

# Adult Acute Leukemia Services Plan for the Greater Toronto Area

*Recommendations*

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Acute Leukemia Steering Committee

# Executive Summary

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Acute leukemia is a rapidly progressive disease requiring timely, intensive, and complex treatment. In 2009 there were 353 new cases of adult acute leukemia reported in the Greater Toronto Area's (GTA's) six LHINs (Local Health Integration Networks).

Historically, care for these patients has been highly centralized. More than 90% of GTA residents who received induction or consolidation chemotherapy for acute leukemia in 2009 were treated at Princess Margaret Hospital (PMH), part of the University Health Network (UHN)<sup>1</sup>. Additionally, PMH predominately provides long-term follow-up of survivors and supportive care of palliative acute leukemia patients. This centralized approach has resulted in significant resource pressures at PMH.

However, with proper support and guidance, certain components of these patients' care can be delivered appropriately at other GTA hospitals. This would provide patients with access to care closer to home and reduce some of the need to travel outside their community for frequent outpatient visits and hospitalizations at a time when they are physically and emotionally challenged.

These resource pressures will become more intense as the burden of adult acute leukemia increases significantly in the next five years as the population in the six LHINs<sup>2</sup> (Central West, Mississauga Halton, Toronto Central, Central, Central East and North Simcoe Muskoka) grows and ages.

For this and other reasons, there is an urgent need to develop an enhanced care delivery model for patients with acute leukemia in the GTA. We expect that in the future this service plan can be a platform to address needs in other parts of the province.

Cancer Care Ontario (CCO) is addressing Ontario's ability to meet this demand in the GTA. CCO, UHN, and representatives from other centres in the GTA struck a Steering Committee to develop recommendations to:

1. Ensure adequate access to, capacity, and sustainability for acute leukemia services throughout the patient treatment journey
2. Advance the quality and safety of acute leukemia services

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<sup>1</sup>Current State Data, Ontario Cancer Registry, 2011

<sup>2</sup>Demand Forecast, Dr. A. Schuh, 2011

## Recommendations

### Access, Capacity, and Sustainability of Acute Leukemia Services

1. *Implement a new service model for the GTA to promote the timely delivery of adult acute leukemia care as close to home as possible. Define three levels of service according to a detailed description of the following features:*
  - a. *Service Type and Complexity including the capacity to provide the various components of active chemotherapy and related supportive therapies.*
  - b. *Health Human Resource (HHR) Requirements including pharmacist, nurses, other allied health professionals, and physician resources.*
  - c. *Organizational Support*
2. *Define a Level of Service (LoS) designation for each participating GTA hospital.*

### Quality and Safety of Acute Leukemia Services

3. *Comprehensive patient record-sharing between hospitals is integral to the new service delivery model, which depends on the shared care of complex cases. While the ConnectingGTA system may ultimately fulfill this requirement, an interim solution should be developed.*
4. *Develop a plan to define the mentorship strategy for sharing multidisciplinary expertise between providers at Level 1 (PMH) and other centres. This strategy should address communication regarding individual patient-care needs, as well as mechanisms for sharing best practices between institutions.*
5. *Develop clinical and quality guidance documents in these priority areas:*
  - a) *Treatment Guidelines for Acute Myeloid Leukemia*
  - b) *Treatment Guidelines for Acute Lymphoblastic Leukemia*

### Coordination and Oversight of Acute Leukemia Services

6. *CCO should implement a performance management strategy – consistent with its specialized services oversight function – to oversee the delivery of acute leukemia services in the GTA. This should include data collection and analysis for monitoring:*
  - a. *Access and wait times*
  - b. *Quality of care and outcomes*
7. *Implement a new patient-centred funding model based on the principle that funding should follow the patient to ensure sustainability of the new service model. Case costing will break down the total cost into components that define the different episodes of care to facilitate shared care where appropriate.*
8. *CCO should manage the allocation of incremental funding for leukemia services in accordance with the new funding model.*
  - a. *This should include the delivery of an annual forecast of service demand and any associated physician HHR to the Ministry of Health and Long-Term Care (MOHLTC)*
  - b. *Align the allocation of any incremental physician HHR for complex malignant hematology with the distribution of incremental episode related funds.*
9. *Develop and execute a communication plan to promote awareness of services to providers, patients and their family members.*

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# Introduction

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Acute leukemia is a rapidly progressive cancer of the white blood cells. Normal white blood cells are produced in the bone marrow and function to fight infections. In leukemia, the bone marrow produces a large number of abnormal white blood cells<sup>3</sup>. This affects the development of the patient's normal blood elements and can have serious clinical consequences, including life-threatening problems with infection and bleeding. There are two main types of acute leukemia, each named after the type of cell that is affected: acute myeloid leukemia (AML) and acute lymphoblastic leukemia (ALL).

Acute leukemia requires timely intervention with specialized chemotherapy. Treatment is characterized by lengthy hospital admissions for intensive chemotherapy regimens, followed by frequent outpatient clinic visits for monitoring, blood product support, and additional treatment. There is a schematic representation of a typical treatment pathway for acute leukemia patients in Appendix A.

The complexity of leukemia treatment requires an expert multidisciplinary team skilled in the delivery of the necessary intensive, specialized chemotherapy regimens. Aggressive supportive therapy is also required as the treatment can temporarily compromise the patient's immune system. Emergency admissions and readmissions are common, and patients may end up in hospital for months<sup>2</sup>.

The majority of patients diagnosed with acute leukemia in the Greater Toronto Area (GTA) currently travel downtown to Princess Margaret Hospital (PMH), part of the University Health Network (UHN), for comprehensive care, including diagnosis, treatment, and follow-up. This centralized model of care has placed significant resource pressure on PMH. Some of the services PMH delivers could be provided at other GTA hospitals if adequate support and guidance were available. Patients would then have timely access to high-quality treatment and follow-up care as close to home as possible.

UHN submitted a proposal for incremental funding, which identified the need for additional capacity and improved access to acute leukemia services in the GTA, to the Ministry of Health and Long-Term Care (MOHLTC) in September 2010. Although the average wait to start treatment from diagnosis for acute leukemia ideally should be less than one day, patients referred to PMH sometimes wait 7 to 14 days and occasionally up to 27 days<sup>4</sup>. MOHLTC responded to the UHN proposal with additional funds in recognition of the urgent need to manage pressures associated with the delivery of adult acute leukemia services in the GTA. Cancer Care Ontario (CCO) has been charged with defining both short-term solutions and a long-term sustainable model that will provide high-quality care as close to home as possible, as defined by the strategic priorities of Ontario Cancer Plan III.

CCO has identified two major goals to achieve the vision of timely access to high-quality, sustainable, acute leukemia services:

- 1) Ensuring adequate access to, and capacity and sustainability for, acute leukemia services throughout the patient treatment journey; and
- 2) Advancing the quality and safety of leukemia services.

CCO convened a committee of stakeholders to assist in understanding the issues related to acute leukemia services and in formulating recommendations. Appendix B outlines the Terms of Reference of the Steering Committee; Appendix C, the Members List. Members represented academic and community hospitals, affected LHINs, health-care providers and administrators. CCO will continue efforts to engage patients and caregivers as planning and program implementation continue.

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<sup>3</sup>US National Library of Medicine. <http://www.nlm.nih.gov/medlineplus/acuteleukemia.html>. April 2011.

<sup>4</sup>UHN proposal: "Expanding Ontario's Capacity to Treat Leukemia and Stem Cell Transplant Patients", September 2010

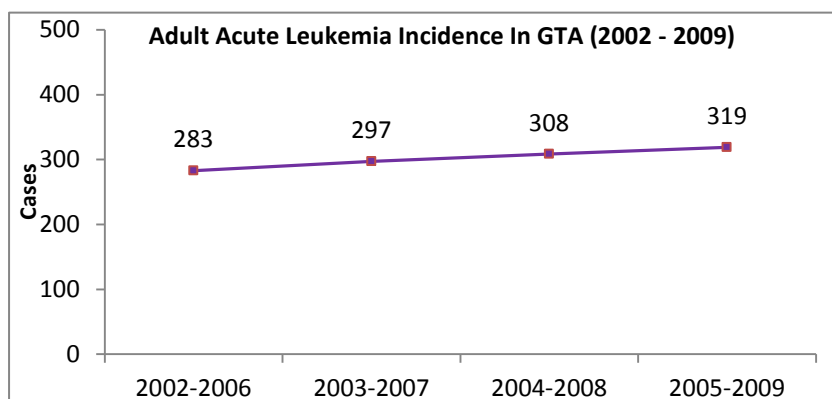
To guide this work, the Steering Committee developed a Goals and Objectives Framework (Appendix D). An analysis of demand (current and future) and capacity informed recommendations for the organization of services to meet the needs in the GTA. The Committee’s work was also informed by information gathered from other jurisdictions and literature reviews. Clinical knowledge guided the development of a Levels of Service (LoS) document, based on the expertise and infrastructure required to provide patient care at different points along the disease pathway. A measurement and performance management strategy was developed, that included both wait times and other quality assurance components. A costing exercise is underway to better identify incremental needs and a funding model to support shared care to ensure the sustainability of services across the GTA. The Steering Committee also identified areas for future development, such as clinical guidance documents.

Due to the urgent GTA situation, the project specifically focused on recommendations for this region. We expect that in the future this service plan can be a platform to address needs in other parts of the province.

## Current State and Future Demand

CCO undertook an analysis of available data to understand the need for services in the GTA. The following LHINs were included for the purposes of this service-model document: Central West, Mississauga Halton, Toronto Central, Central, Central East, and North Simcoe Muskoka. A review of Ontario Cancer Registry (OCR), CCO Data Book holdings, Discharge Abstract Database (DAD) and National Ambulatory Care Reporting Service (NACRS) was supplemented with surveys of all acute-care hospitals in the region to gather additional data.

**Figure 1: Acute Leukemia Incidence**



**Report Date** - June 2011

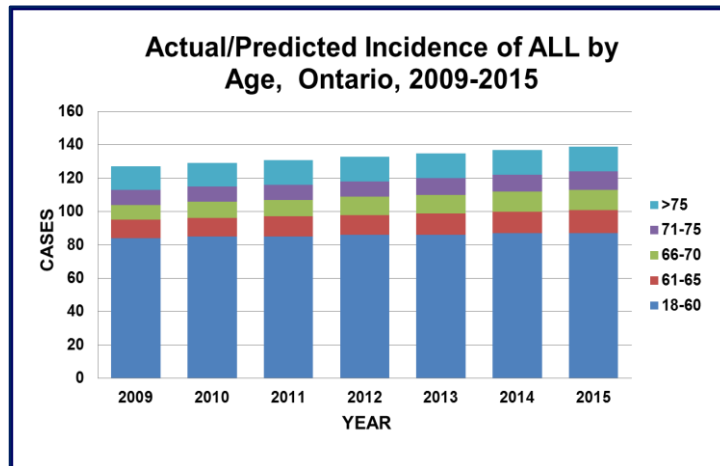
**Data Source** - 2009 Ontario Cancer Registry

It is clear that demand for acute leukemia has increased over time and is expected to continue to do so in future. (See Figure 1: Acute Leukemia Incidence, Figure 2: ALL Rates in Ontario and Figure 3: AML Rates in Ontario). This demand is related to both an aging and growing population. Ontario expects a 6.1% population increase from 2010 to 2015 (Figure 4: Population Rates in Ontario). It is important to note the significant increase expected in the incidence of AML (where the median age for diagnosis is 65<sup>5</sup>) and myelodysplastic syndromes (MDS), a precursor to AML, in Ontario’s older population. (Figure 5: ALL, AML, and MDS Rates in Ontario). CCO notes that an even greater challenge may lie beyond the current projections which end at 2015. Statistics Canada reports an on-going rapid increase in the proportion of the population that is 65 years or older. In 1981, less

<sup>5</sup>Guidelines for the Management of Acute Myeloid Leukemia in Adults. Cancer Care Nova Scotia. <http://www.cancercare.ns.ca/site-cc/media/cancercare/Acute%20Myelogenous%20Leukemia.pdf> February 2005.

than 10% of the population fell into this age group, but by 2051 this will jump to more than 25%<sup>6</sup>. This plan has been developed to address the needs of near-term demand and to build a model flexible enough to grow and accommodate longer-term future requirements.

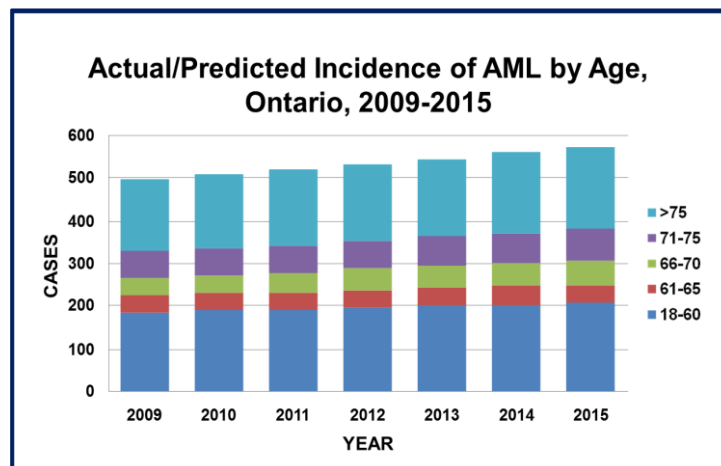
**Figure 2: ALL Rates in Ontario**



**Report Date** - June 2011

**Data Source** - SEER and CCO incidence databases, Statistics Canada and CCO population data and projections, with data manipulations and calculations by Dr. Andre Schuh

**Figure 3: AML Rates in Ontario**



**Report Date** - June 2011

**Data Source** - SEER incidence databases, Statistics Canada and CCO population data and projections, with data manipulations and calculations by Dr. Andre Schuh

<sup>6</sup>SEER and CCO incidence databases, Statistics Canada and CCO population data and projections, with data manipulations and calculations by Dr. Andre Schuh



**Figure 4: Population Rates in Ontario**

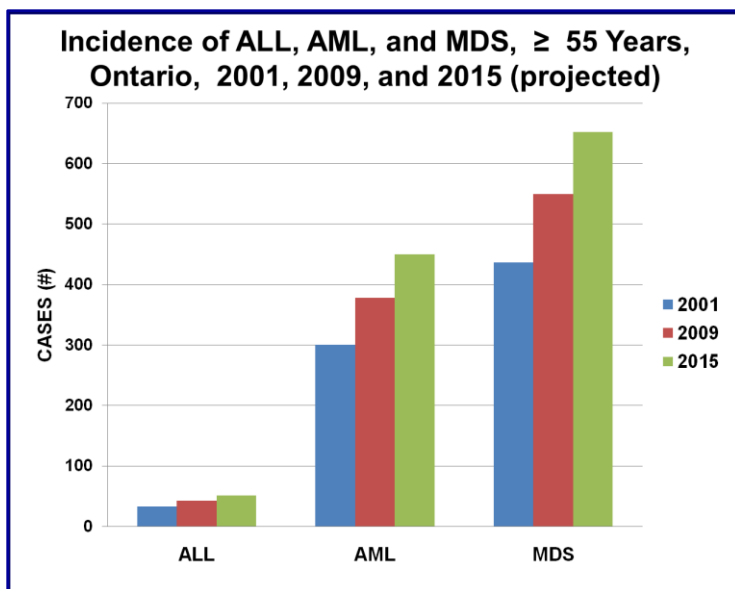
<b>Population Change by LHIN, 2010-2015 (%)</b>	
Central West	11.8
Mississauga Halton	10.4
Central	9.6
North Simcoe Muskoka	8.5
Waterloo Wellington	7.8
Central East	7.7
Champlain	5.7
Hamilton Niagara Haldimand Brant	3.9
South West	3.7
South East	2.5
Erie St. Clair	1.3
Toronto Central	1.2
North East	0.8
North West	-0.2
<b>TOTAL All Ontario</b>	<b>6.1</b>

**Report Date** - June 2011

**Data Source** - CCO population data and projections, with data manipulations and calculations by Dr. Andre Schuh

**Notes** - The pink highlighted cells are the GTA LHINs showing a growing population with five out of the six regions expected to see higher than average population increases.

**Figure 5: ALL, AML, and MDS Rates in Ontarians 55 years or older**

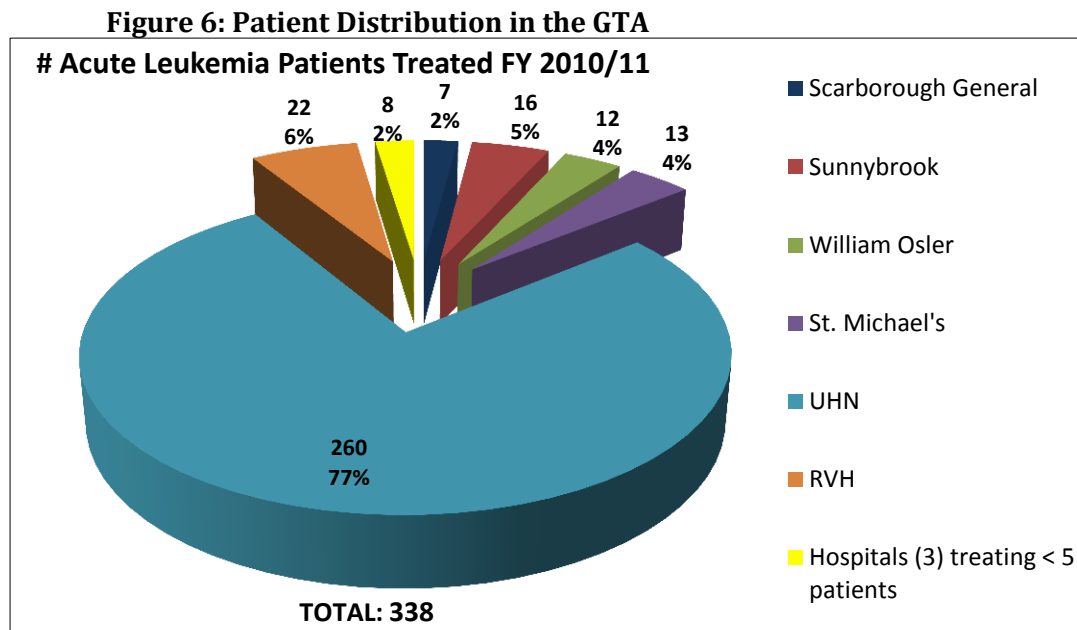


**Report Date** - June 2011

**Data Source** - SEER and CCO incidence databases, Statistics Canada and CCO population data and projections, with data manipulations and calculations by Dr. Andre Schuh

# The Need to Build Capacity Across the GTA

The specialized treatment regimens associated with acute leukemia have resulted in a centralized approach to the management of leukemia patients in Ontario. PMH/UHN currently runs the largest acute leukemia program in Ontario. The majority of patients seen at PMH/UHN come from GTA LHINs (Figure 6: Patient Distribution in the GTA).



**Report Date** - August, 2011

**Data Source** - 2011 Acute Leukemia Surveys

The patient care pathway must first be understood in order to fully appreciate the intense workload associated with providing care for leukemia patients. Here is a high-level overview of the pathway. A more comprehensive diagram is in Appendix A.

AML: Induction → Consolidation → Remission or supportive care or transplant

ALL: Induction → CNS Phase → Intensification → Maintenance

The induction phase of treatment is the most intense and resource-heavy component. There are only two centres in the GTA, PMH/UHN and Sunnybrook, which provide this therapy for acute leukemia (Figure 7: Distribution of Treatment Type). In addition, the consolidation phase of treatment is also resource-intensive, and is done primarily at these two centres. Depending on the patient, consolidation may be done as outpatient, rather than in-patient care. PMH/UHN is currently the only centre equipped to perform consolidations on an outpatient basis. Providing consolidation as an outpatient service at PMH/UHN was driven by resource issues and required appropriate infrastructure and human resources to support it.

**Figure 7: Distribution of Treatment Type - FY 10/11**

(Only includes centres that treated, at minimum, 1 patient in any phase of treatment)

	AML Induction	AML Consol- idation	ALL Induction /CNS	ALL Intens- ification	ALL Maintenance	Palliative Care
<b>TORONTO CENTRAL LHIN</b>						
PMH/UHN	155	149	45	44	44	40
Sunnybrook	7	7	9	8	8	10
St. Michael's					10	
<b>CENTRAL WEST/MISSISSAUGA HALTON LHIN</b>						
William Osler				10	10	
<b>CENTRAL LHIN</b>						
Southlake				<5	<5	6
North York General					6	
Markham Stouffville					<5	
<b>CENTRAL EAST LHIN</b>						
Scarborough General					7	
Centenary						<5
Northumberland					<5	
<b>NORTH SIMCOE MUSKOKA LHIN</b>						
Royal Victoria		<5		5	<5	
Muskoka Algonquin					<5	<5

**Report Date** - August 2011

**Data Source** - 2011 Acute Leukemia Survey

**Notes** - Full survey questions are in Appendix G.

Leukemia care requires a team of highly specialized health-care providers. In Ontario, there are a limited number of hematologists and medical oncologists with specific expertise in the treatment of complex malignant hematology (CMH) i.e. patients with acute leukemia or patients requiring stem cell transplantation (Figure 8: Complex Malignant Hematology HHR). In fact, of the few physicians who do treat CMH, not all actually treat acute leukemia, since it is quite specialized. CMH physicians provide primary consultation and make active treatment decisions for these conditions and are generally associated with academic, integrated cancer programs where other critical patient supports are available. These supports include a large network of additional specialized health-care workers, such as advanced practice nurses, who are trained accordingly and work specifically with this patient group. Service in the GTA has concentrated at PMH. As a result the ability to provide specialized care for these patients at other facilities has become limited. However, there is a significant workforce of hematologists and medical oncologists – treating solid tumors and traditional malignant hematology in other GTA hospitals – who have had varying degrees of training or experience in the treatment of acute leukemia.

**Figure 8: Complex Malignant Hematology HHR - Expanded Census and Activity Measurement 2010**

LHIN	Full Time Employees (FTE)
1. Erie- St. Clair	1
2. South West	5.95
3. Waterloo Wellington	
4. Hamilton Niagara Haldimand Brant	7.4
5. Central West	
6. Mississauga Halton	
7. Toronto Central	17
8. Central	
9. Central East	
10. South East	1
11. Champlain	7
12. North Simcoe Muskoka	
13. North East	0.5
14. North West	
Province	39.85

Report Date - October 2010

Data Source - 2010 Systemic Human Resources Regional Census

## Jurisdictional Scan

CCO conducted an international jurisdictional scan – consisting of a high-level assessment of acute leukemia services and guidelines – to identify resources, such as published reports from Provincial bodies, National Guidelines, and policy evaluation documents, which could inform the GTA plan.

The scan sought answers to these key questions:

1. What have other major cancer centres identified as levels of service for acute leukemia?
2. Have other major cancer centres developed external partnerships in a shared-care model? If so, what within these models was successful?

Four key jurisdictions were identified for review; two Canadian provinces, British Columbia and Nova Scotia; and two international regions, United Kingdom (England and Ireland) and Australia (Victoria).

A high-level summary follows. Detailed findings are in Appendix E.

### British Columbia:

- Shared-Care model using four Outreach Clinics dispersed across the province
- No defined levels of service

### Nova Scotia:

- Levels of service determined based on volume, location, HHR, and specialized services
- Community, Basic, Intermediate, Advanced, and Specialized

### United Kingdom:

- Levels of service numbered 1, 2a, 2b, and 3, with 3 being the most complex/specialized treatment centre
- Levels of service based specifically on acute leukemia treatment and the necessary resources to treat these patients (ability to treat febrile neutropenia, auto/allo transplants, different chemo regimens etc.)

**Australia:**

- Levels of service numbered 1-5, with 5 being the most complex/specialized treatment centres
- Levels of service based on HHR and other hospital resources (pathology, radiology, etc.).

This information was used to inform the development of the Levels of Service document for the GTA, as discussed later in this report.

**Literature Review**

CCO completed a literature review in conjunction with the jurisdictional scan. Its objective was to determine what evidence existed on the volume/outcome relationship of the treatment of acute leukemia. CCO identified little information articulating specific service volume minimums. A summary of the reviewed literature that fit the specified search criteria is in Appendix F.

# Recommendations

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## Ensuring Adequate access to, and capacity and sustainability for acute leukemia services throughout the patients' treatment journey

1. *Implement a new service model for the GTA to promote the timely delivery of adult acute leukemia care as close to home as possible. Three levels of service should be defined according to a detailed description of the following features:*
  - a. *Service Type and Complexity including the capacity to provide the various components of active chemotherapy and related supportive therapies.*
  - b. *Health Human Resource (HHR) Requirements including pharmacist, nursing, other allied health professionals and physician resources.*
  - c. *Organizational Support*

The treatment of acute leukemia in the GTA historically has been restricted to specialized centres, primarily Princess Margaret Hospital (PMH). This approach has become increasingly problematic for both PMH and for patients who often live at a distance from the centre.

Not all aspects of acute leukemia care require a specialized leukemia centre. It was the consensus view of the Steering Committee that with appropriate bi-directional partnering and collaboration (teaching and mentorship, consultation, ready expert access, shared medical records, etc.), quality control, and appropriate distribution of resources, a significant proportion of acute leukemia care could safely occur in other GTA hospitals. Such an initiative would not only improve the capacity to treat adult patients with acute leukemia in the GTA, but would also support a long-term, sustainable service plan. It also would allow for a more patient-centred service model, since a larger component of leukemia care would occur closer to home.

The Committee divided the treatment of acute leukemia into discrete episodes of care defined by their complexity and intensity. The goal was to identify those components that could be delivered safely outside a specialized leukemia centre. The Committee defined three levels of service (LoS) according to the specific episodes of care provided and their associated resource requirements. To ensure alignment with other CCO initiatives the nomenclature and language has been modelled primarily after the Regional Systemic Treatment Program levels of care document<sup>7</sup> and the jurisdictional scan results.

The LoS definitions should be applied to all institutions within the GTA delivering adult acute leukemia care. The LoS tool (Figure 9) addresses:

1. Service type and complexity
2. Health Human Resources
3. Organizational support

CCO recommends there be a reciprocal, interactive, shared patient-care relationship between levels for appropriate patients. Functioning as a cohesive and hierarchal network of care, level 2 and 3 centres will partner with and be mentored by level 1 centre(s). The network will embrace the principles of collaboration, consultation, continuing education, and shared quality outcome measures. These principles will be supported by the ability to share electronic medical records and diagnostic imaging files.

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<sup>7</sup> Regional Models of Care for Systemic Treatment: Standards for Organization and Delivery of Systemic Treatment <http://cancercare.on.ca/pdf/pebc12-10.pdf> May 22, 2007

Following are summary descriptions that accompany the framework document (Figure 9).

**A level 1 centre** (PMH as prototype) should provide – and be highly experienced in – all episodes of active and supportive leukemia care. A level 1 centre also would have the capacity to sponsor clinical trials. As a level 1 centre, it would be responsible for partnering with level 2 and 3 centres to provide intra- and inter-disciplinary mentorship. This includes sharing expertise for individual patient-care questions and overall promotion of best practice. This mentorship relates to all health-care disciplines including physicians, nurses, pharmacists, and other allied health providers where appropriate.

**A level 2 centre** should provide certain episodes of active care for adult acute leukemia but would not initiate curative treatment. Patients attending level 2 centres would not receive induction or consolidation chemotherapy. They could, however, have outpatient monitoring after receiving such chemotherapy at a level 1 centre. In addition, level 2 centres would participate in the monitoring of ALL patients during their intensification and maintenance cycles. Patients with ALL could also receive mid-cycle methotrexate/L-asparaginase during intensification and some or all of their maintenance chemotherapy at level 2 centres. These centres could treat both short and long duration febrile neutropenia events in both the active-care and palliative care settings. Both palliative and post-chemotherapy supportive care would include transfusion support.

**A level 3 centre** would provide supportive care for patients in the palliative or non-complex treatment settings as well as mid-cycle monitoring of patients receiving ALL maintenance therapy. Level 3 centres could treat febrile neutropenia events in the palliative setting or in the setting where neutropenia is expected to be of short duration post-chemotherapy. Both palliative and post-chemo supportive care would include transfusion support.

The level 1, 2, or 3 designation is meant to be dynamic. Thus, a level 2 centre could evolve into a level 1 centre and a level 3 centre could evolve into a level 2 centre over time. Consistent with this concept, and as a first step in this direction, the current model includes optional incremental chemotherapy responsibilities for both level 2 and 3 centres. Through this process, on-going growth could be accommodated as the need develops.

### ***THE LoS MODEL: IMPLEMENTATION***

The Levels of Service Working group, a sub-group of the Acute Leukemia Steering Committee, developed the following practical LoS framework as a concise summary to highlight the key features of the model of care, such as service provision, complexity, safety, accessibility, and quality. Throughout its development, appropriateness, transparency, and accountability were deliberated as was the potential application of this model across the province outside of the GTA.

For implementation, all institutions in the GTA would be asked to commit to the level of service to be provided on site. Regional partners would be asked to collaborate in linkages that would better configure resources regionally where possible. Individual institutions could expand the scope of their services so the configuration of the model and the designation level of the institution could change over time. The successful LoS implementation would be intended to create sustainable and accessible quality care, and to improve measurable patient outcomes.

**Figure 9: Levels of Service Document**

- Levels of service are organized from basic support (level 3) for acute leukemia patients to the most complex/advanced treatment centres (level 1).
- Each level describes the minimum criteria required for that designation. An institution must meet all a level's standards to be designated at that level.
- Levels are hierarchical, with level 3 responsibilities encompassing levels 2 and so forth.

	LEVEL 3	LEVEL 2 (Level 3 capabilities plus)	LEVEL 1 (Level 2 capabilities plus)
<b>SERVICE TYPE and COMPLEXITY</b>			
<ul style="list-style-type: none"> <li>• Episodes of care are provided in the most appropriate setting where patients can be assured the best quality care</li> <li>• Each level has access to resources at the other levels when necessary, for consultation or transfer of service delivery</li> </ul>			
<b>Intensity and complexity</b>	Routine supportive care of palliative or non-complex treatment	<ul style="list-style-type: none"> <li>• Administration of non-intensive chemo.</li> <li>• Outpatient support after intensive post-remission chemo.</li> </ul>	Intensive, complex treatment and support
<b>Inpatient inductions</b>	No	No	Yes
<b>AML consolidation</b>	No	<ul style="list-style-type: none"> <li>• Monitoring<sup>1</sup> and care post-chemo</li> <li>• Optional: Administration of select regimens in select cases</li> </ul>	Yes - administration and monitoring <sup>1</sup>
<b>ALL intensification</b>	No	<ul style="list-style-type: none"> <li>• Mid-cycle monitoring<sup>1</sup></li> <li>• Administration of mid-cycle asparaginase</li> </ul>	<ul style="list-style-type: none"> <li>• Initiation of all cycles</li> <li>• Mid-cycle monitoring<sup>1</sup> and chemo</li> </ul>
<b>ALL maintenance</b>	<ul style="list-style-type: none"> <li>• Mid-cycle monitoring<sup>1</sup></li> <li>• Optional: Administration of mid-cycle methotrexate in select cases</li> </ul>	<ul style="list-style-type: none"> <li>• Mid-cycle chemo and monitoring<sup>1</sup></li> <li>• Administration of some treatment cycles</li> </ul>	Yes
<b>Palliative support (Transfusions, Antibiotics)</b>	Yes	Yes	Yes
<b>Management of febrile neutropenia</b>	Febrile neutropenia in palliative setting, or short-duration neutropenia post-chemo (< 7 days)	Treatment of short- and long-duration neutropenia post-chemo or in palliative setting	Treatment of long-duration neutropenia, complex infectious complications
<b>Transfusion support</b>	PRBC, Plts in palliative setting	PRBC, Plts as needed post-chemo	All
<b>Clinical trials</b>	No	No	Yes
<b>Clinical trial monitoring</b>	Yes (select studies) - routine bloodwork and transfusion support	Yes - monitoring <sup>1</sup> and support between study visits	Yes
<b>HEALTH HUMAN RESOURCES</b>			
<ul style="list-style-type: none"> <li>• Services are to be provided in a multidisciplinary environment in which all providers required for the service at a particular level are available or readily accessible</li> </ul>			
<b>Physicians</b>	<ul style="list-style-type: none"> <li>• Hem/Onc or committed internist (min 1)</li> <li>• 24 h coverage<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Hem/Onc with leukemia commitment (min 2)</li> <li>• 24 h coverage<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Leukemia Specialists</li> <li>• 24 h coverage<sup>2</sup></li> <li>• Mentorship to Levels 2 and 3</li> </ul>
<b>Nursing<sup>3</sup></b>	<ul style="list-style-type: none"> <li>• RN working towards the national certification CON(C) within 3 years of employment</li> <li>• Monitor and intervene for side effects and reactions, provide supportive care, manage symptoms</li> </ul>	<ul style="list-style-type: none"> <li>• Specialized oncology nurses with national certification in oncology through the Canadian Nurses Association and additional knowledge, clinical skills and clinical decision making in leukemia</li> <li>• May have Master's prepared NP specialized in oncology, with additional hematology education and/or clinical fellowship</li> </ul>	<ul style="list-style-type: none"> <li>• Master's prepared NP specialized in oncology, ideally with additional hematology education</li> <li>• Specialized oncology nurses with national certification in oncology through the Canadian Nurses Association and additional knowledge, clinical skills and clinical decision making in leukemia</li> </ul>



		supported from Level 1	
<b>Pharmacy</b>	Dedicated oncology pharmacists	Dedicated oncology pharmacists	Dedicated oncology pharmacists
<b>ORGANIZATIONAL SUPPORT</b>			
<ul style="list-style-type: none"> <li>The necessary infrastructure is in place to provide the service level</li> </ul>			
		Intensive Care Unit	Intensive Care Unit
		ID Specialist	ID Specialist
	Onsite 24 hour Blood Bank	On site, fully capable <sup>4</sup> Blood Bank	On site, fully capable <sup>4</sup> Blood Bank
	Networkable EMR <sup>5</sup>	Networkable EMR <sup>5</sup> and Imaging	Networkable EMR <sup>5</sup> and Imaging
	Pharmacy capacity and expertise	Pharmacy capacity and expertise	Pharmacy capacity and expertise
		Infrastructure <sup>6</sup> (AIPs, etc)	Infrastructure <sup>6</sup> (AIPs, etc.)
	Decision support resources to collate and analyze quality indicators	CCO Data Book compliant <sup>7</sup>	CCO Data Book compliant <sup>7</sup>
	Multidisciplinary Psychosocial Oncology Team <sup>8</sup> , including members with advanced training to address complex, acute leukemia patient needs		

<sup>1</sup>Monitoring in this setting includes frequent blood-count monitoring, clinical evaluation, transfusion support, and antibiotic support, including the management of febrile neutropenia.

<sup>2</sup>24 h coverage includes coverage by telephone

<sup>3</sup>Only registered nurses who have completed a chemotherapy and biotherapy program and have achieved competency in this area should be providing chemotherapy treatment. The de Souza Institute provides a standardized course and competency assessment in chemotherapy and biotherapy, and is the preferred program; however, organizations may provide similarly designated chemotherapy courses. See Appendix H for sample nursing role description.

<sup>4</sup>A fully-capable blood bank is able to deliver PRBC and platelet transfusions, as well as plasma and factor concentrates, without delay

<sup>5</sup>Networkable EMR refers to Electronic Medical Records that can be shared among centres. Shared information includes all bloodwork, diagnostic reports, and clinic notes and discharge summaries

<sup>6</sup>Infrastructure refers to ambulatory infusion pumps (AIPs), Hickman and PICC catheters, etc.

<sup>7</sup>The CCO Data Book defines the clinical, operational and financial data required directly from Regional Cancer Centres and other health-care delivery organizations which have entered into an agreement with CCO.

<sup>8</sup>Multidisciplinary Psychosocial Oncology team may include social work, psychology, psychiatry, psychosocial counsellors, chaplains and others

**Abbreviations:** Hem/Onc - Hematologist/Oncologist; APN - Advanced Practice Nurse; PRBC - Packed Red Blood Cells; Plts - Platelets; CON(C) - Certified Oncology Nurse (Canada); ICU - Intensive Care Unit; ID - Infectious Disease; EMR - Electronic Medical Record; AIP - Ambulatory Infusion Pump

## 2. Define a Level of Service (LoS) designation for each participating GTA hospital.

Based on the information gathered from the surveys, the acute-care hospitals in the GTA have been classified into the different levels based on current and potential future state (Figure 10)

- *PMH/UHN is currently designated a level 1 centre*
- *Royal Victoria Hospital should be designated a level 2 centre*
- *Sunnybrook Hospital should build capacity towards future designation as a level 1 centre*
- *Other potential level 2 centres should be identified – the optimal configuration would eventually have additional level 2 centres in the North GTA, East GTA, and West GTA*
- *The remaining hospitals should be considered for level 3 designation, with the potential to develop level 2 capabilities in the future as needed.*

**Figure 10: Levels of Service Classification of Acute Care Centres Within defined GTA LHINs**

**Proposed Future State**

	<b>Level 3</b>	<b>Level 2</b>	<b>Level 1</b>
<b>Centres</b>	HUMBER RIVER REGIONAL	<i>ROYAL VICTORIA HOSPITAL</i>	PRINCESS MARGARET HOSPITAL
	MARKHAM-STOUFFVILLE		
	NORTH YORK GENERAL	<i>GTA North (future)</i>	<i>SUNNYBROOK (future)</i>
	SOUTHLAKE REGIONAL HEALTH CENTRE		
	YORK CENTRAL HOSPITAL	<i>GTA East (future)</i>	
	LAKERIDGE HEALTH		
	NORTHUMBERLAND HILLS	<i>GTA West (future)</i>	
	PETERBOROUGH REGIONAL		
	ROSS MEMORIAL HOSPITAL		
	ROUGE VALLEY HEALTH SYSTEM		
	SCARBOROUGH HOSPITAL		
	HEADWATERS HEALTH CARE CENTRE		
	WILLIAM OSLER HEALTH CENTRE		
	CREDIT VALLEY HOSPITAL		
	HALTON HEALTHCARE		
	TRILLIUM HEALTH CENTRE		
	ORILLIA SOLDIERS' MEMORIAL		
	MUSKOKA ALGONQUIN HEALTH SCIENCES		
	MOUNT SINAI HOSPITAL		
	ST MICHAEL'S HOSPITAL		
ST. JOSEPH'S HEALTH CENTRE			
TORONTO EAST GENERAL			

Currently, PMH fulfils all the criteria for a level 1 designation. Sunnybrook Hospital is providing service at a level between level 1 and level 2 designations. Royal Victoria Hospital in Barrie is providing service consistent with a level 2 designation.

Successful implementation of this model will require the identification of several other partner institutions that will be willing to build capacity to allow them to move from the level 3 to the level 2 service provision. The process of engaging hospitals in the GTA began at the outset of this project by involving all centres in the completion of the data-collection surveys. The surveys were accompanied by a cover letter explaining the purpose and goals of the project. These letters were sent to hematologists and oncologists, the Regional Vice Presidents (RVPs) of each Regional Cancer Centre, and the Administrative Leads at each centre, and were designed to establish an on-going collaboration (see Appendix G for a sample letter). Feedback was positive and all acute-care hospitals in the GTA were willing to participate in the surveys.

We recommend the collaborative nature of the project continue and that community partners be fully engaged in the development of the implementation plan. The implementation plan also should include on-going mechanisms to provide feedback and support to partner centres, and receive feedback and input from partners to understand progression of their current state and to continue uptake of the service model. Maintaining the engagement of the RVPs, clinical and administrative leads is imperative to gaining buy-in and sustained engagement.

*3. Comprehensive patient record sharing between hospitals is integral to the new service delivery model, which depends on shared care of complex cases. While the ConnectingGTA system may ultimately fulfill this requirement, an interim solution should be developed.*

One of the major gaps for health-care providers when treating acute leukemia patients is the lack of communication between treatment centres. Often, reports on test results are not readily available and given the urgency to make timely treatment decisions, tests often need to be repeated. This is costly, time consuming, and burdensome for the patient. A system for sharing clinic notes, and laboratory, pathology and imaging results in real time is necessary for participating centres to enter into a model of shared care.

ConnectingGTA is a collaborative effort between the MOHTLC, eHealth Ontario, Canada Health Infoway, UHN and five GTA LHINs: Central, Central East, Central West, Mississauga-Halton and Toronto Central. This project's main goal is to integrate electronic patient information from across the care continuum and make it available at the point-of-care. It is aiming to complete initial implementation by the end of fiscal 2012/13. The project will begin with clinical identified priority data including clinic reports, diagnostic imaging reports, drug information, and access to 100% of lab data from the GTA. Although this project certainly will improve patient care and experience and reduce the administrative burden that clinicians experience, it will not meet all the needs of the acute leukemia project.

To address the gaps in information sharing when ConnectingGTA is launched, centres in the North Simcoe Muskoka LHIN specifically should be engaged, since the ConnectingGTA project will not include that region in its initial implementation. Further, sharing of pathology reports also should be prioritized, since it is not clear when this will be included in ConnectingGTA.

We should explore other short-term solutions for bi-directional information – including Patient Results Online (PRO) and other existing systems – until ConnectingGTA is available. At a minimum, institutions should facilitate exchange of hospital privileges to allow bilateral access to patient records. This information-sharing structure also can be examined for use in the mentorship and best-practice sharing recommendation (below).

## **Advancing the quality and safety of leukemia services**

*4. Develop a plan to define the mentorship strategy for sharing multidisciplinary expertise between providers at Level 1 (PMH) and other centres. This should address communication regarding individual patient-care needs, as well as mechanisms for the sharing of best practices among institutions.*

Mentorship and sharing of best practices are essential for the implementation of this service model. For centres and health-care providers transitioning into a new service level, a mentorship approach should be developed between that centre and PMH and/or a future level 1 centre. The level 1 centres must be the main clinical points of contact for the partner institutions offering level 2 and 3 services. There must be a clear and timely mechanism to provide patient-specific advice, when required, for cases where care is shared with level 2 and 3 centres. A current and published on-call roster and contact information should be available for timely physician-to-physician communication.

Further, each centre should have a process in place for regular iterative and reciprocal communication between all provider disciplines. This will encourage sharing of best practices that support consistently high-quality care for all patients as close to home as possible. It is recommended that this be also supported by a Community of Practice model, similar to that adopted by surgical oncology<sup>8</sup>. This online community will enable linkages between acute leukemia providers for knowledge transfer and exchange activities.

We also need:

- Standardization of the patient referral process to enable timely access to care;

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<sup>8</sup> <http://www.cancercare.on.ca/cms/one.aspx?portalId=1377&pageId=80763>

- Protocols on the supportive management of disease and treatment-related complications to support high-quality care close to home.

PMH should lead a collaborative effort to develop these tools and protocols as part of the mentorship process.

5. *Develop clinical and quality guidance documents in these priority areas:*

- Treatment Guidelines for Acute Myeloid Leukemia*
- Treatment Guidelines for Acute Lymphoblastic Leukemia*

The Committee identified priority areas for the development of clinical and quality guidance documents in collaboration with the Program in Evidence-Based Care (PEBC). There are no current Ontario guidelines on either of these topics, aside from one PEBC guideline: *Treatment of Acute Myeloid Leukemia in Older Patients*, published in 2008. The parameters for these guidelines will be further refined by the PEBC process.

## **Coordination and Oversight**

6. *CCO should implement a performance management strategy – consistent with CCO’s specialized services oversight function – to oversee the delivery of GTA acute leukemia services. This should include data collection and analysis for monitoring:*

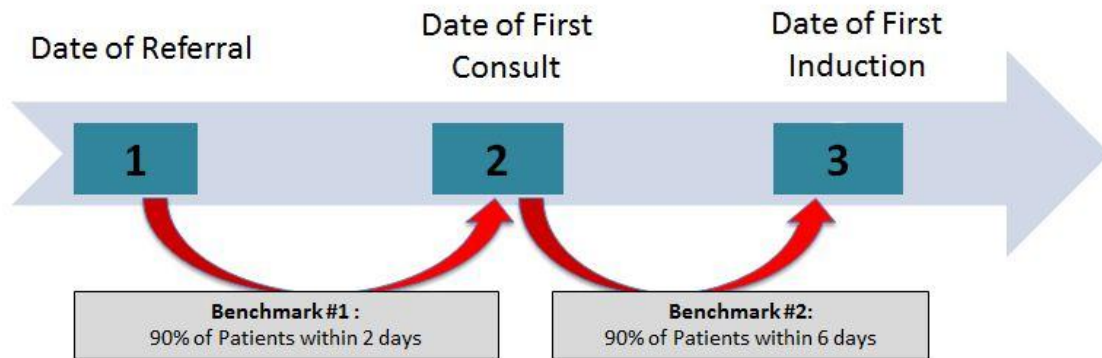
- Access and wait times*
- Quality of care and outcomes*

Given that timely access to services is essential to optimize outcomes; special consideration must be given to monitoring wait times for patients with acute leukemia. Based on consensus of the Steering Committee, two critical time periods and associated benchmarks were identified specific to the needs of acute leukemia patients (see Figure 11):

- Date of referral to date of consult
- Date of consult to date of first induction treatment

CCO will work with the hospitals to develop reporting and analysis processes, which will be incorporated into the quarterly, regional, performance-management reviews.

**Figure 11: Wait Time Data Time Points**



The Committee also agreed that a suite of standardized quality indicators should be developed and maintained to ensure the safety and quality of care for acute leukemia patients. A number of potential evidence-informed and clinically relevant quality indicators were considered by the Steering Committee. These metrics were ranked based on ease of collection and validation. The Committee then deliberated the relevance of the metrics to the project outcomes and to the delivery of quality care. Using those criteria the metrics that ranked highest were:

1. Complete Remission Rate (percentage of patients who achieve Complete Remission)
2. Induction Mortality Rate (percentage of patients who die during induction)
3. Non-Planned Admission Rates (further classified by reason for admission)

Several additional metrics were identified as important for discussion in the next phase of the project:

1. Patient Satisfaction Scores
2. Localization index (distance patients have to travel for treatment)
3. Overall Survival (5 year)

New data-capture methods must be developed to support some of these performance indicators.

*7. Implement a new patient-centred funding model to ensure sustainability of the new service model. The funding model will be based on the principle that funding should follow the patient. Case costing will break down the total cost into components that define the different episodes of care to facilitate shared care where appropriate.*

Funding should align with the Excellent Care for All Act – that is that funding for care should follow the patient. Case costing should allow for a breakdown of the total case cost into the most relevant episodes of care. Where patient care is to be shared between institutions, the funding should then be split accordingly.

Successful implementation of the service model with partner organizations largely will involve addressing any potential additional costs that will be incurred by organizations providing an increased level of service. There are several challenges involved in collecting this information, primarily due to the complex nature of the treatment, and the different treatment pathways that an individual could undergo. A case-costing working group was established to take on this work.

Moving forward with case costing, milestones within the care path should be used to define the episodes of care as follows:

AML (12-month period): Diagnosis, Induction, Consolidation, Off Treatment\*

ALL (24-month period): Diagnosis, Induction, CNS, Intensification, Continuation, Off Treatment\*

\*Off-Treatment should be determined by a defined threshold (ex. 30 days) without induction, consolidation, or other treatment regimen entered into medical records. The “Off-Treatment” date signals the start of supportive and/or palliative care.

Episode costing for ICU admissions and febrile neutropenia events (FNE) should also be completed. FNE is defined as any inpatient admission without the administration of chemotherapy.

Because this patient population is small and the treatment very complex, there is the potential for high variance within each episode of care. To mitigate this, an in-depth chart review of all new patients at PMH within a three-month period is underway to determine the average costs associated with the various episodes of care. This will be completed within fiscal 2011/12 to support appropriate recommendations for remuneration to all partner organizations in the shared-care model.

8. *CCO should manage the allocation of incremental funding for leukemia services in accordance with the new funding model.*

- a. *This should include the delivery of an annual forecast of service demand and any associated physician HHR to the Ministry of Health and Long-Term Care (MOHLTC)*
- b. *Align the allocation of any incremental physician HHR for complex malignant hematology with the distribution of incremental, episode-related funds.*

As with other CCO specialized services oversight programs, the co-ordination of funding for leukemia services will be an important determinant of success in achieving our defined access and quality-of-care deliverables. The transition from per-case funding to episodes of care for incremental patient services will be a key implementation enabler for the shared-care model. A new data-collection strategy will be required to support this funding model and inform annual service forecasting going forward. This also will be required to support the proposed initial and future quality and wait-time indicators and allow for regular monitoring of performance in leukemia-treatment services across all GTA institutions.

The proposed funding model will account for the resources necessary to treat acute leukemia patients, except for the physician subspecialist human resource. A separate methodology will be developed to forecast the physician resource requirements for future incremental leukemia services. The traditional clinical activity benchmarks for medical oncologists caring for patients with non-leukemic malignancies cannot be applied to those physicians providing full service to acute leukemia patients in a level 1 centre, since the service requirements for this patient population are unique.

The Committee struck a CMH HHR working group to report on the current state of the CMH HHR workforce in Ontario and to advise on benchmarks for future planning and forecasting. From a literature review and jurisdictional scan, the only current available benchmark was a formula used in British Columbia<sup>9</sup> that recommended 1 CMH FTE for every 37 new adult leukemia cases. The Committee has proposed a data-collection strategy and work-flow study that will result in a consensus benchmark recommendation for Ontario. The working group also strongly recommended that future incremental physician resource allocation be aligned with – and directly linked to – incremental leukemia service funding to level 1 centres.

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<sup>9</sup> Dr. T. Neville, personal communication, September 24, 2011

## *9. Develop and execute a communication plan to promote awareness of services to providers, patients, and their family members*

A well-developed and thoughtful service plan is only valuable if it is being used. Therefore, it is essential that both health-care providers and patients are aware of where specific services are available. The strategy for this communication plan ties in closely with the engagement strategy, and should also include a method for disseminating the service model.

In addition to engaging CCO Communications, involving Regional Vice Presidents and leveraging available websites (CCO and partners), there also will need to be a strong point-of-care strategy.

## **Implementation Plan**

Effective implementation planning requires a structured approach to thinking and communicating in five main areas: Planning and Project Management, Governance and Accountability, Risk Management, Stakeholder Engagement, and Monitoring and Evaluation. This approach will create a shared understanding among the partner organizations that will help drive implementation.

### **Planning and Project Management**

CCO has initiated the planning and project management elements of this project and the recommendations. This has involved the creation of the Goals and Objective Framework (Appendix D) and the work of the Steering Committee to date. The Levels of Service document identifies all necessary resources, including Health Human Resources, required to optimize capacity and enable patients to receive care as close to home as possible. This plan will be implemented and completed in a step-by-step approach. Most level 3 organizations will use currently available resources. Several organizations must be engaged to transition from providing level 3 services to providing level 2 services. The engagement and prioritization strategy must be further defined in the implementation phase.

### **Governance and Accountability**

The governance structure includes the oversight body and individual roles that will lead, plan, and manage the service-model implementation. CCO will oversee, and seek leadership from the RVPs and the LHINs for implementing the service model within each region. Individual centres will be responsible for reporting requested accountability data to CCO.

### **Risk Management**

This service model involves participation of several partner organizations. Accordingly, there are some inherent risks accompanying this work, including:

- The need for stakeholder buy-in, which is required for implementation of the service plan, since the project cannot move forward without collaboration with GTA community partners. This risk will be mitigated through continual engagement of RVPs and potential service providers using results- and evidence-based materials, and developed communications strategies.
- The risk that expectations and engagement of stakeholders may be compromised if there is a lag between outreach and implementation/execution. This will be managed by identifying what can be achieved without additional funding and beginning that work as soon as possible. It may be wise to also communicate up-front that there may be a delay in executing the plan, if this is a real concern.

- The risk that recommendations that have been developed meet stakeholders' needs, but are costly and funding is not guaranteed. This can lead to dissatisfaction if not all activities can be funded, and the project outcomes could have diminished value. This can be mitigated through a prioritization of activities to allow for incremental implementation and funding. It is prudent to remain cognizant of the specific needs of stakeholders to ensure we can continually address these requirements and ensure that project deliverables demonstrate value.

### **Stakeholder Engagement**

Engagement of community partners should continue into the implementation phase, and also should include acute leukemia health-care providers, GTA hospitals, patients, and their family members.

### **Monitoring and Evaluation**

Measurement strategies have been developed for monitoring access, wait times, quality, and outcomes. Partnering centres will be responsible for reporting CCO-identified data. This will allow us to evaluate the service model and determine if access to high-quality acute leukemia services is being provided as close to home as possible on a more-timely basis.

## **Conclusions**

The services provided for adult acute leukemia patients in the GTA are of high quality and at advanced levels. However, the distribution of patients falls heavily on PMH/UHN. Volume exceeds their capacity and demand is expected to increase in future. Furthermore, patients must travel great distances to receive the necessary, intense, and lengthy care. With the appropriate service model some of these burdens can be relieved through the provision of some or all aspects of this care closer to home.

The Steering Committee has developed a service model and an implementation plan to provide oversight of timely access to high-quality, sustainable, acute leukemia services for GTA patients.

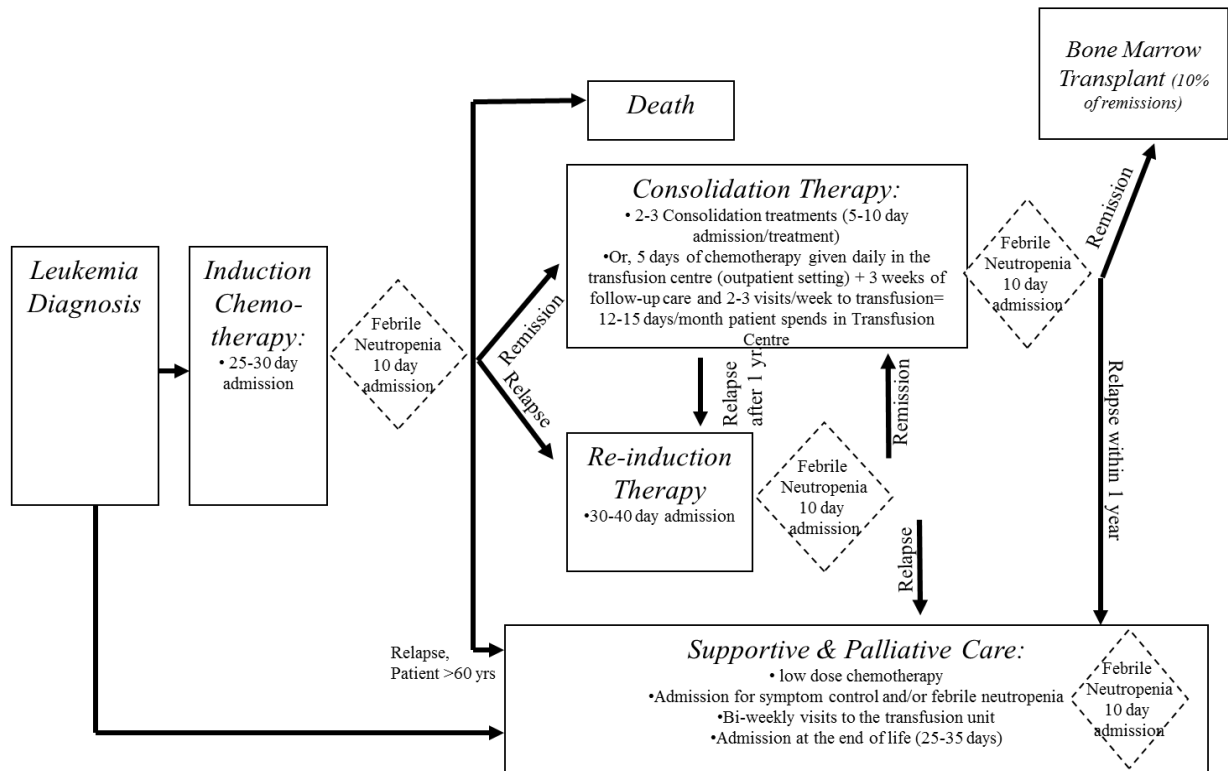
This plan, based on current state and demand forecasting, includes recommendations for funding, resources, communication, monitoring access, clinical and quality guidance areas, patient record sharing, collaboration between centres, and measurement strategies for monitoring quality and outcomes. With this thorough assessment and strategic development, the Committee and CCO hope to improve adult acute leukemia treatment in the GTA, and potentially throughout other areas of the province.



# Appendices

## Appendix A: Typical Treatment Pathways for Acute Leukemia Patients at Princess Margaret Hospital

Typical Treatment Pathways for Leukemia Patients at Princess Margaret Hospital



## Appendix B: Steering Committee Terms of Reference

### Leukemia Services – GTA Cancer Care Ontario Steering Committee Terms of Reference

#### Background:

Cancer Care Ontario (CCO) is convening a panel of stakeholders to review Ontario's ability to meet demand for adult acute leukemia services and to advise on actions required to ensure that residents within the Greater Toronto Area (GTA) receive timely access to high-quality acute leukemia services as close to home as possible, now and in the future. The Committee will address issues of, and make recommendations for, timing and access to services, new partnership development, and funding, ensuring alignment with the Ontario Cancer Plan.

#### Deliverables:

The committee shall develop recommendations for addressing the unique issues posed with respect to acute leukemia services in the GTA. This work will include the following:

#### Capacity and Access

- Identify current and estimated demand for acute leukemia services over a 3-year horizon
- Identify current service levels and resource use
- Ascertain any current and future gaps between demand and capacity
- Perform case costing analysis and funding model investigation to support shared care.
- Identify infrastructure and operational resources required to optimize capacity
- Identify Health Human Resources required to support current and future capacity, ensuring alignment with the models of care initiative
- Define levels of service for acute leukemia services
- Define wait time measurement strategies
- Advise on an ongoing communication strategy for acute leukemia service providers, funders and patients/caregivers

#### Quality and Safety

- Availability of and/or need for evidence-based guidelines to inform the organization and delivery of acute leukemia services
- Quality and outcome measurement strategy
- Communication strategy for GTA LHINs
- Advise on recommendations for patient record sharing strategies

#### Funding

- Recommendations for funding model to support service plan.

#### Meetings

- The committee is expected to meet at least monthly until the end of September 2011, or more frequently as required.
- Decisions will be driven by consensus wherever possible. When conflicts arise a vote will be taken. 75% of voting members must be present and majority will carry.

### Membership (approx. 14)

- Co-Chair - Provincial Program Head, Systemic Treatment (1)
- Co-Chair - UHN Hematologist (1)
- Hematologists/Oncologists (1 UHN, 4 non-UHN)
- Advanced Practice Nurse or Leukemia Care Coordinator or equivalent experienced coordinator or nurse (1 UHN ,1 non-UHN)
- Senior Executive from UHN (1-2)
- Regional Vice-President of Cancer Services, level 2 GTA hospital (non-UHN) (1)
- Patient/Caregiver Representative (2)

The above membership will be selected to ensure representation as follows:

- Different acute leukemia interventions and complexities of treatment
- LHINs represented within and across the GTA
- Acute leukemia patient perspective

CCO will support the project through:

- Clinical Programs Division for alignment with strategic direction and for project management: Sr. Project Coordinator, Leukemia Services; Program Manager, Systemic Treatment; Director, Clinical Programs
- Informatics to provide data and analysis about acute leukemia services demand and capacity: CIO Manager/Team Lead, Analyst
- Planning and Regional Programs and Performance Management – to advise on performance management mechanisms and issues regarding implementation of committee recommendations within the regional cancer programs: Director, Planning Analyst
- Public Affairs to assist with formulation and delivery of final advice, as well as partnership and patient communication plans: TBD

UHN will support the project through:

- Financial Planning to advise on the feasibility of recommendations within PMH and to ensure alignment with UHN fiscal responsibilities: Finance Director, PMH
- Pharmacy services to provide insight on drug administration and delivery and impact on recommendations: Pharmacist

### Accountability

The Co-Chairs are accountable to the Executive Team of Cancer Care Ontario via the Vice President of Clinical Programs and Chair of the Clinical Council.

### Meeting Minutes:

Minutes will be kept of all meetings and will be distributed to members.

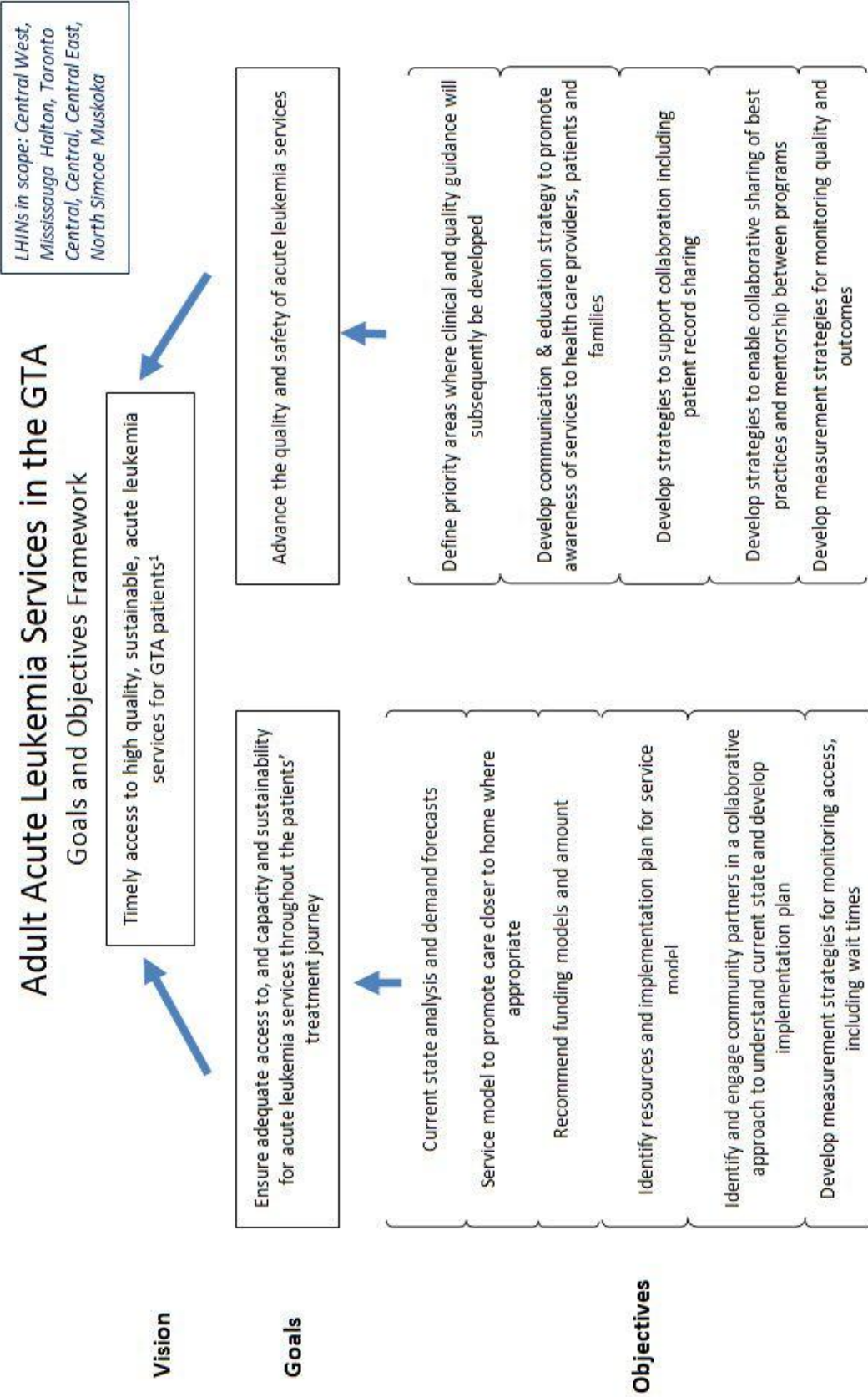
### Timelines:

Draft recommendations prepared by September 30, 2011 to guide implementation for spring 2012.

## Appendix C: Steering Committee Members List

	<b>Member</b>
1.	<b>Dr. Leonard Kaizer, Co-Chair</b> Prov. Head, Systemic Treatment Program, Cancer Care Ontario
2.	<b>Dr. Andre Schuh, Co-Chair</b> Clinician Scientist, Department of Haematology/ Associate Professor, Princess Margaret Hospital
3.	<b>Ms. Elaine Meertens</b> Director, Cancer Planning and Regional Program Development, Cancer Care Ontario
4.	<b>Ms. Sherrie Hertz</b> Systemic Treatment Program Manager, Cancer Care Ontario
5.	<b>Ms. Judy Burns</b> Acting Vice President, Planning and Regional Programs, Cancer Care Ontario
6.	<b>Ms. Julia Gao</b> Cancer Informatics Team Lead, Cancer Care Ontario
7.	<b>Dr. Malcolm Moore</b> Head, Division of Medical Oncology and Hematology, Princess Margaret Hospital
8.	<b>Dr. Joseph Brandwein</b> Hematologist, Princess Margaret Hospital
9.	<b>Ms. Jan Stewart</b> Clinical Director for In-Patient and Ambulatory Services, Princess Margaret Hospital
10.	<b>Ms. Kim Maki</b> Outreach Coordinator, Leukemia Service, Princess Margaret Hospital
11.	<b>Ms. Michelle Gariepy</b> Finance Director, Princess Margaret Hospital
12.	<b>Mr. Haim Sechter</b> Cancer Informatics Manager, Cancer Care Ontario
13.	<b>Ms. Victoria Hagens</b> Planning Analyst - Cancer Planning and Regional Program Development, Cancer Care Ontario
14.	<b>Dr. Peter Anglin</b> Physician Lead, Medical Oncology, Stronach Regional Cancer Centre at Southlake
15.	<b>Dr. Anthony Woods</b> Hematologist, Lakeridge Health
16.	<b>Dr. Rena Buckstein</b> Hematologist, Sunnybrook Hospital
17.	<b>Dr. Michael King</b> Hematologist, Trillium Health Centre
18.	<b>Mr. Jonathan Lam</b> Cancer Informatics Senior Analyst, Cancer Care Ontario
19.	<b>Ms. Erin Rae</b> Senior Project Coordinator, Cancer Care Ontario
20.	<b>Patient/Caregiver Representative</b> Recruitment efforts unsuccessful within timelines

# Appendix D: Goals and Objectives Framework



<sup>1</sup> Ensure GTA service plan can serve as a platform for province-wide expansion

## Appendix E: Jurisdictional Scan Summary Chart

Jurisdiction	Levels of Service	Shared Care
<b>British Columbia, Canada</b> <b>Source:</b> <a href="http://leukemiabmtprogram.com">http://leukemiabmtprogram.com</a> <b>Retrieved: April 8, 2011</b>	Not defined	Outreach Clinics at Cancer Agency Ctrs: <ul style="list-style-type: none"> <li>▪ Abbotsford</li> <li>▪ Kelowna</li> <li>▪ Prince George</li> <li>▪ Victoria</li> </ul>
<b>Nova Scotia, Canada</b>  <b>Source:</b> <a href="http://www.cancerca.re.ns.ca/site-cc/media/cancercare/lvs%20of%20care.pdf">http://www.cancerca.re.ns.ca/site-cc/media/cancercare/lvs%20of%20care.pdf</a> <b>Date: May 2008</b> <b>Retrieved: April 21, 2011</b>	<u>Community/Home Level (not hospital):</u> <ul style="list-style-type: none"> <li>• Care which doesn't require hospital services</li> </ul> <u>Basic Level Hospital:</u> <ul style="list-style-type: none"> <li>• Basic chemo- no complicated adverse effect mgmt</li> <li>• Treatment delivered on prescheduled chemo clinic days.</li> </ul> <u>Intermediate Level Hospital:</u> <ul style="list-style-type: none"> <li>• Higher volume of visits, usually a Regional Hospital</li> <li>• Chemo regimens for which more specialized nursing or sufficient volume of activity is needed.</li> </ul> <u>Advanced Level Hospital:</u> <ul style="list-style-type: none"> <li>• Very high volume of visits, including ambulatory cancer centre, inpt oncology beds and radiotherapy services on site (tertiary hospital)</li> </ul> <u>Specialized Level Hospital:</u> <ul style="list-style-type: none"> <li>• Regimens which require specialized facility resources or designated specialist teams (e.g. acute leukemia)</li> </ul>	
<b>England, United Kingdom</b>  <b>Source:</b> <a href="http://www.bcshguidelines.com/documents/levelsofcare_042010.pdf">http://www.bcshguidelines.com/documents/levelsofcare_042010.pdf</a> <b>Date: April, 2010</b> <b>Retrieved: April 12, 2011</b>	Multidisciplinary team serving a population of 500,000, induction therapy only in centres treating at least 5 pts/yr with induction chemo <u>Level 1:</u> outpatient regimens but minimal intravenous combination/ infusion (unless antibody therapy), related neutropenia not expected <u>Level 2a:</u> day case chemo, but no inpatient chemo, treatment of AML with palliative intent <u>Level 2b:</u> inpatient chemo, prolonged neutropenia and/or profound immunosuppression treatment of AML with curative intent <u>Level 3:</u> Complex regimens includes curative intent ALL prolonged neutropenia and/or profound immunosuppression expected	
<b>Ireland, United Kingdom</b> <b>Source:</b> <a href="http://www.dhsspsni.gov.uk/dhs54106-raac-book.pdf">http://www.dhsspsni.gov.uk/dhs54106-raac-book.pdf</a> <b>Date: Sept 2004</b> <b>Retrieved: April 18, 2011</b>	Same levels of service as defined by British Committee for Standards in Hematology.	Links with primary health care team and palliative care to facilitate transfer of pts from hospital to home. Partner with external agencies for home transfusion of blood and components
<b>Victoria, Australia</b> <b>Source:</b> <a href="http://www.health.vic.gov.au/cancer/docs/policy-docs/vcsfinalreport.pdf">http://www.health.vic.gov.au/cancer/docs/policy-docs/vcsfinalreport.pdf</a>	<u>Level 1:</u> Capable of giving chemo using pre-ordered materials. Registered medical practitioner on call <u>Level 2:</u> Capable of providing chemo, including preparation. Registered medical practitioner on call <u>Level 3:</u> Level 2 plus: Surgical oncology services. Pathology and CT services on site.	Recommendations made for Integrated Cancer services in South, East and North to meet the needs of the

<b>Date: July 2003</b> <b>Retrieved: April 25, 2011</b>	<u>Level 4:</u> Level 3 plus: Onsite radiotherapy, Auto BMT <u>Level 5:</u> Level 4 plus: Reference pathology services. MRI on site, limited facilities with PET scan on site. Some facilities capable of allo BMT	population. *Not specific to Acute leukemia*
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## Appendix F: Literature Review Summary

Literature Review: Volume Outcome Relationship in Adult Acute Leukemia Treatment

### Search Terms:

- **Volume Outcome Relationship + hematology, + adult Acute Leukemia, + Acute Leukemia, + oncology**
- **Case volume +Hematology, + Acute Leukemia, + Adult Acute Leukemia**
- **Hospital volume + Hematology, + Adult Acute Leukemia, Acute Leukemia, + oncology**
- **Physician volume + Hematology, + Adult Acute Leukemia, + Acute Leukemia, + oncology**
- **High Volume Hospitals + Hematology, + Acute Leukemia, + Adult Acute Leukemia, + oncology**
- **Group oncology practice vs. single centre sites**
- **Treatment volume + Hematology, + Acute Leukemia, + Adult Acute Leukemia + oncology**
- **Large Oncology centres + Adult Acute Leukemia outcomes, + Acute Leukemia outcomes + outcomes**

Title/Reference	Summary of Findings	Relevance
<b>"Case volume and mortality in haematological patients with acute respiratory failure"</b> Ref: <b>European Respiratory Journal, Volume 32, No 3, 2003</b> <b>Lecuyer L, Chevret S, Guidet B</b>	The study sought to determine whether ICU case volume was associated with survival of critically ill patients with haematological malignancies and acute respiratory failure (ARF). A regional database containing data from 1,753 haematological patients with ARF admitted to 28 medical ICUs from 1997 to 2004 was used. In ICUs admitting larger numbers of critically ill haematological patients with ARF, mortality was lower than in ICUs. The mechanisms of the volume/outcome relationship among haematological pts with ARF deserve additional studies.	Specific to the outcomes of ARF - ↓mortality in higher volume ICUs
<b>"Hospital and Physician Volume or Specialization and Outcomes in Cancer Treatment: Importance in Quality of Cancer Care"</b> Ref: <b>Journal of Clinical Oncology, Volume 18, No 11, June 2000</b> <b>Hillner BE, Smith TJ, Desch CE</b>	The only study of acute leukemia care was of 879 adolescents and young adults diagnosed between 1984-1994 in England/Wales that kept leukemia registries. No differences in survival were observed that were associated with treatment on a clinical trial, care at a teaching hospital, or hospital annual case volume. Studies of nonsurgical cancers, (lymphomas and testicular cancer), were few but consistently showed better long-term outcomes associated with larger hospital volume or specialty focus. Although these reports are all retrospective, rely on registries with dated data, rarely have predefined hypotheses, and may have publication and self-interest biases, most support a positive volume outcome relationship in initial cancer treatment.	No recent, or significant data on acute leukemia outcomes and case volumes
<b>"Centre effect on treatment outcome for patients with untreated acute myelogenous"</b>	This analysis was performed to determine whether centres which only performed induction and consolidation therapy, achieved similar results as centres that also performed transplantation. In conclusion, the type of centre did not appear to have an influence on overall survival. The	Type of centre/facility had no effect on survival of

<p><b>leukaemia?"</b>  <b>Ref:European Journal of Cancer, Volume 35, No 10, 1999</b>  <b>Keating S, deWitte T, Suci S et al</b></p>	<p>feasibility of the study was acceptable for both types of centres. The referring centres applied more selection for transplantation. Despite a more intensive second-line treatment at transplantation centres, the overall outcome remained similar to that of referring centres.</p>	<p>AML patients.  Not current.</p>
<p><b>"Should HLA-identical sibling bone marrow transplants for leukemia be restricted to large centers?"</b>  <b>Ref: Blood, Vol79, No 10, 1992</b>  <b>Horowitz MM, Przepiorka D, Champlin, RE</b></p>	<p>Analyzed data for 1313 recipients of HLA-identical sibling bone marrow transplants (BMT) for leukemia to determine whether transplant outcome differed in small and large centres. Transplants were performed in 86 BMT centres active between the years 1983 - 1988. Among patients receiving transplants in centres performing more than 5 transplants a year, there was no statistically significant correlation between number of transplants and outcome.</p>	<p>Not specific to acute leukemia chemo regimens.  Not current</p>
<p><b>"The Quality of Cancer Care: Does the Literature Support the Rhetoric?"</b>  <b>Ref:<a href="http://www.gynoncdoctor.com/drvasilev_info/Quality%20Cancer%20Care1.pdf">http://www.gynoncdoctor.com/drvasilev_info/Quality%20Cancer%20Care1.pdf</a>, 1999</b>  <b>Hillner, BE and Smith, TJ</b></p>	<p>No studies of volume-outcome or other quality of care indicators excluding transplantation for leukemia were found.</p>	<p>No relevant or current information</p>
<p><b>"Hospital capacity and post-transplant survival after allogeneic bone marrow transplantation: analysis of data from the Japan Society for Hematopoietic Cell Transplantation."</b>  <b>Ref: Bone Marrow Transplant, Vol 26, No 10, 2000</b>  <b>Matsuok, Hamajima N, Morishima Y, Harada M.</b></p>	<p>The association between hospital capacity and survival after allo-BMT was examined using the dataset accumulated by the Japan Society of Hematopoietic Cell Transplantations. 3134 patients who received first allo-BMTs between 1991 and 1997 reported to the JSHCT. They were divided into 3 groups by cumulative hospital experience of allo-BMTs: low volume (&lt;= 25 cases), moderate volume (26-75 cases) and high volume (&gt;= 76 cases). The association of hospital experience with early survival at day 100, and overall survival were examined. For leukemia patients, leukemia-free survival was also analyzed. Survival after BMT from sibling donors was clearly influenced by hospital experience, but not from unrelated donors. These findings suggest that size of the transplant team should be considered to improve the outcome of sibling BMT in general.</p>	<p>Not acute leukemia specific - BMT only. Cannot access full article</p>
<p><b>"Improving Outcomes in Hematological Cancers - The Manual"</b>  <b>Ref:<a href="http://www.nice.org.uk/nicemedia/pdf/NICE_HAEMATOLOGICAL_CSG.pdf">http://www.nice.org.uk/nicemedia/pdf/NICE_HAEMATOLOGICAL_CSG.pdf</a>, 2003</b>  <b>National Institute for Clinical Excellence</b></p>	<p>All patients with haematological cancer should be managed by multi-disciplinary haemato-oncology teams which serve populations of 500,000 or more. Accreditation standards for bone marrow transplantation specify that any hospital which offers stem cell rescue – whether autografts or allografts – should carry out a minimum of 10 procedures of the type offered per year. Levels of Service do not include any specifications regarding volumes of patients treated per year.</p>	<p>No specific volumes associated to acute leukemia care beyond transplants</p>



## Appendix G: Acute Leukemia Services Letter and Survey

July 29, 2011

Dear Dr. \_\_\_\_\_,

Cancer Care Ontario (CCO) is gathering information to make recommendations on improving adult acute leukemia services in the Greater Toronto Area (GTA). The GTA service plan will be created in a manner that it will be able to serve as a platform for province-wide expansion in the future. The areas of focus for the recommendations include:

- Ensure adequate access to, and capacity and sustainability for acute leukemia services throughout the patients' treatment journey
- Advance the quality and safety of leukemia services

We require your assistance to ensure that the information is gathered in a timely, complete and accurate manner. The results of this survey will be used to inform the recommendations for allocation of resources within the GTA. We understand that some information may not be available to you, and we ask that the person completing the survey answer using the best estimation available, and provide a comment justifying the response. Again, it should be stressed how vital the responses to these surveys are to inform the work of this project.

We greatly appreciate the time and effort that this involves, and we thank you in advance for your cooperation.

Please do not hesitate in contacting me ([leonard.kaizer@cancercare.on.ca](mailto:leonard.kaizer@cancercare.on.ca)) or the Sr. Project Coordinator, Erin Rae ([erin.rae@cancercare.on.ca](mailto:erin.rae@cancercare.on.ca)) with any additional questions. We request that the survey be completed and returned to Erin Rae by **Thursday, August 11, 2011**.

I look forward to hearing back from you. Thank you.

Yours truly,



Leonard Kaizer, MD, FRCPC  
Chair, Acute Leukemia Services Steering Committee  
Provincial Head, Systemic Treatment Program  
Cancer Care Ontario

enclosures: Acute Leukemia Services Survey

## ADULT ACUTE LEUKEMIA SERVICES QUESTIONNAIRE

Cancer Care Ontario (CCO) is gathering information to make recommendations on improving adult acute leukemia services in the Greater Toronto Area (GTA). The areas of focus for the recommendations include:

- Understanding where acute leukemia services are currently being offered
- Providing these services in a timely manner, and as close to home as possible
- Partnership development between health care organizations

Thank you for taking the time to complete the short survey attached. This information will be used to advise a steering committee for adult acute leukemia services in the Greater Toronto Area. The committee will address issues of access to services, models of service delivery including the need for partnership development, and case funding methodology.

**Please submit the completed survey via e-mail or fax by Friday, June 24th** to the attention of Erin Rae, [erin.rae@cancercare.on.ca](mailto:erin.rae@cancercare.on.ca) or Fax 416.971.6888.

If you have questions about this survey, please contact:  
 Dr. Leonard Kaizer, Steering Committee Co-Chair: [leonard.kaizer@cancercare.on.ca](mailto:leonard.kaizer@cancercare.on.ca)  
 Erin Rae, Senior Project Coordinator: [erin.rae@cancercare.on.ca](mailto:erin.rae@cancercare.on.ca) Tel: 416.971.9800 x3391

Distribution:  
 All hospitals in the Greater Toronto Area

Your responses to the survey are essential to assist the committee in formulating its advice. We have made every attempt to make the survey concise and have requested only information that will directly influence the committee deliberations and/or will be included in the recommendations to the Ministry of Health and Long-Term Care.

Some questions allow room for comments, should you wish. In addition to general comments, it would be helpful if you would use this area to advise us if you have concerns regarding the clarity of the question and/or if you employed certain assumptions in order to formulate your reply. If you are unsure, or unable to answer to a question, please estimate to the best of your ability and use the comment box to explain the estimation.

The primary contact information for the person completing the form is very important, in case there is information that we require further clarification on. CCO realizes that this information may need to be gathered using different sources, and so we have provided room to provide the name of a secondary contact person.

Please note that this information will be used to inform a report with recommendations for a service model for the GTA. If you have any concerns about sharing certain aspects of your responses, please make note of this in the relevant "comments" section.

## ADULT ACUTE LEUKEMIA SERVICES QUESTIONNAIRE

PLEASE COMPLETE THIS FORM AS ACCURATELY AND COMPLETELY AS POSSIBLE. CANCER CARE ONTARIO APPRECIATES THE TIME YOU TAKE TO FILL OUT THIS FORM, AND WILL USE THIS INFORMATION IN AN EFFORT TO IMPROVE THE ADULT ACUTE LEUKEMIA SERVICES IN THE REGION.

### Section 1:

Name of Organization:			
Name of <b>Primary</b> Person Completing Form:		Title:	
Email:		Phone:	
Name of <b>Secondary</b> Person Completing Form:		Title:	
Email:		Phone:	

### Section 2: Please answer the questions below for the time period April 1, 2010 - March 31, 2011.

AVAILABLE SERVICES FOR ACUTE LEUKEMIA PATIENTS	
1. Does this organization currently treat, or provide any level of support or care to patients with acute leukemia?	Yes <input type="checkbox"/> No <input type="checkbox"/>
If yes, please complete the questions below. If no, skip to <b>Section 3</b> .	
2. How many AML/ALL patients were treated?	AML: <span style="float: right;">ALL:</span>
3. How many in-patient beds are designated to oncology?	# <span style="float: right;">Comments:</span>

4. Do you provide the following acute leukemia treatments? If yes, please indicate how often:		
<b>AML</b>		
Induction:	Yes <input type="checkbox"/> No <input type="checkbox"/>	# of cases:
Consolidation:	Yes <input type="checkbox"/> No <input type="checkbox"/>	# of cases:
Comments:		
<b>ALL</b>		
Induction:	Yes <input type="checkbox"/> No <input type="checkbox"/>	# of cases:
CNS Phase:	Yes <input type="checkbox"/> No <input type="checkbox"/>	# of cases:
Intensification:	Yes <input type="checkbox"/> No <input type="checkbox"/>	# of cases:
Maintenance:	Yes <input type="checkbox"/> No <input type="checkbox"/>	# of cases:
Comments:		
Post-Chemo Follow-up Care:	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Ongoing best supportive care:	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Palliative Care:	Yes <input type="checkbox"/> No <input type="checkbox"/>	# of cases:
Comments:		
5. Do you provide same-day service blood testing for these patients?	Yes <input type="checkbox"/> No <input type="checkbox"/>	# of cases:
6. Do you provide blood product support for these patients?	Platelets: Yes <input type="checkbox"/> No <input type="checkbox"/> RBC: Yes <input type="checkbox"/> No <input type="checkbox"/>	Comments:
<b>DATA SOURCES</b>		
Please indicate the source from which you extracted the data for Section 2:		
Data base <input type="checkbox"/> (please specify)	Comments:	
Health Records <input type="checkbox"/>		
Other <input type="checkbox"/> (please specify)		

### Section 3:

<b>HEALTH HUMAN RESOURCES</b>		
1. Do you have Hematologists/Medical Oncologists on staff who have recent training or experience in the treatment of the acute phase of leukemia?	Yes <input type="checkbox"/> No <input type="checkbox"/>	If yes, how many? Comments:
2. Do you have Hematologists/Medical Oncologists on staff who have recent training or experience in supportive or palliative treatment of acute leukemia?	Yes <input type="checkbox"/> No <input type="checkbox"/>	If yes, how many? Comments:
3. Do you have Advanced Practice Nursing staff involved in the care of acute leukemia patients?	Yes <input type="checkbox"/> No <input type="checkbox"/>	If yes, how many? Comments:
<b>DATA SOURCES</b>		
Please indicate the source from which you extracted the data for Section 3:		
Data base <input type="checkbox"/> (please specify)	Comments:	
Health Records <input type="checkbox"/>		
Other <input type="checkbox"/> (please specify)		

### Section 4:

<b>PHYSICAL FACILITIES</b>		
1. Does your organization have an Infectious Disease	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Service?	Comments:																								
2. a) Please indicate if the following bone marrow aspirate and biopsy analyses are performed on-site, if they are performed off-site, please indicate where this analysis is taking place:																									
<table border="1"> <thead> <tr> <th></th> <th><u>On-Site</u></th> <th><u>Off-Site</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Morphology:</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Location:</td> </tr> <tr> <td>Cytogenetics:</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Location:</td> </tr> <tr> <td>Flow Cytometry:</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Location:</td> </tr> <tr> <td>Molecular diagnostics:</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>Location:</td> </tr> <tr> <td colspan="4">Comments:</td> </tr> </tbody> </table>		<u>On-Site</u>	<u>Off-Site</u>		Morphology:	<input type="checkbox"/>	<input type="checkbox"/>	Location:	Cytogenetics:	<input type="checkbox"/>	<input type="checkbox"/>	Location:	Flow Cytometry:	<input type="checkbox"/>	<input type="checkbox"/>	Location:	Molecular diagnostics:	<input type="checkbox"/>	<input type="checkbox"/>	Location:	Comments:				
	<u>On-Site</u>	<u>Off-Site</u>																							
Morphology:	<input type="checkbox"/>	<input type="checkbox"/>	Location:																						
Cytogenetics:	<input type="checkbox"/>	<input type="checkbox"/>	Location:																						
Flow Cytometry:	<input type="checkbox"/>	<input type="checkbox"/>	Location:																						
Molecular diagnostics:	<input type="checkbox"/>	<input type="checkbox"/>	Location:																						
Comments:																									
3. a) Do you have access to ambulatory infusion pumps in your organization?	Yes <input type="checkbox"/> No <input type="checkbox"/>																								
b) Do you have access to ambulatory infusion pumps through another provider (e.g. CCAC)?	Yes <input type="checkbox"/> No <input type="checkbox"/>																								
4. Does your organization use Electronic Medical Records?	Yes <input type="checkbox"/> No <input type="checkbox"/>																								
Comments:																									
<b>DATA SOURCES</b>																									
Please indicate the source from which you extracted the data for section 4:																									
Data base <input type="checkbox"/> (please specify)	Comments:																								
Health Records <input type="checkbox"/>																									
Other <input type="checkbox"/> (please specify)																									

**Section 5:**

<b>OTHER INFORMATION</b>
If there is any other information you feel would be useful to the Acute Leukemia Services project, please include it below:
Comments:

## Appendix H: Job Description Example for the Position of Nurse Practitioner - Adult

### JOB SUMMARY

The **NURSE PRACTITIONER** having a specialty-based focus functions in an expanded role demonstrating a high level of autonomy and expert skill to formulate clinical decisions and appropriately manage acute/chronic illness and promote wellness; the principal responsibilities include: utilizing and demonstrating a comprehensive theoretical knowledge base and advanced level of clinical competence in caring for patients involving collecting and interpreting data about the health of the patient, determining a medical diagnosis and treating complex responses of individuals and families to actual or potential problems; playing a leadership role and performing quality improvement and administrative responsibilities; participating in policy and procedure development; performing research activities; delivering, coordinating and participating in education and professional development activities/programs; performing activities to further develop and strengthen the profession; acting as a resource and serving as a consultant to individuals and groups within the professional community and other hospital/agencies; performing cross-functional and/or other duties consistent with the job classification, as assigned or requested.

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### I. KEY ACCOUNTABILITIES & RESPONSIBILITIES REQUIRED

#### DIRECT COMPREHENSIVE CARE

**1.00 Utilizes and demonstrates a comprehensive theoretical knowledge base and advanced level of clinical competence in caring for patients involving collecting and interpreting data about the health of the patient to determine a medical diagnosis and treat complex responses of individuals and families to actual or potential problems.**

- 1.01 Performs assessment activities, including conducting patient interview and comprehensive physical examination; assessing psychosocial, cultural and ethnic factors affecting patient needs.
- 1.02 Documents patient history and physical examination data.
- 1.03 Identifies and orders required diagnostic tests and procedures, within scope of practice and medical directives/protocols and practice guidelines.
- 1.04 Gathers and interprets assessment and other data received from multiple sources; draws a conclusion and determines a medical diagnosis within scope of practice and practice guidelines.
- 1.05 Formulates and implements a plan of care; documents care provided. Prescribes medications based on Nurse Practitioner regulations and/or medical directives.
- 1.06 Facilitates the process of ethical decision making by communicating the plan of care to patient/family and members of the healthcare team.
- 1.07 Performs specialty-specific procedures within scope of practice and practice guidelines.
- 1.08 Assesses patient/family response to therapy and modifies plan of care based on response.
- 1.09 Plays a coordinating role by liaising with other services and team members, and primary care providers as required to coordinate the interprofessional plan of care and facilitate the efficient movement of the patient through the healthcare system.
- 1.10 Facilitates the evaluation of care provided to the patient and the extent to which the best possible outcomes have been achieved to ensure the provision of the highest quality of care to patients and their families.

#### QUALITY IMPROVEMENT/ORGANIZATIONAL LEADERSHIP/ADMINISTRATION

**2.00 Plays a leadership role and performs quality improvement and administrative responsibilities.**

- 2.01 Provides leadership in the development, implementation and evaluation of quality management programs/initiatives.
- 2.02 Participates in the strategic planning processes for specific programs.
- 2.03 Participates in hiring, supervising and performance appraisal of staff associated with research, education and practice.
- 2.04 Serves as a spokesperson for nursing and as a mentor to nurses internally and externally.

- 2.05 Provides leadership on committees and task forces at all levels of the organization (site, unit, program, directorate, organization, and community).
- 2.06 Maintains responsibility and accountability for the administration of selected nursing research funds and/or specific program budgets.

**2.10 Participates in policy and procedure development.**

- 2.11 Provides leadership in the development, implementation and evaluation of policies and procedures and the care delivery models, etc.
- 2.12 Recommends policy changes based on research outcomes or evidence based practice.
- 2.13 Facilitates development of standards, protocols and clinical pathways.
- 2.14 Ensures policies, procedures, standards, protocols and pathways are effectively communicated to staff.

**RESEARCH**

**3.00 Performs research activities involving effectively integrating research into the clinical role.**

- 3.01 Conducts clinical investigations and participates in investigations to monitor and improve patient care practices.
- 3.02 Seeks funding sources to support investigation of clinical issues or care delivery models.
- 3.03 Facilitates clinical research through collaboration with others
- 3.04 Facilitates the use of evidence-based practice
- 3.05 Facilitates the development of researchable questions in clinical practice.

**EDUCATION**

**4.00 Delivers, coordinates and participates in education and professional development activities/programs.**

- 4.01 Serves as an educator and clinical preceptor for nursing/medical students and other members of the interprofessional team
- 4.02 Identifies learning needs of various populations.
- 4.03 Contributes to the Faculty of Nursing activities
- 4.04 Contributes to the development of educational programs/resources including patient education programs.
- 4.05 Mentors staff while providing direct care activities.
- 4.06 Facilitates professional development of nursing staff through education.
- 4.07 Provides patient/family education and counseling.

**LEADERSHIP IN PUBLICATION AND PROFESSIONAL DEVELOPMENT/STANDARDS**

**5.00 Performs activities to further develop and strengthen the profession.**

- 5.01 Disseminates nursing knowledge through presentation or publication at local, regional, national and international levels
- 5.02 Serves as a committee member in professional organizations.
- 5.03 Acts as a resource and serves as a consultant to individuals and groups within the professional communities and other hospital/agencies and serves as a consultant in improving care and nursing practice.
- 5.04 Represents nursing in institutional/community forums.
- 5.05 Provides leadership in shaping public policy in health care.
- 5.06 Maintains links with academic institutions by collaborative projects/cross-appointment

**6.00 Performs cross-functional and/or other duties consistent with the job classification, as assigned or requested.**

**II. JOB REQUIREMENTS (BONA FIDE OCCUPATIONAL QUALIFICATION)**

**Education**

- At minimum, a completion of a Master's Degree program
- Master's degree program in nursing (nurse practitioner program) or post-master's nurse practitioner program required.
- Current certification in Basic Cardiac Life Support required. Current certification in Advanced Cardiac Life Support as per program requirements.
- Additional education/certification in area of specialty as deemed necessary.
- Up to five years of relevant experience

- Including 3 years' experience working in an acute treatment center required.
- Experience working in an advanced clinical practice role preferred.
- Experience in nursing research methodology required.
- Eligible for cross-appointment to an academic institution required.
- Experience in area of specialty required.
- Obtains OHIP billing number required for ordering outpatient labs and consultations.

#### **Professional Affiliations/Memberships:**

- Current Certificate of Competence (licensure/registration) from the College of Nurses of Ontario as a Nurse Practitioner required.
- Membership in the Registered Nurses Association of Ontario (RNAO) organizations relevant to the role (e.g. Nurse Practitioner Association of Ontario) required. Membership in organizations related to one's specialty practice preferred.

#### **Leadership/Additional Skills**

- Ability to perform duties in a professional and courteous manner and produce high quality work while meeting deadlines in accordance to UHN standards
- Exercise initiative and good judgment with ability to multi-task
- Compliance and confidentiality requirements
- Effective organizational, interpersonal and communication skills
- Knowledge of applicable legislative, UHN and/or departmental policies
- Client service oriented, with the ability to effectively work with diversity and appreciate that people with different opinions, backgrounds and characteristics bring richness to the challenge or situation at hand
- Effective customer service skills required.
- Excellent time management skills required.
- Excellent decision-making, problem recognition and problem solving skills required.
- Excellent negotiation and conflict resolution skills required.
- Demonstrate expertise as a Nurse Practitioner required.
- Program planning and evaluation methodology skills required.
- Commitment to collaborative practice required.
- Ability to work effectively independently and under stressful conditions required.
- Ability to utilize information technology required.
- Ability to interpret and communicate appropriate policies and procedures to staff.