the CAM on hospital inpatient units, and the CAM-ICU or Intensive Care Delirium Screening Checklist (ICDSC) on intensive/critical care units. Baseline screening within 48 hours of hospital admission is recommended, giving hospital staff enough time to establish an accurate patient history as well as an appropriate period of observation to establish baseline cognitive status and an accurate assessment of delirium.

While the tools recommended in this report (CAM, CAM-ICU, and ICDSC) are relatively simple and can be administered by trained staff within minutes, an important consideration is the implementation of these tools within an electronic patient data system. Initial comments by hospitals that have piloted delirium screening, from both Ontario and international partners, is that electronic systems can cue clinicians to conduct assessments and can support retrieval of information by decision support teams. They report that this resource is very significant in supporting compliance with these protocols. Electronic records may prove to be a very significant factor in the successful implementation and sustainability of these practices.

Hospitals that have implemented delirium screening and monitor delirium incidence also report a common succession of knowledge. The implementation of delirium screening over time brings about improved awareness and clinical knowledge leading to an improvement in accurate recognition and detection of delirium. This, in the short term, leads to an increase in delirium incidence rates – one that reflects improved detection rather than an actual increase in patients with delirium. As prevention measures are implemented and refined, a subsequent decrease in delirium incidence indicates a successful outcome. It will be critical to bear this in mind when interpreting the initial trends in delirium rates reported for this indicator.

### **Outstanding Questions**

During the selection process for these indicators, a number of questions were raised but not yet addressed. The next phase in their development is to pilot the proposed indicators at various hospital sites in order to assess the feasibility of implementing them for accountability purposes and to identify

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<sup>6</sup> Wong CL, J Holroyd-Leduc, DL Simel, and SE Straus (2010). Does This Patient Have Delirium? Value of Bedside Instruments. *Journal of the American Medical Association* 304(7): 779-786.

<sup>7</sup> Adamis D, N Sharma, PJP Whelan, and AJD Macdonald (2010). Delirium scales: A review of current evidence. *Aging and Mental Health* 14(5): 543-555.

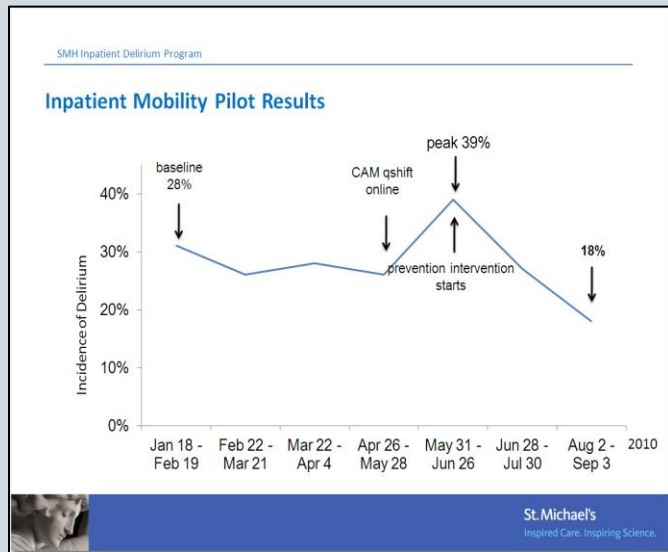
<sup>8</sup> R Vreeswijk, JF Timmers, JFM de Jonghe, and KJ Kalisvaart (2009). Assessment scales for delirium. *Aging Health* 5(3): 409-425.

factors which lead to success. A sub-working group has been convened to plan the pilot testing of these draft SFH indicators which will take into consideration the following questions:

- Are there any additional patient populations that should be excluded from this measurement?
- Are these tools and metrics feasible using paper-based screening and tracking?
- What is the impact on compliance of an electronic-based system for screening and tracking?
- What frequency of reporting is most feasible to implement and, at the same time, able to detect change (e.g. monthly, quarterly)?
- What success factors empower this clinical practice and culture change at the bedside? Can they be shared and disseminated in a broader fashion (e.g. province- or LHIN-wide)?
- What impact does this practice have on hospital staff culture? On the patient and family experience and satisfaction?

### PRACTICE VIGNETTE – ST MICHAEL’S DELIRIUM PROGRAM

*A delirium program was piloted on the Inpatient Mobility unit, a medical-surgical service at St Michael’s, an academic hospital in the Toronto Central LHIN. The baseline incidence of delirium, before the program was implemented, was 28 percent. When the Confusion Assessment Method (CAM) was implemented as part of the nurses’ electronic documentation, the incidence peaked at 39 percent due to increased awareness and detection of delirium on the unit. It was at this time that a “HANDOVER” prevention tool was implemented, which decreased the incidence of delirium to 18 percent. With lessons learned, corporate-wide roll-out of this protocol is now underway.*



## 4 Functional Decline Indicators (for the Acute Care Sector Only)

The Delphi process and consensus discussions surrounding functional decline led to the identification of one process and one outcome indicator. Considerable deliberation took place to define these indicators and their characteristics are summarized below:

Process	Rate of ADL Function Assessment at Admission and Discharge (Acute Care)
Description	<b>Percentage of hospitalized patients (65 and older) receiving assessment of ADL function with a validated tool AT BOTH ADMISSION AND DISCHARGE</b>
Numerator	# of patients (65 and older) receiving assessment for ADL function AT BOTH ADMISSION AND DISCHARGE/SEPARATION using the same validated tool
Denominator	# of patients (65 and older) discharged/separated from hospital
Improvement Noted As	An increase in the rate of ADL function assessment recorded at both admission and discharge/separation
Data Source and/or Tool	<u>Assessment Tool Options:</u> Barthel Index (working group recommendation) Health Outcomes for Better Information in Care (HOBIC) – ADL Section Alpha-FIM Tool®
Exclusions	(1) Patients in emergency department who are not admitted to hospital (2) Patients in palliative care (3) Patients admitted for day surgery procedures (4) Patients with LOS < 48 hours
Considerations	<ul style="list-style-type: none"> <li>• Admission assessment is defined as that occurring <u>within 48hours of the decision to admit</u> to an acute care bed</li> <li>• Discharge assessment is defined as that occurring <u>at any time within a 48 hour window prior to discharge</u> from an acute care bed (including time spent in an alternate level of care [ALC] designated bed in acute care)</li> <li>• For patients admitted after an elective procedure (e.g. total joint replacement) the ADMISSION ADL function assessment should be taken within 48 hours following their procedure</li> <li>• The same assessment tool is to be used at admission and discharge</li> </ul>

Outcome	Rate of No Decline in ADL Function (Acute Care)
Description	Percentage of patients (65 and older) with no decline in ADL function from hospital admission to hospital discharge as measured by a validated tool
Numerator	# patients (65 and older) with an ADL function score at hospital discharge/separation that is equal to or greater than their ADL function score at admission
Denominator	# of patients (65 and older) discharged/separated from hospital
Improvement Noted As	An increase in the proportion of patients who do not decline in ADL function from admission to discharge/separation
Data Source and/or Tool	Assessment Tool Options: Barthel Index (working group recommendation) Health Outcomes for Better Information in Care (HOBIC) – ADL Section Alpha-FIM Tool®
Exclusions	(1) Patients in emergency department who are not admitted to hospital (2) Patients in palliative care (3) Patients admitted for day surgery procedures (4) Patients with LOS < 48 hours
Considerations	<ul style="list-style-type: none"> <li>Admission assessment is defined as that <u>occurring within 48 hours of the decision to admit</u> to an acute care bed</li> <li>Discharge assessment is defined as that occurring <u>at any time within a 48 hour window prior to discharge</u> from an acute care bed (including time spent in an alternate level of care [ALC] designated bed in acute care)</li> <li>For patients admitted after an elective procedure (e.g. total joint replacement) the ADMISSION ADL function assessment should be taken within 48 hours following their procedure</li> <li>The same assessment tool is to be used at admission and discharge</li> </ul>

### Clinical Rationale for Selected Indicators

In Ontario, the measurement of ADL function is an established practice in rehabilitation, complex continuing care, and mental health services under the National Rehabilitation, Continuing Care, and Ontario Mental Health Reporting Systems (NRS, CCRS, and OMHRS, respectively) at the Canadian Institute for Health Information (CIHI). The recommendations within this section of the report specifically target the acute care hospital sector. The priority for this working group was not to redefine existing metrics, but to address the gap in monitoring of ADL function that presently exists in acute care hospital beds.

Evidence tells us that older adults spend insufficient time mobilizing while in acute hospital, even in cases where they were independently mobile prior to admission.<sup>9</sup> For frail patients, inadequate mobility

<sup>9</sup> Brown CJ, DT Redden, KL Flood, and RM Allman (2009). The Underrecognized Epidemic of Low Mobility During Hospitalization of Older Adults. *Journal of the American Geriatrics Society* 57: 1660-1665.



can lead to loss of independent ADL function which, in turn, extends the length of hospital stay and limits safe discharge options. Modest inputs have been shown to prevent the consequences of deconditioning and to shorten acute care length of stay, reduce discharges to long-term care, and increase patient satisfaction.<sup>10,11,12</sup>

Decline in ADL function can occur as a consequence of many variables. The effect of acute illness or injury, sub-optimal medication regimens, and hospital-associated deconditioning can all impact a patient's functional independence. Bringing about *improvement* in function is a prime directive of practice in the rehabilitation sector. The acute care sector instead focuses primarily on the management of medical emergency, the stabilization of acute illness, and serious operative procedures. For this reason, the indicators selected during this process focus on measuring the proportion of patients who *do not decline* in ADL function. It is anticipated that a proportion of patients receiving acute care services will decline in ADL function, but minimizing those who deteriorate as a consequence of inadequate mobility and activation during hospitalization is the desired outcome driven by these selected metrics.

#### **Key Themes of Discussion during the Selection of Indicators**

- **Feasibility** – burden of assessment on care team, ease of data retrieval and reporting, compliance rates when using paper records compared with electronic systems
- **Proxy Indicators** (Length of Stay, Re-hospitalization Rates, Discharge Destination) – are linked to functional decline but are multi-factorial; they are not appropriate measures to drive performance and quality improvement in hospital practice related to functional decline; “Home First” initiatives and varying levels of community support may allow some patients to return home but not reflect actual practice in hospital
- **Established Practices in Non-Acute Hospital Sectors** – discussion around tools and metrics that have been implemented in rehabilitation (National Rehabilitation Reporting System), complex continuing care (Continuing Care Reporting System), and mental health (Ontario Mental Health Reporting System) sectors
- **Existing Practice in Acute Care** – while it would be advantageous as a system to have a consistent suite of assessment tools, there is considerable heterogeneity in patient characteristics and therapeutic goals across sectors; tools that create a high burden of assessment affect compliance significantly, especially in acute care where there is rapid patient turnover

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<sup>10</sup> Padula CA, C Hughes, and L Baumhover (2009). Impact of a Nurse-Driven Mobility Protocol on Functional Decline in Hospitalized Older Adults. *Journal of Nursing Care Quality* 24(4): 325-331.

<sup>11</sup> Landefeld CS, RM Palmer, DM Kresevic, RH Fortinsky, and J Kowal (1995). A randomized trial of care in a hospital medical unit especially designed to improve the functional outcomes of acutely ill older patients. *New England Journal of Medicine* 332: 1338-1344.

<sup>12</sup> de Morton N, JL Keating, and K Jeffs (2007). Exercise for acutely hospitalized older medical patients. *Cochrane Database of Systematic Reviews*, Issue 1. Art No: CD005955. DOI: 10.1002/14651858.CD005955.pub2.

- **Time Points of ADL Assessment** – assessment at both admission AND discharge was determined to be necessary for accountability as they allow the detection of patients who improve, maintain, or decline in ADL function; monitoring completion rates of ADL assessment at admission or at discharge alone might serve as useful quality improvement indicators to help hospitals target where additional action is needed

### Implementation Considerations

Assessment of ADL function at different time points (at hospital admission and discharge, for instance) allows for the detection of change in a patient’s functional capabilities. The environmental scan conducted during this process describes a number of ADL assessments that have been piloted in the acute care sector in Ontario, though a standardized approach has yet to be broadly adopted.

One such initiative, piloted in a subset of Ontario hospitals, is the Health Outcomes for Better Information and Care (HOBIC) initiative led by the Ministry of Health and Long Term Care and coordinated by the Institute for Clinical Evaluative Sciences (ICES). A summary report describes this pilot, conducted at 35 small and 17 large hospital sites.<sup>13</sup> Another functional measure implemented in acute care is the AlphaFIM® instrument, a licensed web-based tool of the Uniform Data System for Medical Rehabilitation (UDSMR) used in Ontario to assess readiness for rehab in the acute stroke population. Use of the AlphaFIM® has been considered in other patient cohorts, and its suitability in the acute geriatric population has been reported in the literature.<sup>14</sup> A smaller number of hospitals report measurement of ADL function in quality improvement strategies, with the Katz Index<sup>15</sup> and Barthel Index<sup>16</sup> most frequently employed as assessment tools. Characteristics of the assessment tools, feedback related to their implementation, and discussion surrounding their merits and potential challenges are summarized in the table that follows:

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<sup>13</sup> Wodchis WP, A Corallo, X Ma, P White, D Pringle, P de Nobrega, K Iron, and L McGillis Hall (2012). *Health Outcomes for Better Information and Care (HOBIC): Acute Care in Ontario. ICES Investigative Report*. Toronto: Institute for Clinical Evaluative Sciences.

<sup>14</sup> Hinkle JL, J McClaran, J Davies, and D Ng (2010). Reliability and Validity of the Adult Alpha Functional Independence Measure Instrument in England. *Journal of Neuroscience Nursing* 42(1): 12-18.

<sup>15</sup> Katz S, AB Ford, RW Moskowitz, BA Jackson, and MW Jaffe (1963). Studies of illness in the aged: The index of ADL: A standardized measure of biological and psychosocial function. *Journal of the American Medical Association* 185(12): 914-919.

<sup>16</sup> Mahoney FI and DW Barthel (1965). Functional evaluation: the Barthel Index. *Maryland State Medical Journal* 14: 61-65.

TOOL	HOBIC (ADL ITEMS)	AlphaFIM®	BARTHEL INDEX	KATZ INDEX
<b>Validity/Reliability</b>	<ul style="list-style-type: none"> <li>Assessment items are based on the InterRAI™ Acute Care tool</li> </ul>	<ul style="list-style-type: none"> <li>Tested in the acute medical geriatric population<sup>17,18</sup></li> <li>Reliability – Cronbach’s Alpha = 0.897 (compared to 0.911 for the Barthel Index)</li> <li>Validity – correlation between Alpha FIM and Barthel Index is 0.86 (p &lt; 0.001)</li> </ul>	<ul style="list-style-type: none"> <li>Validity well established – was the first tool developed to assess the rehabilitation process and has served as a benchmark for other measures</li> <li>Test-retest reliability = 0.87</li> <li>Intra-rater reliability = 0.99</li> <li>Inter-rater reliability = 0.75-0.99</li> </ul>	<ul style="list-style-type: none"> <li>Most evidence for validity and reliability are published by Katz et al</li> <li>Inter-rater reliability = 0.95 or better after training<sup>19</sup></li> <li>Criterion validity – Katz Index has been shown to be highly correlated with Barthel Index</li> </ul>
<b>Items and Scoring</b>	<ul style="list-style-type: none"> <li>7 items (from InterRAI™ Acute Care, Section G1) measured on an 8-point scale: <ul style="list-style-type: none"> <li>Bathing</li> <li>Personal Hygiene</li> <li>Walking</li> <li>Transfer to/from Toilet</li> <li>Toilet Use</li> <li>Bed Mobility</li> <li>Eating</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>A subset of 6 items from the full FIM, scored on a 7-point scale: <ul style="list-style-type: none"> <li><u>Motor Items</u> <ul style="list-style-type: none"> <li>Eating</li> <li>Grooming</li> <li>Bowel Management</li> <li>Transfer to Toilet</li> </ul> </li> <li><u>Cognitive Items</u> <ul style="list-style-type: none"> <li>Expression</li> <li>Memory</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>10 items scored on a 3-point scale (note – bathing and grooming are scored on a 2-point scale, transfers and mobility on a 4-point scale; a modified version scores all items on a 5-point scale): <ul style="list-style-type: none"> <li>Feeding</li> <li>Bathing</li> <li>Grooming</li> <li>Dressing</li> <li>Bowels</li> <li>Bladder</li> <li>Toilet Use</li> <li>Transfers</li> <li>Mobility</li> <li>Stairs</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>6 items on a 2-point scale (fully independent or not): <ul style="list-style-type: none"> <li>Bathing</li> <li>Dressing</li> <li>Toileting</li> <li>Transferring</li> <li>Continence</li> <li>Feeding</li> </ul> </li> </ul>

<sup>17</sup> Hinkle JL, J Davies, D Ng, and J McClaran (2008). Examining assessment tools for discharge planning. *Nursing Times* 104(43): 32-35.

<sup>18</sup> Hinkle JL, J McClaran, J Davies, and D Ng (2010). Reliability and Validity of the Adult Alpha Functional Independence Measure Instrument in England. *Journal of Neuroscience Nursing* 42(1): 12-18.

<sup>19</sup> Katz S, AB Ford, RW Moskowitz, BA Jackson, and MW Jaffe (1963). Studies of illness in the aged: The index of ADL: A standardized measure of biological and psychosocial function. *Journal of the American Medical Association* 185(12): 914-919.

TOOL	HOBIC (ADL ITEMS)	AlphaFIM®	BARTHEL INDEX	KATZ INDEX
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Has been piloted in Ontario hospitals (35 small hospital sites, 17 large hospital sites)</li> <li>• Consistent with InterRAI™ Acute Care suite of assessment tools</li> <li>• Electronic tool</li> </ul>	<ul style="list-style-type: none"> <li>• Has been implemented in acute care in Ontario to determine rehabilitation readiness for stroke patients</li> <li>• Appears to be reliable and valid in the acute medical geriatric population</li> <li>• Web-based electronic tool</li> </ul>	<ul style="list-style-type: none"> <li>• Validity well established</li> <li>• Very quick to administer (under 5 minutes)</li> <li>• Has been tested for reliability when administered as a telephone interview vs. face-to-face assessment (intra-class correlation coefficient = 0.89)</li> <li>• Has been implemented in Ontario as an assessment tool administered by trained Personal Support Workers</li> </ul>	<ul style="list-style-type: none"> <li>• Very quick to administer (well under 5 minutes)</li> </ul>
<b>Considerations</b>	<ul style="list-style-type: none"> <li>• Mixed compliance noted in pilot – 24% of pilot sites had completed admission and discharge scores<sup>20</sup></li> <li>• System does not force/cue completion of measures at both admission and discharge</li> <li>• Patient data considered invalid if either admission or discharge assessment not completed</li> <li>• Provides an aggregate “composite” ADL improvement/decline score, rather than the proportion of patients who improve/decline in their ADLs</li> </ul>	<ul style="list-style-type: none"> <li>• The AlphaFIM® is a licensed tool purchased from the Uniform Data System for Medical Rehabilitation (UDSMR)</li> <li>• Staff require training and annual recertification</li> </ul>	<ul style="list-style-type: none"> <li>• Quick to administer, but may be time-consuming as a paper tool and would benefit from electronic implementation</li> </ul>	<ul style="list-style-type: none"> <li>• May be limited in its ability to measure small increments of functional change<sup>21</sup></li> <li>• Implementation in acute care in the Netherlands has shown limitations in its sensitivity to measure change<sup>22</sup></li> <li>• Quick to administer, but may be time-consuming as a paper tool and would benefit from electronic implementation</li> </ul>

<sup>20</sup> Wodchis WP, A Corallo, X Ma, P White, D Pringle, P de Nobrega, K Iron, and L McGillis Hall (2012). *Health Outcomes for Better Information and Care (HOBIC): Acute Care in Ontario. ICES Investigative Report*. Toronto: Institute for Clinical Evaluative Sciences.

<sup>21</sup> Wallace M, and M Shelkey (2008). Monitoring functional status in hospitalized older adults. *The American Journal of Nursing* 108(4): 64-72.

<sup>22</sup> H Habets (2011), personal communication.

The HOBIC and AlphaFIM® assessment tools are electronic-based (web-based in the case of the AlphaFIM®) and have already been implemented to some degree in Ontario hospitals. One of the main concerns raised with these tools is the amount of time and resource needed for high compliance and reliable front-line clinical assessment. The initial pilot of the HOBIC tool in acute care resulted in a completion rate of the ADL section at both admission and discharge of 24 percent amongst participating hospital sites.<sup>23</sup> Higher levels of compliance might be more achievable with a tool that requires less time to administer and more modest training and certification needs, while possessing acceptable levels of accuracy and sensitivity. The Katz Index, while extremely quick to administer, is relatively insensitive in measuring change, and did not garner the recommendation of this group. The Barthel Index, however, is also quick to administer, its validity has been demonstrated when conducted as a telephone interview by trained lay personnel, and it has more sensitivity to change than the Katz Index. It is also available in a modified format that offers improved sensitivity with only a modest increase in the burden of assessment.<sup>24</sup>

These considerations do not lead to the identification of a single assessment tool for ADL function measurement in acute care. It is important to build upon the work of hospitals that have been successful in implementing HOBIC, or that are able to expand AlphaFIM® practices to capture the geriatric patient population. For hospitals without these established systems and without the additional resources required to put them in place, ADL function measurement using the Barthel Index appears to be a feasible and reliable choice. A pilot evaluation of these ADL function indicators will serve as a field test to identify the properties of these three assessment tools that will contribute to successful implementation of this important practice.

### **Outstanding Questions**

During the selection process for these indicators, a number of questions were raised but not yet addressed. The next phase in their development is to pilot the proposed indicators at various hospital sites in order to assess the feasibility of implementing them for accountability purposes and to identify factors which lead to success. A sub-working group has been convened to plan the pilot testing of these draft SFH indicators which will take into consideration the following questions:

- Are there any additional patient populations that should be excluded from this measurement?
- Which ADL function assessment tool (Barthel Index, AlphaFIM®, HOBIC ADL Section) is most feasible in practice? Are there any significant limitations with the use of these tools in acute care?
- Is compliance using the Barthel Index adequate using paper-based records for screening and tracking?

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<sup>23</sup> Wodchis WP, A Corallo, X Ma, P White, D Pringle, P de Nobrega, K Iron, and L McGillis Hall (2012). *Health Outcomes for Better Information and Care (HOBIC): Acute Care in Ontario. ICES Investigative Report*. Toronto: Institute for Clinical Evaluative Sciences.

<sup>24</sup> Shah S, F Vanclay, and B Cooper (1989). Improving the sensitivity of the Barthel Index for stroke rehabilitation. *Journal of Clinical Epidemiology* 42(8): 703-709.

- Can the Barthel Index be incorporated into an electronic-based system for screening and tracking, and what is the impact on compliance of doing so?
- Compliance with the “Rate of ADL Function Assessment” process indicator requires complete assessments at both admission and discharge – might partial compliance (e.g. when ONLY admission or discharge assessment is completed) be useful as an indicator for quality improvement?
- Are additional ADL function assessments necessary when abrupt changes in clinical status occur (e.g. elective surgeries, fracture repair affecting weight bearing status)?
- What frequency of reporting is most feasible to implement and, at the same time, able to detect change (e.g. monthly, quarterly)?
- What success factors empower this clinical practice and culture change at the bedside? Can they be shared and disseminated in a broader fashion (e.g. province- or LHIN-wide)?
- What impact does this practice have on hospital staff culture? On the patient and family experience and satisfaction?

#### **PRACTICE VIGNETTE – BROCKVILLE GENERAL HOSPITAL ENHANCED ACTIVATION PROGRAM**

*The Enhanced Activation Program was implemented in 2010 in the acute medical-surgical service at Brockville General Hospital, a small community hospital in the South East LHIN. Older patients, 65 years or greater, are screened by a nurse and referred to a personal support worker (PSW), who works closely with the inter-professional team to offer daily intervention to optimize their functional activation while in hospital. The Barthel Index – administered by the PSW on patient admission, 1 week post-admission, and upon discharge – is utilized to track changes in physical function. The goal of the program is to “help patients attain maximum physical, communicative, and cognitive functioning while addressing emotional, social, and spiritual needs to help them return to living in the community as independently as possible.”<sup>25</sup> After implementation of the program, the hospital has significantly reduced its number of patients requiring alternate-level-of care (ALC), as well as the number of its patients applying to long term care.<sup>24</sup>*

	<b>2009</b>	<b>2010</b>	<b>2011</b>
<b>ALC use</b>	> 50 beds	35 beds	< 10 beds
<b>% ALC patients</b>	21.2%	5.5%	4.6%
<b>Applications to long term care</b>	107	66	38
<b>ALC patients waiting for long term care</b>	179	101	65

<sup>25</sup> Crawford H, S Anderson, R TeKamp, V Chatzikiriakos, and D Osborne (2012). Enhanced activation and restorative care. *Healthcare Management Forum* 25: 4-9.

## 5 Looking Ahead: Next Steps

The prevention of delirium and the maintenance of functional ability in older hospitalized patients are key outcomes that support independent living in the community, helping to achieve the goals of patients and the health system alike. At present, delirium is under-recognized and under-reported, yet simple tools supported with modest training can assist clinicians to accurately recognize the condition. The assessment of ADL function is already a firmly established practice in the rehabilitation, complex continuing care and mental health sectors, and has been piloted in acute care. This practice is an important step toward preventing the decline in patients' functioning that limits safe and enduring transition to the community.

The work outlined in this report is a synthesis of knowledge from the published literature, the experience of implemented practice in Ontario's hospitals, and the deliberation of a diverse group of health care experts from across the province. It builds on existing work to bring us closer to standardized measures to monitor these important clinical processes. Where there is sufficient certainty, standard definitions have been proposed. Where questions remain – such as identifying a common ADL assessment tool – the areas of uncertainty have been outlined and targeted for further discussion and evaluation.

The next phase of the indicator development process is to pilot the proposed indicators at various hospital sites in order to capture implementation success and challenges. A sub-group of the SFH Indicators working group has been identified to lead the planning, implementation and evaluation of this exercise. A number of hospital sites across the province have already volunteered to participate. Importantly, many had already implemented some of these practices but had done so without a common language to provide direction. The field-level knowledge gained from the pilot evaluation will address this gap, and identify the variables critical to successful implementation of these metrics.

A longer term analysis of process and outcome results will provide information to help establish appropriate standards of practice for these important aspects of care. With appropriate performance targets established, the option of including these metrics in LHIN Hospital Service Accountability Agreements or alternatively as more strongly recommended Quality Improvement Plan options within ECFAA can be more thoughtfully considered.

Hospital practice addressing complex clinical areas such as delirium and functional decline requires clinical training, teamwork, and organizational will. To help sustain these and other senior friendly hospital priorities identified in the future, a provincial governance structure and collaborative has been proposed. This structure will enhance knowledge sharing at both the regional and provincial levels, harnessing the collective wisdom across Ontario's hospitals. With appropriate SFH indicators supporting evaluation, enablers such as the SFH "Promising Practices" Toolkit, and committed leadership, the province can continue to work together toward better health outcomes for our growing population of seniors.

## 6 Appendices

A – LITERATURE SEARCH: EXCLUDED ARTICLES

B – ENVIRONMENTAL SCAN QUESTIONNAIRE

C – DELIRIUM INDICATOR SHORTLISTS

D – FUNCTIONAL DECLINE INDICATOR SHORTLISTS

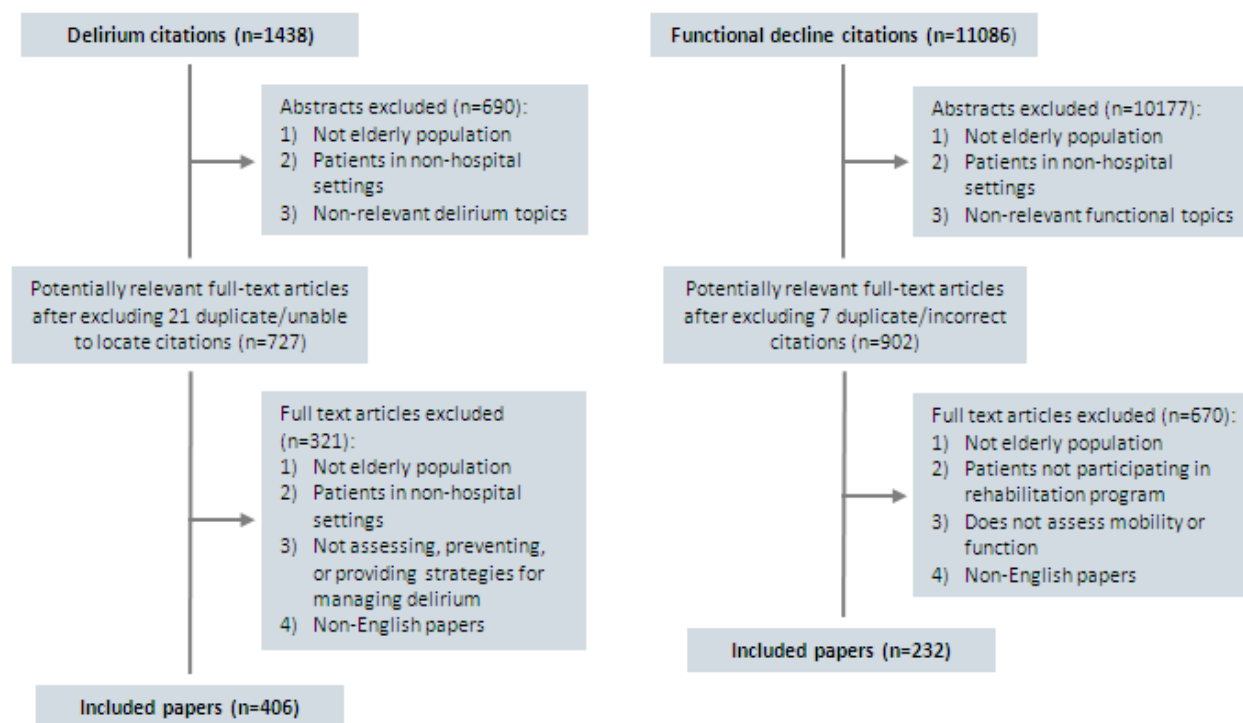
E – THE DELPHI SURVEY QUESTIONS

F – SFH INDICATORS WORKING GROUP MEMBERS

G – LIST OF VOTING MEMBERS



## Appendix A – Literature Search: Excluded Articles



## Appendix B – Environmental Scan Questionnaire

### Senior Friendly Hospital Indicators – Environmental Scan

#### Survey for Hospitals

<b>Submitting Hospital:</b>	
<b>Name &amp; Title of Survey Respondent:</b>	
<b>Date Completed:</b>	

Your help is requested in answering the questions posed below by completing the following table as much as possible:

- What metrics or indicators has your hospital implemented or is in the process of implementing to monitor **Delirium** at an organization and/or program level?
- What metrics or indicators has your hospital implemented or is in the process of implementing to monitor **Mobility and/or ADL** (activities of daily living) **Functional Status** at an organization and/or program level?

<b>DELIRIUM</b> (please use the rows below to describe hospital metrics/indicators related to Delirium)							
Name of Indicator/Metric	Numerator/Denominator	Data Source	Is this indicator used across the organization or within specific departments? Please specify.	Is this indicator/metric being tracked in an age-stratified manner?	Is there strong compliance with data collection?	Were there/ Are there any challenges associated with this indicator/metric?	What are the benefits associated with using this indicator/metric?
<i>Please add rows as required</i>							
<b>MOBILITY AND/OR ADL FUNCTIONAL STATUS</b> (please use the rows below to describe hospital metrics/indicators related to ADL Functional Status)							
Name of Indicator/Metric	Numerator/Denominator	Data Source	Is this indicator used across the organization or within specific departments? Please specify.	Is this indicator/metric being tracked in an age-stratified manner?	Is there strong compliance with data collection?	Are there any challenges associated with this indicator/metric?	What are the benefits associated with using this indicator/metric?
<i>Please add rows as required</i>							

## Appendix C – Delirium Indicator Shortlists

### Initial Indicator Shortlist Presented for Delphi Voting:

NAME OF INDICATOR	PRELIMINARY DEFINITION (N = numerator; D = denominator)
<b>STRUCTURE</b>	
1. Education of hospital staff on delirium assessment, prevention, and/or management	(N) # of hospital staff receiving education on delirium (D) # of all hospital staff
<b>PROCESS</b>	
2. Delirium Screening - assessment of patients on admission for the risk of experiencing delirium	(N) # of patients assessed for delirium risk (D) # of patients admitted to hospital
3. Assessment of patients for delirium during their hospital stay	(N) # of patients assessed for delirium (D) # of patients admitted to hospital
4. Assessment of delirium severity in patients during hospital stay	(N) # of patients assessed for severity of delirium (D) # of admitted patients with delirium
5. Admitted patients receiving delirium prevention interventions	(N) # of patients receiving delirium prevention interventions (D) # of patients admitted to hospital
6. Admitted patients receiving delirium management interventions	(N) # of patients receiving delirium management interventions (D) # of patients admitted to hospital
7. Use of physical restraints for patients	(N) # of patients experiencing physical restraints (D) # of patients admitted to hospital
8. Use of pharmacological restraints for agitated patients	(N) # of patients receiving pharmacological restraints (D) # of patients admitted to hospital
<b>OUTCOME</b>	
9. Incidence of delirium for patients in hospital	(N) # of patients who develop delirium during hospitalization (D) all patients assessed for delirium <i>or</i> all patients admitted to hospital
10. Prevalence of delirium for patients in hospital	(N) # of patients with delirium during their hospital stay (D) all patients assessed for delirium <i>or</i> all patients admitted to hospital
11. Duration of delirium (in days) for patients in hospital	(N) # of patient days with delirium present (D) total # of patient days
12. Severity of delirium for patients in hospital	(N) # of patients with severe delirium during hospitalization (D) all patients in hospital with delirium
13. Discharge destination	(N) # of patients discharged home <i>vs</i> # of patients discharged to LTC

NAME OF INDICATOR	PRELIMINARY DEFINITION (N = numerator; D = denominator)
	(D) all patients admitted to hospital from home
14. Patients discharged from acute care with delirium	(N) # of patient discharges from acute care with delirium present (D) total # of discharges from acute care
15. Average length of stay (in days)	(N) total # of patient days (D) total # of admissions
16. Proportion of ALC Days associated with delirium	(N) # of ALC days with delirium present (D) total # of ALC days
17. Proportion of LOS Days associated with delirium	(N) # of inpatient days with delirium present (D) total inpatient days
18. Rehospitalization Rates	(N) # of readmissions to hospital (within 30 days) (D) All patient discharges

## Results from On-line Delphi Voting:

STRONG
#2 (Process): Delirium Screening - assessment of patients on admission for the risk of experiencing delirium
#3 (Process): Assessment of patients for delirium during their hospital stay
MODERATE
#9 (Outcome): Incidence of delirium for patients in hospital
# 10 (Outcome): Prevalence of delirium for patients in hospital
# 13 (Outcome): Discharge destination
# 15 (Outcome): Average length of stay (in days)
# 18 (Outcome): Rehospitalization Rates
WEAK
# 1 (Structure): Education of hospital staff on delirium assessment, prevention, and/or management
# 4 (Process): Assessment of delirium severity in patients during hospital stay
# 5 (Process): Admitted patients receiving delirium prevention interventions
# 6 (Process): Admitted patients receiving delirium management interventions
# 7 (Process): Use of physical restraints for patients
# 8 (Process): Use of pharmacological restraints for agitated patients
# 11 (Outcome): Duration of delirium (in days) for patients in hospital
# 12 (Outcome): Severity of delirium for patients in hospital
# 14 (Outcome): Patients discharged from acute care with delirium
# 16 (Outcome): Proportion of ALC Days associated with delirium
# 17 (Outcome): Proportion of LOS Days associated with delirium

### Notes:

Strong = average score of 6.8 or higher

Moderate = average score between 6.0 up to (but not including) 6.8

Weak = average score of 6.0 or lower

Minor adjustment of two candidate indicator rankings based on verbal feedback – Indicator #5 (average score 6.17) and Indicator #7 (average score 6.12) were both reclassified from moderate to weak, based on a large volume of feedback that they are too difficult to define and operationalize

## Appendix D – Functional Decline Indicator Shortlists

### Initial Indicator Shortlist Presented for Online Delphi Voting:

NAME OF INDICATOR	PRELIMINARY DEFINITION (N = numerator; D = denominator)
<b>STRUCTURE</b>	
1. Education of staff on ways to prevent functional decline	(N) # of hospital staff educated on functional decline (D) total # of hospital staff
<b>PROCESS</b>	
2. Functional Screening - assessment of patients upon admission for the need for ADL functional care	(N) # of patients receiving needs assessment for ADL functional care upon admission (D) # of patients admitted to hospital
3. Functional Screening - assessment of patients upon admission for the need for mobility care	(N) # of patients receiving needs assessment for mobility care upon admission (D) # of patients admitted to hospital
4. Assessment of patients for fall risk during hospitalization	(N) # of patients assessed for fall risk (D) # of patients admitted to hospital
5. Assessment of ADL functional status of patients during hospitalization	(N) # of patients receiving ADL functional status assessment (D) # of patients admitted to hospital
6. Assessment of mobility in patients during hospitalization	(N) # of patients receiving mobility assessment (D) # of patients admitted to hospital
7. Admitted patients receiving an ADL functional/ mobility intervention	(N) # of patients receiving an ADL functional/mobility intervention (D) # of patients admitted to hospital
8. Admitted patients receiving specified frequency of ADL functional/mobility intervention	(N) # of patients receiving specified frequency of ADL functional/mobility intervention (D) # of patients admitted to hospital
9. Time to first mobility – post-surgery or post-admission	(N) total # of days to first mobilization post-surgery or post-admission, for all patients receiving mobility intervention (D) # of patients receiving mobility intervention (this is equivalent to taking the mean of the days to first mobilization for all patients receiving mobility intervention)
10. Physician referral for physical activity during hospitalization	(N) # of patients receiving physician referral for activity intervention (D) # of patients admitted to hospital
<b>OUTCOME</b>	
11. Proportion of patients with improvement in ADL score or functional mobility status	Assessed in different ways: <ul style="list-style-type: none"> <li>• Admission score vs discharge score</li> <li>• % with score above specified threshold, assessed periodically</li> <li>• % change in ADL score (discharge – admission score/admission score)</li> </ul>

NAME OF INDICATOR	PRELIMINARY DEFINITION (N = numerator; D = denominator)
	<ul style="list-style-type: none"> <li>• Change in ADL score/quarter</li> <li>• % of discharge ADL assessments worse than 90 days ago or since last assessment</li> <li>• % patients with increase or decrease in ADL score</li> </ul>
12. Number of falls experienced	(N) # of falls occurring in 1000 patient days (D) 1000 patient days
13. Number of injurious falls experienced	(N) # of injurious falls occurring in 1000 patient days (D) 1000 patient days
14. Patient/caregiver satisfaction with functional mobility programs	(N) # patients or caregivers expressing satisfaction with functional mobility program (D) # of patients admitted to hospital
15. Discharge destination	(N) # of patients discharged home vs # of patients discharged to LTC (D) all patients admitted to hospital from home
16. Average length of stay (in days)	(N) total # of patient days (D) total # of admissions
17. Length of Stay Efficiency	(N) Change in functional status score (D) Patient Length of Stay
18. Rehospitalization Rates	(N) # of readmissions to hospital (within 30 days) (D) All patient discharges

## Results from On-line Delphi Voting:

STRONG
#4 (Process): Assessment of patients for fall risk during hospitalization
#11 (Outcome): Proportion of patients with improvement in ADL score or functional mobility status
MODERATE
#2 (Process): Functional Screening: assessment of patients upon admission for the need for ADL functional care
#3 (Process): Functional Screening: assessment of patients upon admission for the need for mobility care
#5 (Process): Assessment of ADL functional status of patients during hospitalization
#6 (Process): Assessment of mobility in patients during hospitalization
#13 (Outcome): Number of injurious falls experienced
#15 (Outcome): Discharge Destination
#16 (Outcome): Average length of stay (in days)
#18 (Outcome): Rehospitalization Rates
WEAK
#1 (Structure): Education of staff on ways to prevent functional decline
#7 (Process): Admitted patients receiving an ADL functional/mobility intervention
#8 (Process): Admitted patients receiving a specified frequency of ADL functional/mobility intervention
#9 (Process): Time to first mobility (post-surgery or post-admission)
#10 (Process): Physician referral for physical activity during hospitalization
#12 (Outcome): Number of falls experienced
#14 (Outcome): Patient/caregiver satisfaction with functional mobility programs
#17 (Outcome): Length of Stay Efficiency

### Notes:

Strong = average score of 7.0 or higher

Moderate = average score between 6.5 up to (but not including) 7.0

Weak = average score lower than 6.5

Minor adjustments of the ranking of Candidate Indicator #17 (average score 6.55) – reclassified from moderate to weak, based on a large volume of feedback that it is not suitable in acute care sector



## Appendix E – The Delphi Survey Questions

**Name and Summary Description of Indicator:**

--

**Proposed Definition and Calculation of Indicator:**

--

**EVALUATION QUESTIONS:**

**1. VALIDITY – does this indicator accurately measure what it intends to measure?**

Don't know	1	2	3	4	5	6	7	8	9
	(Not at all)								(Very much so)

**2. RELIABILITY – does the calculation of this indicator provide repeatable results in different settings (e.g. urban and rural geography, community and academic hospitals, acute care, rehab/ccc, and different hospital units and departments)?**

Don't know	1	2	3	4	5	6	7	8	9
	(Not at all)								(Very much so)

**3. FEASIBILITY – is data for this indicator easy to obtain (e.g. at the point of care, via existing databases)?**

Don't know	1	2	3	4	5	6	7	8	9
	(Not at all)								(Very much so)

**4. RESPONSIVENESS – is this indicator sensitive to change over time?**

Don't know	1	2	3	4	5	6	7	8	9
	(Not at all)								(Very much so)

**5. EASE OF REPORTING – is this indicator easy to report at regular time intervals (e.g. quarterly)?**

Don't know	1	2	3	4	5	6	7	8	9
	(Not at all)								(Very much so)

**6. CLARITY – is data from this indicator easy to interpret?**

Don't know	1	2	3	4	5	6	7	8	9
	(Not at all)								(Very much so)

**7. ACTIONABILITY – does data from this indicator provide opportunity to drive quality of care?**

Don't know	1	2	3	4	5	6	7	8	9
	(Not at all)								(Very much so)

**8. APPROPRIATENESS – is the use of this indicator appropriate as an accountability measure?**

Don't know	1	2	3	4	5	6	7	8	9
(Not at all)									(Very much so)

**Please provide additional recommendations, comments, or concerns about the use of this indicator:**

## Appendix F – SFH Indicators Working Group Members

NAME	ORGANIZATION
Dr Barbara Liu (Co-Chair)	Regional Geriatric Program of Toronto
Rhonda Schwartz (Co-Chair)	Baycrest
Dana Chmelnitsky	University Health Network
Rebecca Comrie	Health Quality Ontario
Catherine Cotton	St Joseph’s Health Centre (Toronto)
Minnie Ho	Institute for Clinical Evaluative Sciences (ICES)
Kim Kohlberger	Halton Healthcare Services
Annette Marcuzzi	Central LHIN
Dr Sharon Marr	Regional Geriatric Program Central
Sabrina Martin	South East LHIN
Dr Carrie McAiney	St Joseph’s Health Care (Hamilton)
Kelly Milne	Regional Geriatric Program of Eastern Ontario
Brian Putman	North Simcoe Muskoka LHIN
Dr John Puxty	Regional Geriatric Program of South Eastern Ontario
Michelle Rey	Health Quality Ontario
Marilee Suter	Central East LHIN
Ken Wong	Regional Geriatric Program of Toronto
Nathan Frias	Toronto Central LHIN
Ada Tsang	Regional Geriatric Program of Toronto

## Appendix G – List of Voting Participants

NAME	ORGANIZATION	Area of Expertise or Practice												
		Clinician: Front-Line	Clinician: Expert/Educator	Health Care Research	Data/ Decision Support	Admin. Leader	LHIN	Urban Setting	Rural Setting	Teaching Hospital	Community Hospital	Acute Care	Rehab	Complex Cont. Care
<b>WORKING GROUP MEMBERS:</b>														
Dr Barbara Liu	RGP of Toronto	✓	✓			✓		✓		✓		✓		
Rhonda Schwartz	Baycrest					✓		✓		✓		✓	✓	✓
Dana Chmelnitsky	University Health Network				✓	✓		✓		✓			✓	
Rebecca Comrie	Health Quality Ontario				✓									
Catherine Cotton	St Joseph's Health Centre (Toronto)					✓		✓			✓			
Minnie Ho	Institute for Clinical Evaluative Sciences			✓	✓									
Kim Kohlberger	Halton Healthcare Services					✓		✓	✓		✓	✓	✓	✓
Annette Marcuzzi	Central LHIN	✓					✓			✓		✓	✓	
Dr Sharon Marr	RGP Central	✓	✓			✓		✓		✓		✓	✓	
Dr Carrie McAiney	St Joseph's Health Care (Hamilton)			✓				✓		✓		✓		
Kelly Milne	RGP of Eastern Ontario					✓		✓	✓	✓	✓	✓		
Brian Putman	North Simcoe Muskoka LHIN			✓	✓		✓		✓					
Dr John Puxty	RGP of South Eastern Ontario		✓	✓		✓		✓	✓	✓		✓	✓	✓
Michelle Rey	Health Quality Ontario			✓	✓	✓	✓	✓		✓		✓		✓
Sabrina Martin/Don McGuinness (data support)	South East LHIN	✓					✓	✓		✓		✓		
Marilee Suter	Central East LHIN				✓		✓							
Ken Wong	RGP of Toronto		✓					✓		✓		✓	✓	
Nathan Frias	Toronto Central LHIN				✓		✓	✓		✓		✓		
<b>ADDITIONAL VOTING PARTICIPANTS:</b>														
Elaine Murphy	University Health Network – Toronto Rehab		✓		✓	✓		✓		✓			✓	
Sherry Anderson	Brockville General Hospital	✓				✓			✓		✓	✓	✓	✓

NAME	ORGANIZATION	Area of Expertise or Practice												
		Clinician: Front-Line	Clinician: Expert/Educator	Health Care Research	Data/Decision Support	Admin. Leader	LHIN	Urban Setting	Rural Setting	Teaching Hospital	Community Hospital	Acute Care	Rehab	Complex Cont. Care
Shelby Poletti	St. Joseph's Care Group (Thunder Bay)				✓			✓						
Karen Truter	Northumberland Hills Hospital		✓						✓		✓		✓	✓
Charissa Levy	Greater Toronto Area Rehab Network					✓		✓					✓	✓
Ryan Miller	North Simcoe Muskoka LHIN	✓	✓			✓	✓		✓		✓	✓	✓	✓
Dr Jo-Anne Clarke	North East Specialized Geriatric Services, Health Sciences North, Northern Ontario School of Medicine	✓	✓					✓	✓	✓			✓	
Dr James Chau	Elliot Lake Family Health Team/St. Joseph's General Hospital	✓	✓						✓		✓		✓	✓
Mary Wheelwright	Headwaters Healthcare Centre	✓				✓			✓		✓		✓	✓
Dr Arlene Bierman	St Michael's			✓						✓				
Dr Stephanie Amos	RGP of Eastern Ontario			✓	✓		✓	✓	✓	✓	✓	✓	✓	
Josie Santos	Registered Nurses' Association of Ontario	✓	✓					✓			✓		✓	
Dr Kathy McGilton	University Health Network – Toronto Rehab			✓						✓				

**Additional Contributors:**

Dr Gail Dobell (meeting moderator), Health Quality Ontario  
 Dr Monique Lloyd, Registered Nurses' Association of Ontario  
 Alisha Tharani, Toronto Academic Health Sciences Network

