



University Health Network  
Toronto General Hospital Toronto Western Hospital Princess Margaret Hospital

**Current Status and Future Opportunities for  
Inpatient Musculoskeletal Rehabilitation: An Analysis of  
Supply Data and Provider Viewpoints on Future Needs**

IN PARTNERSHIP WITH



**GTA REHAB  
NETWORK**

**Current Status and Future Opportunities for Inpatient Musculoskeletal Rehabilitation: An Analysis of Supply Data and Provider Viewpoints on Future Needs**

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This work would not have been possible without the willingness and commitment of the stakeholder organizations and those who agreed to be interviewed and provide their insights.

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## EXECUTIVE SUMMARY

Key informant interviews were completed in January/February 2006 throughout the acute care and rehabilitation facilities in the Toronto Central LHIN and St. John's Rehab of the Toronto LHIN to determine the current landscape of Musculoskeletal (MSK) inpatient rehabilitation and to identify opportunities for enhancement of services given the dynamic nature of the health care environment.

The specific objectives of the project were:

1. To complete an environmental scan of the current inpatient MSK rehabilitation services in the Toronto Central LHIN.
2. To gather stakeholder opinion regarding future opportunities for inpatient MSK rehabilitation in the Toronto Central LHIN.
3. To gather stakeholder opinion regarding the key characteristics of a *complex* MSK patient.

Key findings include: 1) consensus that elderly hip fracture patients are under serviced; 2) there are no clear definitions of which MSK patients require rehabilitation services in an inpatient setting (with the exception of the primary total joint arthroplasty patient); and, 3) facilities recognize a need to provide services to complex MSK patients but there is no definitional clarity of what features constitute complexity.

Four recommendations have emerged based on the findings:

- 1) The elderly hip fracture population, especially those with concomitant cognitive impairment, is under serviced. This group requires more appropriate access to integrated rehabilitation services, including inpatient rehabilitation. New models of care need to be developed, implemented and evaluated through a systems-based approach that will include all sectors of the system.
- 2) MSK patients, with anticipated slower recovery, require improved access to low tolerance, long duration rehabilitation beds with potential for transfer to MSK inpatient rehabilitation beds. Flexibility is required within the current funding model (which is tied to length of stay) and bed designation to improve MSK patient access to and movement between different levels of rehabilitation services.
- 3) Consensus needs to be reached around the key characteristics of a complex MSK patient such that service needs and resources can be matched. Formal group consensus methods should be undertaken to achieve consensus among stakeholder groups.
- 4) This is an excellent opportunity to move forward with collaboration and system integration with stakeholders at all levels including the care providers and the Local Health Integrated Networks. This can be accomplished in part through determination and implementation of explicit and common definitions of patient populations and standardization of rehabilitation programs for MSK patients requiring inpatient rehabilitation.



## 1.0 INTRODUCTION

The landscape of musculoskeletal (MSK) rehabilitation in the Greater Toronto Area (GTA) is in evolution. The changes began with the creation and implementation of standardized care pathways across the health care continuum for primary hip and knee replacement and it is anticipated that this type of system change will continue under the direction of the newly formed Local Health Integrated Networks (LHIN) and the Ministry of Health and Long-term Care Transformation agenda. As such, it is timely to ensure we have a clear understanding of the current environment in order to identify opportunities for MSK rehabilitation in the future. Completed in collaboration with the GTA Rehab Network, this report builds on a document released by the GTA Rehab Network in March, 2006 entitled “Exploring the Hip Fracture and Joint Replacement Landscape in a Changing Context: Implications and Recommendations.” The results are expected to inform ongoing partnerships and integration of programs among inpatient rehabilitation facilities, and to inform future initiatives of the GTA Rehab Network and the Toronto Central LHIN with respect to the future of inpatient MSK rehabilitation programs.

### 1.1 Purpose and Objectives

The overall purpose of this project was gain an understanding of current inpatients rehabilitation in the Toronto Central LHIN in order to gaps and opportunities for provision of inpatient MSK rehabilitation services.

The specific objectives of the project were:

1. To complete an environmental scan of the current inpatient MSK rehabilitation services in the Toronto Central LHIN.
2. To gather stakeholder opinion regarding future opportunities for inpatient MSK rehabilitation in the Toronto Central LHIN.
3. To gather stakeholder opinion regarding the key characteristics of a *complex* MSK patient.

### 1.2 Rationale

The focus of inpatient musculoskeletal (MSK) rehabilitation in the Toronto Central LHIN is undergoing transition. Many factors are contributing to this shift in focus including the new model of care for total joint replacement patients and the shift to providing care to more complex MSK rehabilitation patients, rather than discharging these patients to sites without active rehabilitation such as long term care homes. During this time of transition, it is important to clearly understand the current status of inpatient MSK rehabilitation in the Toronto Central LHIN in order to be better able to explore opportunities. Also, given the discussion among stakeholders regarding a shift to providing care to more complex MSK rehabilitation patients, it is important to understand the key characteristics that identify these patients.

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A previous report of the GTA Rehab Network (*Exploring Hip Fracture and Joint Replacement in a Changing Landscape*), provides quantitative data from 2002-2003 which can be used as a baseline for better understanding the impact of the Total Joint Network model of care.

The results and recommendations of this study pertain specifically to the Toronto Central LHIN, and it is recognized that there are some unique features of this LHIN as noted below. However, while these features may limit the generalizability of the findings beyond the Toronto Central LHIN (see Limitations), this report will still be of interest to providers in jurisdictions LHIN as the results related to specific patient populations (e.g. those with hip fracture and complex MSK conditions) and subsequent recommendations are not unique to the Toronto Central LHIN.

- First, the Toronto Central LHIN encompasses nearly all of the free-standing inpatient rehabilitation teaching centres and acute care teaching hospitals in the GTA (with the exception of St. John's Rehab Hospital). The Toronto Central LHIN also accounts for nearly half of the total number of inpatient rehab beds used for MSK in the GTA (source: GTA Rehab Network). As such, patients and providers in other Local Health Integrated Networks may have unique relationships with the Toronto Central LHIN hospitals for patient care, research, and education purposes.
- Second, most of the hospitals that implemented the Total Joint Network Model of Care are situated in the Toronto Central LHIN. We would therefore expect the Toronto Central LHIN to show unique characteristics in terms of its current status.
- Third, the Toronto Central LHIN is unique in that the academic acute care teaching centres, with the exception of Sunnybrook and Women's College Health Sciences Centre, do not have their own designated inpatient rehabilitation beds and rely on referrals to rehabilitation beds outside of their own facilities. As such, the Toronto Central LHIN provides a unique comparison group for exploring alternate service delivery models for musculoskeletal rehabilitation in other Local Health Integrated Networks.
- Finally, it was felt that provider perspectives rather than (or in addition to) quantitative data was needed to understand the nuances and future directions for MSK rehabilitation. A quantitative analysis of data on MSK from CIHI's DAD and NRS and from the Toronto CCAC's was completed by the GTA Rehab Network and through the Total Joint Network Evaluation.

## 2.0 METHODS

Semi-structured, face-to-face interviews were conducted to gather information from stakeholders. Stakeholders were identified from inpatient MSK programs in free-standing rehabilitation hospitals and acute care hospitals with inpatient rehabilitation beds that care for MSK patients in the Toronto Central LHIN. (Note: St. John's Rehab Hospital in the Central LHIN was also included as it services many patients from the Toronto Central LHIN.) As well, acute care hospitals that have acute MSK programs that regularly access inpatient MSK rehabilitation programs were included in the stakeholder identification process (Table 1).

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A previous report of the GTA Rehab Network (*Exploring Hip Fracture and Joint Replacement in a Changing Landscape*), provides quantitative data from 2002-2003 which can be used as a baseline for better understanding the impact of the Total Joint Network model of care.

**Table 1: Stakeholder Facilities**

<b>Free-standing Rehabilitation Hospitals</b>	<b>Acute Care Hospitals with inpatient rehab beds servicing MSK patients</b>	<b>Acute Care Hospitals with acute MSK beds</b>
Baycrest	St. Joseph's Health Centre	Mount Sinai Hospital
Bridgepoint Health	Sunnybrook and Women's College Health Sciences Centre	
Providence Healthcare	Toronto East General Hospital	Toronto Western Hospital
St. John's Rehab Hospital*		St. Michael's Hospital
Toronto Rehabilitation Institute		
West Park Healthcare Centre		

\*Geographically located outside the Toronto Central LHIN, however provides service to patients from within this LHIN. St. John's Rehab Hospital is located in the Central LHIN.

The Program Directors/Managers and/or the Medical Director of the inpatient MSK rehabilitation programs and the Unit Managers (or a designated representative) of the acute orthopaedic wards were contacted via electronic mail to request their participation in the project. When verbal consent for participation was obtained, the research coordinator proceeded with gathering available information regarding the inpatient rehabilitation program(s) at that facility as of January, 2006. Information was obtained through *Rehab Finder*<sup>1</sup> and the individual facility web-sites prior to interviewing the participants. *Rehab Finder* is a web-based inventory of rehabilitation programs, including program descriptions, admission criteria, and any special client needs that can be accommodated. The content of *Rehab Finder* is provided by members of the GTA Rehab Network and the information was current as published in January 2006.

Face to face, semi-structured interviews were conducted. The interview guide (Appendix 1 & 2) was provided to the stakeholders prior to their scheduled interview in order to ensure that they were informed of the information that we were gathering. In circumstances where a substantial amount of information was available from *Rehab Finder* or the facility web-site, the first stage of the interview served to validate that the information was current and accurate. In circumstances where information was not available from these web sites, the first stage served to identify program descriptions, admission and exclusion criteria, patient populations and discharge statistics. Interviews were completed in January and February 2006 and each interview took approximately 60 minutes.

Source documents were requested from each participating facility. These included any available documentation related to the description of the program, admission and discharge criteria and referral statistics. Key informants also provided information from internal statistical programs and the National Rehabilitation Reporting System specific to their facility.

<sup>1</sup>*Rehab Finder* program, GTA Rehab Network, 2006, [www.gtarehabnetwork.ca](http://www.gtarehabnetwork.ca)

Along with the research coordinator taking notes, the interviews were taped for the purpose of transcription. Interviews were transcribed verbatim. Content analysis was achieved through coding of the data to identify common themes in the information obtained and to highlight differences between inpatient rehabilitation programs serving MSK patients. Audio tapes were kept by the research coordinator for coding and analysis purposes only and were erased once this report was completed.

The investigative team identified a list of themes through review of the first three or four interview transcriptions. We continued to look for new information in future interviews as well as searching for the themes initially identified.

Interview participants and stakeholder facilities are identified in this report (Appendix 3) however individual names and facilities are not directly linked to the findings or conclusions of the report.

### **3.0 FACILITY CHARACTERISTICS**

All 13 facilities from the three identified stakeholder categories participated in the key informant interviews. A total of 14 interviews were completed with clinical leaders/coordinators, program managers, unit managers or medical directors from each of the facilities (Appendix 3).

Specific demographic information for participating stakeholder facilities is summarized in Tables 2, 3 & 4.

Many different diagnostic groups are served within inpatient MSK rehabilitation programs. These include total joint arthroplasty (primary, bilateral, revisions, hip, knee, ankle, shoulder, elbow), fractures (multiple, bilateral), arthritis, oncology, neck/spine, and trauma. Some facilities have separate bed complements for specialty programs such as Burns, Trauma, and Oncology.

Rehabilitation beds utilized for MSK rehabilitation approximate 251 (see Table 2 & 3); however, the number can fluctuate. Several inpatient rehabilitation programs that serve multiple diagnostic groups (for example, geriatric, neurology and MSK) report some internal flexibility in bed complement based on referral demands.

Average length of stay (LOS) in the free-standing rehabilitation hospitals ranges from 15 days to 37 days depending on the diagnostic sub-categories served within the MSK rehabilitation program. Certain diagnostic subcategories, such as primary total hip or knee replacements for example, are below this range of averages whereas complex MSK patients can be as high as 55 days. The average LOS in acute care centers with rehabilitation beds serving MSK is lower at approximately 10 days because these units are specifically designated as *short-term* rehabilitation units with a maximum LOS of 14 days.

Many informal partnerships between acute care facilities and free-standing rehabilitation hospitals drive referral patterns in the Toronto Central LHIN. These partnerships are based both on the geographical location of facilities as well as the diagnostic groups and programs that each facility serves. One acute care facility for example may have an informal partnership with Toronto Rehabilitation Institute for complex MSK patients and another with St. John's Rehab Hospital for patients with primary hip and knee replacement. Stakeholders report that formalizing these partnerships would further enhance patient flow between facilities.

All free-standing rehabilitation hospitals and acute care facilities with inpatient rehabilitation beds that serve MSK patients report a collaborative interdisciplinary team approach to determine a patient's readiness for discharge. This generally involves discussion by the healthcare team at a team meeting. On a specific case basis, the client and or family may be included in the team discussions. The inter-disciplinary team considers whether the patient has met the rehab goals that were identified at the start of their admission, whether they are able to safely mobilize in their home environment and whether ongoing access to necessary resources and equipment has been arranged. The majority of patients (>90%) are discharged *home* from inpatient rehabilitation. The remaining patients are discharged back to acute care due to a change in their medical status, are transferred to a long-term care home or other community living arrangement or are deceased.

**Table 2: Facility Characteristics - Free-standing Rehabilitation Hospitals, January/February 2006**

	Baycrest	Bridgepoint Health	Providence Healthcare	St. John's Rehab Hospital	Toronto Rehabilitation Institute	West Park Healthcare Centre
<b>Inpatient Rehab Program</b>	Geriatric Rehab Unit	Complex MSK Rehab Program	Orthopaedic Rehab Program	MSK Rehab Program	Complex MSK Rehab Program	Complex MSK Rehab Service
<b>Number of Beds</b>	24 Including: MSK 8 beds Neurology 8 beds Geriatric 8 beds	64	35	59	60 Including: Trauma 8-15 beds Oncology 6-10 beds TJA 6-12 beds	25
<b>Other Related Units/Programs</b>	none	Step up to Rehab - 32 beds (within Complex Continuing Care)	Amputee – 8 beds Geriatric - 43 beds Pre-rehab - 43 beds (within Complex Continuing Care)	Burns - 6 beds Oncology – 6 beds Trauma – 25 beds Amputee – 20 beds	none	Amputee – 21 beds Functional Enhancement Program – 26 beds
<b>Diagnostic Populations</b>						
Primary Total Hips/Knees	√	√	If they have fallen off the care pathway	√	√	Only with other MSK co-morbidity
Bilateral total joints/revisions	√	√	√	√	√	√
Fractures	Hip, ankle, shoulder, vertebral pelvic	√	Hip	√	√	√
Arthritis	√	no	no	no	no	No
Shoulder/elbow arthroplasties	no	√	no	no	no	no
Multiple trauma	no	√	√	Trauma Program	√	√
Oncology	no	no	no	Oncology Program	√	no
Neck/spine	no	√	√	no	no	no
Complex MSK	no	√	no	no	√	√
Advanced non-surgical connective tissue disease	no	no	no	no	no	√
<b>Referral Source</b>	GTA	GTA	GTA	GTA	GTA	GTA

√ = program serves diagnostic population

GTA LHINS – Central West, Mississauga-Halton, Central, Toronto Central and Central East

**Table 2: Facility Characteristics - Free-Standing Rehabilitation Hospitals, January/February 2006 continued**

Admission Criteria	Baycrest	Bridgepoint Health	Providence Healthcare	St. John's Rehab Hospital	Toronto Rehabilitation Institute	West Park Healthcare Centre
Medically stable	√	√	√	√	√	√
Rehab goals/potential	√	√	√	√	√	√
> 18 years old	> 55 years old	√	√	√	√	√
Weight bearing status	At least partial weight bearing	Able to maintain non weight bearing when mobilizing	Able to weight bear	All weight bearing conditions accepted	All weight bearing conditions accepted	Weight bearing status must be known
Able to learn, retain & carryover	√	Cognitively able to participate in program	√	√	√	√
No behavior issues	√	√	Do not specify	√	√	√
Tolerance	30 minutes 2x/day	5x/week	45-60 minutes/day	Increasing from 30 minutes/day	All tolerance levels considered	Minimum 20 minutes 2x/day
Demonstrating functional improvement	Do not specify	√	√	√	Do not specify	Do not specify
Discharge plans initiated	√	Do not specify	√	√	√	√

√ =explicit program admission criteria

**Table 2: Facility Characteristics - Free-Standing Rehabilitation Hospitals, January/February 2006 continued**

Exclusion Criteria	Baycrest	Bridgepoint Health	Providence Healthcare	St. John's Rehab Hospital	Toronto Rehabilitation Institute	West Park Healthcare Centre
Wandering patients	√	√	√	√	√	√
Acute psychiatric illness	√	√	√	√	√	√
Safety risk to self/others	√	√	√	√	√	Do not specify
Infectious diseases	√	√	√	Do not specify	Do not specify	√
Cognition	Cannot learn, retain or carryover info	Do not specify	Do not specify	Cannot follow commands/retain info; significant attention, judgment, alertness or orientation deficits	Do not specify	Grossly cognitively impaired
Co-morbidities	Primary respiratory illness, decubitus ulcers, amputees with prosthetic fitting/training needs	Neurological conditions including spinal cord injury	Head injury	Patients requiring ongoing diagnostic resources	Head injury, spinal cord injury, palliative stage of illness	Acute medical issues
Respiratory needs	Do not specify	Ventilation BiPAP/CPAP	Do not specify	Do not specify	Oxygen needs except for emergent/intermittent	Do not specify
Average length of stay	37 days	23 days	23 days	15 days	21-35 days	28 days
Discharge destination	Home: LTC: Other: (not available)	Home: 91% LTC: 0.5% Other: 8.5% (acute, rehab, deceased)	Home: 91% LTC: 0.5% Other: 8.5% (acute, rehab, deceased)	Home: 92% LTC: 1.3% Other: 6.7% (acute, community, deceased)	Home: 95% Other: 5% (LTC, acute, CCC)	Home: 99% LTC: 1%

√ = explicit program exclusion criteria

BiPAP = biphasic positive airway pressure; CPAP = continuous positive airway pressure; LTC = long term care; CCC = complex continuing care

**Table 3: Facility Characteristics - Acute Care with inpatient rehab programs that serve MSK patients, January/February 2006**

	St. Joseph's Health Centre	Sunnybrook & Women's College Health Sciences Centre	Toronto East General Hospital
<b>Inpatient Rehab Program</b>	Rehabilitation Unit	Short-term Rehabilitation Program Including: FIT program Non-elective stream	Short-term Rehabilitation Program
<b>Number of Beds</b>	10	22	13
<b>Diagnostic Categories</b>			
MSK	40-60%	100%	75%
Neurology	10-15%	0%	0%
Other	pulmonary, cardiac, medical-surgical 25-50%	0%	pulmonary, cardiac, medical ~ 25%
<b>Orthopaedic Diagnostic Populations</b>			
Primary total joint replacements	√	√ (FIT Program)	√
Total joint revisions	no	no	√
Fractures	hip, pelvic, vertebral & other limbs	Hip (Non-elective stream)	√
Trauma	no	√ (Non-elective stream)	no
Spinal surgery	no	√ (Non-elective stream)	no
<b>Other related units/ programs</b>	none	none	Medium Intensity Rehabilitation Program - 15 beds (Complex Continuing Care)

√ = orthopaedic diagnostic populations serviced within program

**Table 3: Facility Characteristics-Acute Care with inpatient rehab programs that serve MSK patients, January/February 2006 continued**

	St. Joseph's Health Centre	Sunnybrook & Women's College Health Sciences Centre	Toronto East General Hospital
<b>Admission Criteria</b>			
Medically stable	√	√	√
> 18 years old	√	√	√
Rehab potential/ identified goals	√	√	√
Sufficient cognition/ perception	√	Do not specify	√
Appropriate behaviour	√	Participating in self-care	√
Functional literacy	Do not specify	√	Do not specify
Group therapy	√	Do not specify	Do not specify
No infectious diseases	√	Do not specify	Do not specify
Discharge plan initiated	√	Do not specify	Do not specify
Take back letter from acute care	√	Do not specify	Do not specify
Functional mobility	Do not specify	Maximum assist x 2 for transfers and ambulation; independent bed mobility	Do not specify
<b>Exclusion Criteria</b>			
Wandering patients	√	Do not specify	√
Infectious disease	√	Do not specify	Respiratory infection requiring negative pressure isolation
Behaviour	Socially inappropriate behaviour	Dementia/disorientation Inability for self-care	
Rehab needs	Require referral to regional rehab centre	Require greater than 14 days of inpatient rehab	Require greater than 14 days of inpatient rehab
Nursing needs	Nursing care that is beyond unit	Incontinence	Do not specify

√ = explicit program admission/exclusion criteria

**Table 3: Facility Characteristics - Acute Care with inpatient rehab programs that serve MSK patients, January/February 2006 continued**

	<b>St. Joseph's Health Centre</b>	<b>Sunnybrook &amp; Women's College Health Sciences Centre</b>	<b>Toronto East General Hospital</b>
<b>Referral base</b>	Internal	Internal	Internal
<b>Average LOS</b>	10 days (max 14 days)	10 days	14 days
<b>Discharge destination</b>	Home: 92% LTC: 2.5% Other: 5.5% (acute care, convalescence)	Home: 96% Other: 4% (acute care, respite)	Home: 90% Rehab: 5% Other: 5% (LTC, respite, convalescence)

**Table 4: Facility Characteristics - Acute Care, January/February 2006**

	<b>Mt. Sinai Hospital</b>	<b>St. Michael's Hospital</b>	<b>Sunnybrook &amp; Women's College Health Sciences Centre (Sunnybrook Campus)</b>	<b>Toronto Western Hospital (UHN)</b>
<b>Number of acute orthopaedic beds</b>	32 Including: Sarcoma – 22 beds Arthroplasty – 10 beds Can overflow into 34 more beds	38	22	33 Including: Rheumatology – 11 beds
<b>Other related units/programs</b>	none	none	Trauma – 36 beds	none
<b>Diagnostic Populations</b>				
Primary total joint placements	√	√	√ Primarily @ O&A Site	√
Bilateral total joints/revisions	√	√	√ Primarily @ O&A Site	√
Fractures	√	√	√	√
Oncology	Sarcoma	no	Pathological fractures , bone metastases, resections/reconstructions	no
Ankle/shoulder/elbow arthroplasty	no	√	no	no
Trauma	no	√	√	no
Other	Focus on shoulder	no	Osteomyelitis Spine – degenerative disease, tumors	Amputees (rare)
<b>Geographic population</b>	Toronto Central LHIN – primarily downtown core	Toronto Central LHIN – primarily East Toronto	Toronto Central LHIN (Trauma – Ontario)	Toronto Central LHIN
<b>Out of catchment referrals</b>	Yes	Yes	Yes	Yes

√ = program serves diagnostic population

## 4.0 KEY FINDINGS BY OBJECTIVE

### 4.1 Objective 1: To complete an environmental scan of the current status of inpatient MSK rehabilitation in the Toronto Central LHIN

*For this objective, key informants from free-standing rehabilitation hospitals and acute care hospitals with inpatient rehabilitation programs serving MSK patients were asked whether or not their inpatient MSK program was able to meet the demands placed on it.*

The majority of key informants reported that they were able to meet the volume demands being placed on their program with limited waitlists for service. The main factor identified contributing to this success was the internal bed flexibility allowing them to meet fluctuating referral demands. One stakeholder from a free-standing rehabilitation hospital did report that they found it challenging to meet the demands placed on them at times and attributed this mainly to the fact that the system allows referrals to be submitted to more than one program for a single patient. As a result of this, they may be expecting a patient on Wednesday and get a call Tuesday night that the patient has been admitted elsewhere. They are unable to fill the bed by the next morning and may have already declined other admissions. Waitlists were only reported by two stakeholders offering specialized (geriatric and complex) MSK rehabilitation.

*Key informants from acute care facilities were asked whether or not their MSK patients were able to access the inpatient rehabilitation resources they required upon discharge.*

All acute care centres reported being able to access timely inpatient MSK rehabilitation care for the total joint arthroplasty population. Two of the acute care hospitals highlighted difficulty accessing timely rehabilitation for fracture patients with particular emphasis on the elderly hip fracture population.

*All key informants were asked if they felt there were any service gaps in the current system.*

The key gaps identified included the following:

- low tolerance, long duration rehabilitation beds
- transitional care or pre-rehab beds
- geriatric rehabilitation beds
- inpatient rehabilitation for the elderly hip fracture population

It was suggested by all key informants that there are insufficient low tolerance, long duration rehabilitation beds, transitional care or pre-rehab beds and geriatric rehabilitation beds to serve MSK patients who require more time to recover prior to participating in active rehabilitation or who require low tolerance, long duration rehabilitation. Several free-standing rehabilitation hospitals have already recognized this gap in service and have opened units under their complex continuing care bed complement to address this.

For example, Bridgepoint Health offers a pre-rehab unit known as “Step up to Rehab”, Providence Healthcare provides a similar program, and Westpark Healthcare offers a functional enhancement program. These units are serving MSK patients who are not ready to fully participate in an active rehabilitation program and those whose anticipated length of stay exceeds that allowed by other rehabilitation programs under the current funding model. Patients may transition from these pre-rehab units to the MSK rehabilitation units when they are ready or they may ultimately meet their rehab goals and be discharged home directly from the pre-rehab unit.

There was also consensus among key informants from all stakeholder groups that the elderly hip fracture population is not receiving adequate access to inpatient rehabilitation. It was highlighted that this population often presents with co-morbid cognitive dysfunction, making access to services more challenging. Furthermore, those elderly hip fracture patients who reside in long term care homes are reportedly being discharged back to those facilities without access to inpatient rehabilitation after their acute care stay. This care plan is perceived to contribute to increased care needs in the long term care home and to negatively impact the likelihood of the patient regaining their pre-morbid mobility.

Key informants from acute care facilities reported:

*“The average age of the hip fracture population here is in the 80’s. And they have many co-morbidities. We have many acute inpatient days waiting to go to rehab in that population.”*

*“I believe that the patients who are not served in the system are the elderly patients with fractures.”*

*“The only patients I’m concerned about are the hip fracture patients – they are staying here (acute care) too long.”*

Key informants from rehabilitation hospitals and acute care hospitals with inpatient MSK rehabilitation programs reported:

*“I always felt that there was a population of elderly hip fracture patients who are prematurely put into a nursing home...”*

*“I think the hip fracture patients probably need a lot more intensive rehabilitation than they are getting.”*

*“Hip fracture patients are not getting the inpatient rehabilitation service they require – it is probably due to issues with cognitive impairment or weight bearing status.”*

*“Hip fracture patients are not easily or readily accepted into some inpatient rehabilitation beds and they fall through the cracks...for instance, when individuals are coming from a facility already and have a fracture, rather than being given the opportunity for some rehab before they return, they are being returned to that facility.”*

When considering current gaps in service, key informants from free-standing rehabilitation hospitals focused on MSK patients with concomitant cognitive dysfunction and psychiatric illness. As noted below, they also identified a generic group of patients who, from experience, present a particular challenge at discharge from inpatient rehabilitation, with respect to their ability to access community resources e.g. elderly patients failing to thrive in the community. Key informants from acute care facilities, on the other hand, focused on specific diagnostic groups for whom they felt it was difficult to find inpatient rehabilitation services.

In order of reducing frequency, key informants identified gaps in service for specific client groups for whom they perceived there were no or limited services. System/process gaps were also identified.

- patients with mild cognitive dysfunction and psychiatric illness
- challenges accessing outpatient rehabilitation and community resources\*
- elderly patients who are failing to thrive in the community
- other diagnostic groups
  - complex patients
  - oncology patients
  - patients with osteomyelitis
  - obese patients with MSK involvement
  - patients with non-surgical fractures
- lack of communication between rehabilitation facilities

*All key informants were asked if they felt there were too many of one type of bed versus another.*

As discussed above, some rehabilitation facilities have addressed the need for more low tolerance, long duration rehabilitation beds and transitional care or pre-rehab beds by opening units under their complex continuing care complement. Key informants also suggested that a portion of the existing simple MSK rehabilitation beds could be allocated to low tolerance, long duration beds or transitional care/pre-rehab beds under their inpatient rehabilitation complement.

Three of six key informants from free-standing rehabilitation hospitals and one of three from acute care facilities with inpatient rehabilitation beds that provide care to MSK patients suggested that MSK patients are well served. Challenges accessing care for other diagnostic categories such as acquired brain injury and stroke were highlighted by comparison.

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\*This document does not include impressions from any key stakeholders from the community sector. It is a collection of impressions from key informants from acute care facilities, free-standing rehabilitation hospitals and acute care facilities with MSK rehabilitation programs.

Additionally, a variety of ideas were expressed. In order of reducing frequency, key informants reported:

- the need for more pre-rehab beds to accommodate patients who need more recovery time prior to active inpatient rehabilitation
- the need for more low tolerance, long duration rehabilitation beds
- the need for more flexibility within existing inpatient rehabilitation programs to accept patients who do not meet their admission criteria exactly
- less accommodation of the patient who feels that they need to access inpatient rehabilitation despite inter-disciplinary team assessment to the contrary

#### **4.2 Objective 2: To gather stakeholder opinion regarding future opportunities for inpatient MSK rehabilitation in the Toronto Central LHIN**

*For this objective, key informants were asked to describe the optimal profile of a MSK rehabilitation inpatient. Individual characteristics were suggested in a list format by each key informant.*

Key informants from *acute care centres with inpatient rehabilitation programs that serve MSK patients* and *acute care centres with acute MSK programs* suggested a range of characteristics of those requiring inpatient services with equal frequency. These individual characteristics included:

- primary total joint patients with any two of limited social support, cardiac co-morbidity or mobility less than 15 minutes pre-surgery as per Total Joint Network criteria
- the complexity of the patient from a MSK perspective (discussed later in this report)
- the presence and impact of co-morbidities
- limited social supports in patients with non primary total joint replacement
- the need for intensive rehabilitation
- the need for 24-hour nursing care

The most common characteristic suggested by key informants from *free-standing rehabilitation hospitals* was the complexity of the patient. All key informants from this stakeholder group agreed that complex MSK patients required inpatient rehabilitation. For all but one of the key informants, this included both the complexity of the patient's MSK status (multiple joints, complex revisions, MSK co-morbidity, upper and lower quadrant, peri-operative complications) as well as medical co-morbidities that may impact the patient's functional abilities. One key informant from this stakeholder group differed in his/her thoughts on patients with medical co-morbidities, although they agreed with MSK complexity as a characteristic. Specifically, if the medical co-morbidities negatively impacted the patient's ability to participate in active rehabilitation then they would be more appropriate for a low tolerance, long duration rehabilitation unit instead of MSK rehabilitation.

The other characteristics of a complex MSK rehabilitation patient in order of decreasing frequency of suggestion from stakeholders at *free-standing rehabilitation hospitals* were:

- the presence and impact of co-morbidities
  - dual diagnoses with need for chronic disease management or multi-system involvement
  - older adult
  - mild cognitive impairment limiting ability to be independent with rehab program
- limited social supports
- service needs
  - including: 24 hour nursing, ongoing medical management and intensive rehabilitation
  - require teaching for new post-operative illness
- reversible injury/illness
- ability to tolerate daily therapy
- measurable rehabilitation goals
- ability to learn
- inability to mobilize independently

*Key informants were also asked to identify characteristics of a total joint arthroplasty patient who would benefit from inpatient MSK rehabilitation.*

As anticipated, all key informants referred to the 3 criteria that have been established by the Total Joint Network for screening *primary* total joint arthroplasty patients pre-operatively. These include consideration of the patient's social supports, cardiac co-morbidity and pre-operative mobility status. The majority of key informants from each stakeholder group suggested the need for consideration of other co-morbidities that may also impact a patient's exercise or mobility tolerance. The following examples were given: pulmonary, MSK, and neurological diseases and diabetes. As well, it was highlighted that some patients who only meet one out of three of the criteria may still be appropriate for inpatient rehabilitation if that single criterion will significantly impact the patient's recovery pathway.

Additional characteristics were also identified for consideration. In order of decreasing frequency they were:

- bilateral surgeries and complex revisions
- post-operative complications including wound infections and pneumonia
- pain control issues
- difficulty achieving post-operative range of motion
  - example: total knee arthroplasty, patients with contractures
- obesity
- anxiety
- patients whose home environment necessitates use of stairs

*Key informants were asked to identify what diagnostic groups could benefit from the current resources of their inpatient MSK rehabilitation program.*

The majority of key informants from each stakeholder group identified the elderly hip fracture population as a group who would benefit from access to current or new inpatient rehabilitation resources.

The following diagnostic populations were suggested with limited but equal frequency:

- surgical and non-surgical fractures in the elderly population
- MSK patients with cognitive impairment
- elderly who are failing to thrive in the community
- post-ICU patients
- transplant patients
- dialysis patients
- oncology patients
- patients with osteomyelitis
- ankle and shoulder arthroplasty patients

Key informants reported that most of these populations could be served within the current inpatient MSK rehabilitation programs within the Toronto Central LHIN. However, it was highlighted that these populations would not follow the current care maps and therefore would negatively impact the program's length of stay statistics. One key informant from a free-standing rehabilitation hospital reported that the emphasis on length of stay statistics influenced their program's willingness to admit patients who may require a longer admission to achieve their rehabilitation goals. Some suggestions were made to create a new program that would provide a low tolerance, long duration rehabilitation program to meet the needs of the elderly hip fracture population and the cognitively impaired population. As discussed previously, further suggestions were made regarding the need for more transitional care or pre-rehabilitation beds and geriatric rehabilitation beds.

*Key informants were asked to identify motivators and/or barriers to their organization's consideration of the re-design of inpatient rehabilitation programs.*

All key informants reported that recognition of a care need or a gap in current programs would be the most compelling motivator for their organization. Other suggestions included: the need to "right-fit" care to ensure appropriate staffing levels to accommodate patient population, maintaining high occupancy, preserving short-term units and striving for best practice.

The most frequently identified barrier to re-design was funding. One key informant described inpatient rehabilitation as a relatively small portion of the health care system that must compete with higher profile medical issues when pursuing funding from government. It was also noted that internal reluctance to change and the physical space within facilities may also act as barriers to pursuing program re-design.

### **4.3 Objective 3: To gather stakeholder opinion regarding the key characteristics of a complex MSK patient**

*For this objective, stakeholder groups who currently provide service to complex MSK patients were asked to outline the characteristics that they use to identify a complex MSK patient.*

All key informants discussed the complexity of the patient's MSK condition as their main consideration. They identified examples of complex MSK involvement such as: previous surgeries/revisions, upper and lower quadrant involvement, bilateral involvement, multiple trauma, advanced non-surgical connective tissue disease and post-operative complications such as wound infection. A secondary consideration identified by the majority of key informants was the presence and impact of medical co-morbidities.

The remaining characteristics identified were suggested infrequently by varying stakeholder groups:

- social issues
  - limited supports
  - economics
  - multi-cultural population
- cognitive involvement (mild dementia)
- inter-professional care needs
- newness of a particular type of surgery e.g. Have best practice guidelines been established? Does the staff have experience with the diagnostic group?
- client lack of independence (mobility/ADL)
- older age

*Stakeholder groups who do not currently provide service to complex MSK patients were also asked to outline the characteristics that they felt identified a complex MSK patient.*

Key informants identified the same characteristics as those who serve complex patients except reference was made to length of stay by one key informant from an acute care facility with inpatient rehabilitation beds. It was noted that complex patients would require 2-4 weeks or more of inpatient rehabilitation and, therefore would not be appropriate for admission to a short-term rehabilitation unit.

*Key informants were asked to describe the challenges with which complex MSK patients present that other MSK patients do not.*

All key informants identified increased resource utilization as their main challenge. Complex patients require more funding to address the increased workload for staff, the need for heightened levels of inter-disciplinary care, more equipment needs, longer length of stay and more pharmacy costs, as a few examples.

The second most common challenge identified by key informants was related to consideration of care pathways. It is felt to be more difficult to predict or anticipate the recovery path of a complex patient according to the majority of key informants.

Finally, key informants highlighted the challenges in discharge planning for the complex patient. They present with increased service and equipment needs upon discharge from inpatient rehabilitation and stakeholders perceived that at times it was challenging to access community resources such as outpatient rehabilitation or CCAC.

*Key informants were asked to highlight the differences between patients who should receive service in a complex MSK rehabilitation bed versus those patients who should receive some rehabilitation service in a complex continuing care bed.*

The most common difference identified by key informants was the patient's tolerance for participating in active rehabilitation. Patients who are not ready to participate in active rehabilitation were perceived to be more suited to receiving care in a complex continuing care bed. Other characteristics identifying patients appropriate for complex continuing care included: anticipated need for a change in living environment upon discharge, ongoing complex nursing requirements, cognitive impairment, need for maintenance therapy, and non-weight bearing status. Patients receiving care in a complex MSK rehabilitation program are expected to regain sufficient functional abilities to return to their pre-morbid home environment (albeit possibly with some modifications).

## **5.0 SYNTHESIS OF KEY THEMES**

This section of the report identifies key themes under the three main objectives and highlights areas needing further consideration.

### **5.1 Current Status of Inpatient MSK Rehabilitation in the Toronto Central LHIN**

Two key themes emerged during analysis of key informant responses regarding the current status on inpatient MSK rehabilitation in the Toronto Central LHIN.

The first theme is patient-population based. Key informants from each stakeholder group overwhelming identified the elderly hip fracture population as needing improved access to inpatient rehabilitation. This finding lends support to the hip fracture initiative currently underway by the GTA Rehab Network. As noted previously, these patients currently wait in acute hospital beds as most inpatient facilities will not accept individuals with any cognitive impairment or with expected extended rehabilitation stays. Hence, many of these individuals wait in acute care until post-operative confusion has resolved. They then may be accepted into the limited geriatric rehabilitation units where extended stays are acceptable or they may be placed in a care facility.

The second theme is system based. Again, key informants from each stakeholder group overwhelmingly identified the need for more low tolerance, long duration rehabilitation beds, transitional care or pre-rehab beds and geriatric rehabilitation beds within the current system. These two themes can be linked as key informants reported that hip fracture patients are typically frail elderly patients with low tolerance who would benefit from alternatives to the demands of active inpatient MSK rehabilitation. In addition, other diagnostic groups such as MSK patients with co-morbidities that impact their ability to participate in active rehabilitation and patients who are non-weight bearing would also be appropriate for these less intense services.

Approximately 70 new convalescence beds were opened in the GTA under Ministry of Health and Long Term Care Homes in November, 2005. These beds were newly implemented within the system at the time of our interviews. Depending on how they are utilized (patient profile and rehabilitation resources provided), they may assist in addressing some of these needs.

## **5.2 Future Opportunities for Inpatient MSK Rehabilitation in the Toronto Central LHIN**

With the exception of elderly patients with hip fracture and patients with primary total joint replacement, stakeholders were not able to clearly identify patients who required inpatient MSK rehabilitation. Only individual characteristics were identified such that it was not possible to develop a comprehensive description of other patient groups. These characteristics included patients with complex MSK conditions, medical co-morbidities and limited social supports. The limited description of patient groups/programs and admission criteria that facilities submit for inclusion in Rehab Finder further support this finding.

Further work will be required to develop clear descriptions of distinct groups of patients based on a combination of characteristics that describe those requiring MSK inpatient rehabilitation to maximize their function.

## **5.3 Key Characteristics of a Complex MSK Patient**

Individual facilities indicate in Rehab Finder that they provide service for complex MSK patients; however, no definition of *complex* is provided. The difficulty in defining a complex MSK patient was evident during the interviews. Many individual characteristics of a complex MSK patient were identified, a number of which, on their own, would not characterize a patient as complex, whereas a combination of features may represent complexity.

There was consensus that the key characteristic should be consideration of the *extent* of the patient's MSK system involvement. Specifically, patients with *bilateral* involvement, upper *and* lower quadrant involvement, and those who have undergone *multiple* surgeries were a few of the examples offered by key informants that contributed to identifying a patient as complex. Another key theme within the list of individual characteristics was consideration of the presence and *impact* of medical co-morbidities. Further work is required to achieve consensus from stakeholder groups as to the *combinations* of characteristics that could describe a complex MSK rehabilitation patient.

## 6.0 LIMITATIONS

This report is based on the findings from acute hospital and inpatient rehabilitation facilities (both free-standing and within acute hospitals) within the Toronto Central LHIN plus St. John's Rehab Hospital, an inpatient rehabilitation facility in the Central LHIN. As such the key informants are from quaternary and tertiary care centres, most of which are academic health science centres. We recognize that these facilities, therefore, may have unique features that do not exist in other LHINs, particularly with respect to inpatient rehabilitation demands for some patient groups, e.g. trauma. This may limit the generalizability of the findings. However, as noted previously, many providers outside the Toronto Central LHIN have relationships with facilities within the GTA. Additionally, one of the strongest messages, the need to improve access and enhance service for those with hip fracture, may be a theme that applies to other jurisdictions.

The data in this report represents a synthesis of the impressions and experiences of key informants including those facilities referring MSK patients for inpatient rehabilitation and the rehabilitation facilities providing these services. Key informants for this project were selected at a managerial level, as these individuals have access to program level data and they most keenly understand the drivers that influence program and service decisions within their own facilities. Clearly frontline clinical staff can provide additional perspectives that will be beneficial in distinguishing the characteristics of the typical patient who requires inpatient rehabilitation services versus the complex MSK rehabilitation patient. Their inclusion is strongly recommended in future definitional work.

As noted previously, this document does not include impression from any key stakeholders from the community sector. Furthermore, we did not study MSK rehabilitation services in Complex Continuing Care or geriatric rehabilitation beds (with the exception of Baycrest). By MSK rehabilitation programs we mean MSK services offered in rehabilitation beds which are specified by the organization either for general rehabilitation use or for use with MSK patients in particular. Finally, the findings related to accessing community-based services represent only the perspective of those attempting to access the service without the insider perspective of the community. These findings, therefore, need to be interpreted within this context.

## 7.0 SUMMARY and RECOMMENDATIONS

This report summarizes the current landscape of MSK inpatient rehabilitation services in the Toronto Central LHIN, highlighting four potential opportunities to enhance services for MSK rehabilitation patients.

Four recommendations have emerged based on the findings:

- 1) The elderly hip fracture population, especially those with concomitant cognitive impairment, is under serviced. This group requires more appropriate access to integrated rehabilitation services, including inpatient rehabilitation. New models of care need to be developed, implemented and evaluated through a systems-based approach that will include all sectors.
- 2) MSK patients with anticipated slower recovery require improved access to low tolerance/long duration rehabilitation beds with potential for transfer to MSK program inpatient rehabilitation beds. Flexibility is required within the current funding model (which is tied to length of stay) and bed designation to improve MSK patient access to and movement between different levels of rehabilitation services.
- 3) Consensus needs to be reached around the key characteristics of a complex MSK patient such that service needs and resources can be matched. Formal group consensus methods should be undertaken to achieve consensus among stakeholder groups.
- 4) This is an excellent opportunity to move forward with collaboration and system integration with stakeholders at all levels including the care providers and the Local Health Integrated Networks. This can be accomplished in part through determination of and implementation of explicit and common definitions of patient populations and standardization of rehabilitation programs for MSK patients requiring inpatient rehabilitation.

## 8.0 CONCLUDING REMARKS

This document can provide the basis for discussions among facilities providing inpatient MSK rehabilitation to enhance services as they respond to changing health system needs. It enhances the findings of the GTA Rehab Network Report: *Exploring Hip Fracture and Joint Replacement in a Changing Landscape (March 2006)*. Finally, it informs discussions between policy-makers within the Toronto Central LHIN and providers as they work to optimize resources and access to these resources for patients requiring inpatient MSK rehabilitation.

## APPENDIX I

### **Semi-Structured Interview Guide for Free-Standing Rehabilitation Hospitals and Acute Care Hospitals with Inpatient MSK Rehabilitation beds**

*Thank you for agreeing to participate in this project. On behalf of the investigative team, I am meeting with you to get a better understanding of your inpatient musculoskeletal rehabilitation program. We are interested in learning more about the capacity of your program and the populations that it serves. We would like to know what pressures exist regarding bed mix and referrals and whether or not you perceive there to be gaps in the current inpatient musculoskeletal rehabilitation service in the Toronto Central LHIN.*

### **Environmental Scan of the Current Inpatient Musculoskeletal Rehabilitation System in the Toronto Central LHIN**

*How many inpatient musculoskeletal rehabilitation beds does your facility currently have?*

Probes:

- Are they funded as general rehabilitation beds or specialized rehabilitation beds? If you have both, what is the split between the two?
- Are they generally utilized as the funding prescribes?

*What programs exist within your complement of inpatient musculoskeletal rehabilitation beds?*

Probes:

- Do you have data that describes the bed utilization by subcategories (e.g. diagnostic or other groupings)?
- Do you have flexibility to utilize available beds based on referral requests or are some protected for certain diagnostic groupings?

*What are your admission criteria?*

Probes:

- Do you have a written document outlining your admission criteria that we may have?

*What geographic population does your facility serve?*

Probes:

- Do you accept out of catchment referrals?
- Have you developed partnerships with other facilities or are there referral patterns that your facility subscribes to?

*What is the average length of stay for patients in your inpatient musculoskeletal rehabilitation program?*

Probes:

- Do you have information on the average length of stay for the subcategories that utilize your beds?



*Does your program currently service “complex” musculoskeletal patients?*

*If yes, what characteristics does your program use to identify/ describe a complex musculoskeletal patient?*

*If no, what characteristics do you think should be used to describe a complex musculoskeletal patient?*

*What challenges do complex musculoskeletal patients present with that other musculoskeletal patients do not?*

*How would a complex musculoskeletal rehabilitation patient differ from patients who are in a complex continuing care bed?*

*What are the motivators or factors or barriers that would determine your organization’s preference in redesigning programs within musculoskeletal rehabilitation?*

## **Summary**

*Are there other issues or do you have any other thoughts that you would like our team to consider with respect to:*

- *the current inpatient musculoskeletal rehabilitation system?*
- *future opportunities for inpatient musculoskeletal rehabilitation?*
- *the characteristics of a complex musculoskeletal patient?*

*Thank you very much for participating in this interview today. Your responses will help to provide a better understanding of current inpatient musculoskeletal rehabilitation in the Toronto Central LHIN, the potential opportunities that exist to improve service delivery in the future, and the characteristics of a “complex” musculoskeletal patient.*

## APPENDIX II

### **Semi-Structured Interview Guide for Acute Care Hospitals with No Inpatient MSK Rehabilitation Beds**

*Thank you for agreeing to participate in this project. On behalf of the investigative team, I am meeting with you to get a better understanding of your experience with inpatient musculoskeletal rehabilitation programs. We are interested in learning more about your patient population and the resources they require upon discharge from your acute orthopaedic program. We would like to know what challenges exist in accessing inpatient MSK rehabilitation for your patients and whether or not you perceive there to be gaps in the current inpatient musculoskeletal rehabilitation service in the Toronto Central LHIN.*

### **Environmental Scan of the Current Inpatient Musculoskeletal Rehabilitation System in the Toronto Central LHIN**

*How many inpatient orthopaedic beds does your facility currently have?*

*What programs exist within your complement of inpatient orthopaedic beds?*

Probes:

- Do you have data that describes the bed utilization by subcategories (e.g. diagnostic or other groupings)?
- Do you have flexibility to utilize available beds based on need or are some protected for certain diagnostic groupings?

*What geographic population does your facility serve?*

Probes:

- Have you developed partnerships with other facilities or are there referral patterns that your facility subscribes to?

*What is the average length of stay for patients in your inpatient orthopaedic program?*

Probes:

- Do you have information on the average length of stay for the subcategories that utilize your beds?

*What are your discharge criteria?*

*Where do your patients go when they are discharged?*

Probes:

- What percentage of your patients is discharged home with or without supports?
- What percentage of your patients is discharged to an inpatient MSK rehabilitation program?
- What percentage of your patients is discharged to a long-term care facility?
- What percentage of your patients is discharged to another type of facility?



## **Summary**

*Are there other issues or do you have any other thoughts that you would like our team to consider with respect to:*

- the current inpatient musculoskeletal rehabilitation system?
- future opportunities for inpatient musculoskeletal rehabilitation?
- the characteristics of a complex musculoskeletal patient?

*Thank you very much for participating in this interview today. Your responses will help to provide a better understanding of current inpatient musculoskeletal rehabilitation in the Toronto Central LHIN, the potential opportunities that exist to improve service delivery in the future, and the characteristics of a “complex” musculoskeletal patient.*

## **APPENDIX III**

### **Participating Institutions**

#### **Free-standing Rehabilitation Hospitals**

Baycrest

Bridgepoint Health

Providence Healthcare

St. John's Rehab Hospital

Toronto Rehabilitation Institute

West Park Healthcare Centre

#### **Acute Care Hospitals with inpatient rehabilitation programs**

St. Joseph's Health Centre

Sunnybrook & Women's College Health Sciences Centre

Toronto East General Hospital

#### **Acute Care Hospitals with acute MSK programs**

Mt. Sinai Hospital

St. Michael's Hospital

Sunnybrook & Women's College Health Sciences Centre

Toronto Western Hospital (UHN)