Table of Contents

ii Foreword
iii Summary
1 Background (Section 1)
2 Introduction to Systemic Treatment (Section 2)
3 Current State of Systemic Treatment in Ontario (Section 3)
9 Standards for the Organization and Delivery of Systemic Treatment (Section 4)
13 Strategic Planning (Section 5)
17 Health Human Resources for Systemic Treatment (Section 5A)
21 Structures and Processes (Section 5B)
24 Funding Strategy (Section 6)
27 Strategies for Change (Section 7)
29 Conclusion and Recommendations (Section 8)
32 Regional Profiles (Section 9)

Appendices
45 PEBC Systemic Standards (Appendix A)
53 Systemic Demand Model Methodology and Summary (Appendix B)
55 Health Human Resources Planning for RSTP (Appendix C)
60 Funding Methodology Report (Appendix D)
62 Definitions of Key Terms and Abbreviations (Appendix E)

Acknowledgements
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A message from Dr. Maureen Trudeau, Systemic Treatment Provincial Head

This provincial plan represents the work of the dedicated clinical and administrative teams across the province engaged in interdisciplinary and collaborative activities. In 2007, the Regional Systemic Treatment Program (RSTP) was launched as the mechanism for ensuring the implementation of the systemic treatment standards throughout the province. The Ontario Cancer Plan 2008-2011 identified the RSTP as a key provincial priority. The Cancer Plan calls for the development of “a regional systemic treatment program in every Local Health Integration Network (LHIN) that will focus on planning, implementing evidence based standards to ensure the safe delivery of chemotherapy and improving access by increasing the availability of less complex chemotherapy in community hospitals.”

The Systemic Treatment Program of Cancer Care Ontario is responsible for developing a quality agenda for anticancer intravenous (IV) chemotherapy, hormonal therapy, and supportive care drug treatment services for Ontario’s cancer patients. IV chemotherapy, a cornerstone of many cancer treatments, is delivered in systemic treatment suites across Ontario. We anticipate a growth in its use, as the availability of these treatments has been growing dramatically in recent years, and their number is expected to continue to climb.

The Standards for the Organization and Delivery of Systemic Treatment outline the models of care and set the stage for implementing the RSTP to facilitate high-quality ambulatory care that is evidence-based and safe for both patients and providers. Equally important is providing equitable access to high-quality systemic treatment as close to home as possible.

The implementation of these quality standards — together with appropriate funding, an equitable funding model based on the complexity of treatment and number of treatments given, and strategic planning for cancer patients in each region — form the basis of our approach for the next three years and beyond.

The fundamental building block is a strategic plan for attaining regional and provincial goals to help make sure that Ontarians have timely access to the safest chemotherapy as close to home as possible within an appropriate amount of time. The RSTP aims to ensure the same standard of care regardless of where in the province a patient receives systemic treatment. From here, goals and action items that have been identified in this plan will allow for target setting and measurement of the cancer system’s performance.

With the provincial and regional support, funding and infrastructure in place, we will be well positioned to continue our collaborative work in building strong and responsive Regional Systemic Treatment Programs in Ontario.
Summary

Current Situation

Systemic treatment, which involves the use of intravenous chemotherapy drugs, is used to fight cancer throughout the entire body. Other treatments, such as radiation and surgery, focus on the site of the cancerous tumour. In 2007/08, more than 36,700 cancer patients in Ontario received some form of systemic treatment and this number is growing. Increasing rates of cancer in the province and expanded use of cancer drugs in treatment have led to increasing pressure on wait times for care and existing infrastructure, and increasing need for health human resources. Wait times for systemic treatment are too long. In 2008/09, 90% of all systemic treatment patients waited 73 or fewer days to start their treatment, up from 67 days in 2007/08. Systemic wait times are higher compared with those for radiation.

Case for Change

Provincial demand for systemic treatment is expected to increase by between 11% and 17% from 2007/08 to 2012/13. Our ability to provide high-quality, equitable and timely systemic treatment is at risk. CCO has had the ability to measure activity in cancer centres but does not have levers with community facilities. Further, there is no existing plan for how systemic treatment should be organized and delivered. This situation has led to variations in how systemic treatment programs are administered across the province. There are other challenges to improving the quality of care, in addition to a lack of coordination. These include the lack of reliable patient and provider safety data; and lack of standardized data on wait times outside of regional cancer centres, care delivered in the community and health human resources. There are also inconsistent methods for funding of systemic treatment.

Over the past two years, CCO has been working closely with the regions to develop a coordinated provincial plan for systemic treatment that is responsive to both system level issues and local needs. Our strategic planning has involved the ongoing collaboration, input and guidance of a range of stakeholders, from frontline care providers and system administrators to senior management and executive leadership. The overarching goals of the RSTP are to improve patient safety in the delivery of systemic treatment throughout the province, and to improve timely access to high-quality systemic treatment as close to home as possible.

Therefore, the purpose of this document is to:

- Outline the current state of intravenous (IV) chemotherapy services in Ontario
- Set out the strategic direction for development of Regional Systemic Treatment Programs (RSTP) in every LHIN
- Provide provincial recommendations to meet the current demand for systemic treatment and to put into place a sustainable system to meet future demand.
Implementation of the Regional Systemic Treatment Programs

Over the next three years, regions will be expected to implement organizational and operational standards to improve the safety, accessibility and quality of cancer care. Implementation will change current service delivery models and associated capacity requirements for health human resources and infrastructure. One of the central components of this work will involve directing less complex cases to community hospitals and concentrating complex treatment in regional cancer centres (RCCs).

Immediate action is required of all stakeholders to successfully implement and sustain the Regional Systemic Treatment Programs. This provincial plan includes strategies and recommendations that support regional program development and implementation. These are the main recommendations of the plan:

1. Each region will implement its plan, and CCO will support coordinated implementation to address the priority standards.
2. CCO, in collaboration with the regions, will identify areas of improvement that optimize the efficiency of system and service delivery.
3. CCO will establish mechanisms to ensure standardization of quality and safety.
4. CCO will expand measurement and reporting of systemic treatment delivery across the province.
5a. The MOHLTC should provide funding for additional medical oncology positions.
b. CCO will research and propose interdisciplinary team-based configurations of health human resources to support high-quality systemic treatment, making the best use of health human resources to deliver appropriate levels of service.
6. The MOHLTC should provide funding to CCO to support the growth of systemic treatment in non-cancer centre hospitals and to monitor volumes, wait times and quality.
7. CCO will develop and implement a coordinated approach to funding systemic treatment that includes funding hospitals based on resource intensity.
### High-Level Timeline of Provincial Implementation: Current and Future State

<table>
<thead>
<tr>
<th>2009/10</th>
<th>2010 - 2011/12</th>
<th>2012/13</th>
<th>Accountability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standards</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Partially implement CPOE, supporting most systemic treatments in Ontario.</td>
<td>• Implement CPOE in Level 1, 2 and 3 hospitals.</td>
<td>• Implement CPOE in all hospitals, including Level 4 satellite.</td>
<td>Regions accountable for adherence with standards.</td>
</tr>
<tr>
<td>• Assess baseline of compliance with safety standards.</td>
<td>• Conduct annual review of standards alignment.</td>
<td>• Provide intra-regional support for mentoring providers and systemic treatment continuing medical education.</td>
<td>CPPOE implementation dependent on available resources.</td>
</tr>
<tr>
<td></td>
<td>• Implement safety indicators.</td>
<td>• Measure and report on provincial systemic safety and efficiency.</td>
<td>CCO monitors compliance and provides recommendations to support compliance.</td>
</tr>
<tr>
<td><strong>Planning</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Systemic treatment wait times data and reporting available for cancer centres only.</td>
<td>• Capture wait times data in all hospitals across the province. CCO to measure and monitor wait times in all hospitals.</td>
<td>• Fully monitor access to care to inform decision making, resource allocation and performance management.</td>
<td>CCO assumes responsibility for performance management.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Regions responsible for implementing process improvement initiatives to reduce wait times and ensure equitable access to care.</td>
</tr>
<tr>
<td><strong>Health Human Resources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Medical oncologists practice with both AFP and Fee-For-Service models.</td>
<td>• Implement strategies to ensure appropriate number and mix of all systemic treatment health providers.</td>
<td>• Hire appropriate number of systemic treatment providers for equitable and timely access to care, and to meet expected increases in demand.</td>
<td>CCO to identify areas of need, provide recommendations, and facilitate shared best practices.</td>
</tr>
<tr>
<td>• Resource pressures in all areas of systemic treatment include: medical oncologists, GPOs, RNs, RN-ECs, APNs, pharmacists, and pharmacy technicians.</td>
<td>• Identify models of care that support best use of all HHR, and quality outcomes for patients.</td>
<td>• Implement and enhance team-based models of care.</td>
<td>MOHLTC to provide funding for appropriate HHR positions.</td>
</tr>
<tr>
<td>• Shortage of clinical practitioners impacting wait times.</td>
<td></td>
<td></td>
<td>Regions recruit clinicians, support collaboration between hospitals and foster team-based approach to care.</td>
</tr>
<tr>
<td><strong>Funding</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed model includes:</td>
<td>• Fund all systemic treatment growth in Ontario, based on resources required for service delivery.</td>
<td>Coordination and funding for all growth in systemic treatment includes:</td>
<td>CCO assumes responsibility for funding of all systemic growth with the support of MOHLTC.</td>
</tr>
<tr>
<td>• Case-based funding for RCCs;</td>
<td></td>
<td>• Equitable funding for growth in all cancer centre and non-cancer centre hospitals;</td>
<td></td>
</tr>
<tr>
<td>• Limited funding for non-RCCs (funding associated with growth in cancer surgery);</td>
<td></td>
<td>• CCO management of PCOP funding.</td>
<td></td>
</tr>
<tr>
<td>• PCOP funding through MOHLTC.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section 1
Background

Cancer is a chronic disease that will directly affect almost half of all men and women living in Ontario. There are more than 57,000 newly diagnosed cases of cancer reported each year and this number is growing. Among these new incident cases, the majority are cancers of the lung, prostate, breast, and colon and rectum (colorectal). The majority of cancers occur in individuals over the age of 50. The key drivers of the cancer burden are population size and composition (Figure 1). Ontario's population is both aging and growing. As a result, the number of newly diagnosed cancer patients is expected to steadily increase over the next decade.

As the number of new cancer patients increases, the demand for cancer services will also increase and accelerate. Cancer patients are living longer as a result of improved treatment options and earlier detection. As a result, demands on the system will increase as a number of these patients return for further treatment related to either second cancers or disease recurrence. These factors contribute to the 280,000 Ontarians who are currently living with cancer diagnosed between 1994 and 2004.

Figure 1. Provincial Growth in Cancer Incidence, 2001–2016
Soon after being diagnosed with cancer, most patients begin a cancer treatment, for which there are three primary treatment options: surgery, radiation treatment and systemic treatment. Surgery aims to remove cancerous tumours, while radiation and systemic treatment aim to destroy cancer cells. Chemotherapy is integral to systemic treatment and is the treatment of disease by introducing cell-destroying chemicals into the body. Hormonal therapy and supportive care drug therapy are other forms of systemic treatment. Today, the term chemotherapy is often used to refer to antineoplastic compounds, which are used to fight cancer, or the combination of these drugs into a cytotoxic standardized treatment regimen. Newer systemic treatments include the use of biologic antibodies in targeted therapy.

There are several categories of chemotherapy treatment:

**Combined modality treatment**: the use of chemotherapy drugs along side other cancer treatments, such as radiation therapy or surgery

**Neoadjuvant chemotherapy**: chemotherapy delivered before surgery or radiation treatment, aimed at shrinking tumours and improving effectiveness of subsequent cancer treatment

**Adjuvant chemotherapy**: chemotherapy delivered following surgery or radiation treatment aimed at destroying cancerous cells that may have spread beyond surgical or radiation treatment site

**Palliative chemotherapy**: chemotherapy not expected to cure, but intended to control symptoms, decrease tumour load, increase life expectancy, and potentially enhance quality of life

**Curative treatment**: chemotherapy for acute leukemia, lymphoma, testicular cancer and some solid tumours

Chemotherapy is most often provided in an outpatient, ambulatory setting. Patients may receive all treatments at one facility or they may consult with a specialist at one site and receive treatment at another. Treatment can be administered intravenously, injected under the skin or into the muscle, or given orally. It can be given to a cancer patient as a single product or in combination with another form of chemotherapy or treatment. Among the various methods of administering chemotherapy, intravenous (IV) chemotherapy is the most common.
Section 3
Current State of Systemic Treatment in Ontario

Approximately two-thirds of all newly diagnosed cancer patients will receive an assessment for systemic treatment by a medical oncologist. Among those patients referred for systemic treatment, the majority are currently treated within 6 months to 1 year following diagnosis, depending on the severity of the disease. On average approximately 83% of patients referred for systemic treatment will receive their first treatment within six months of diagnosis. Treated patients represent the number of individuals who received IV chemotherapy following a consultation with an oncologist.

The top 6 disease site groups include breast, colon and rectum, lung and bronchus, non-Hodgkin’s lymphoma, and leukemia (Table 1). Among all disease sites, the total number of patients receiving chemotherapy across all centres in the province grew by approximately 3% between 2006/07 and 2007/08. This annual growth has varied from region to region (Figure 2). Overall provincial growth is expected to accelerate as cancer incidence rises and the indications for chemotherapy increase.

Table 1.
Systemic Treatment Patients and Visits, Top 6 Disease Groups only, FY 2007/08

<table>
<thead>
<tr>
<th>Disease Group</th>
<th>Patients</th>
<th>Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>8,811</td>
<td>61,947</td>
</tr>
<tr>
<td>Colon and Rectum</td>
<td>5,709</td>
<td>53,435</td>
</tr>
<tr>
<td>Lung and Bronchus</td>
<td>4,099</td>
<td>28,235</td>
</tr>
<tr>
<td>Non-Hodgkin’s Lymphoma</td>
<td>3,230</td>
<td>17,295</td>
</tr>
<tr>
<td>Leukemia</td>
<td>1,294</td>
<td>11,642</td>
</tr>
<tr>
<td>Prostate</td>
<td>1,886</td>
<td>10,118</td>
</tr>
</tbody>
</table>

Figure 2.
Absolute Volumes of Systemic Treatment Patients in all Facilities by Region
The average duration of a patient's systemic treatment is approximately 220 days, delivered in cycles that can vary in length, frequency and number. The average number of drugs administered during any one systemic treatment visit is increasing (Figure 3), as is the number of new indications for treatment. New and expensive cancer drugs are funded through the New Drug Funding Program (NDFP), which provides equitable access to all Ontarians for funded indications. Since 2000, NDFP has funded an additional 35 new indications for IV chemotherapy treatment.

Figure 3.
Number of Systemic Treatment Drugs per Visit, Regional Cancer Centres Only

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>Number of Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>3.10</td>
</tr>
<tr>
<td>2004</td>
<td>3.20</td>
</tr>
<tr>
<td>2005</td>
<td>3.40</td>
</tr>
<tr>
<td>2006</td>
<td>3.60</td>
</tr>
<tr>
<td>2007</td>
<td>3.80</td>
</tr>
<tr>
<td>2008</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Source: Funding Model

Antineoplastic and non-antineoplastic drugs per visit
Regional Variations

Cancer patients living in rural areas are often required to travel long distances for consultation and treatment. People living in more densely populated areas often seek care outside of their LHIN of residence. This may occur where a patient’s workplace and residence are in different LHINs or where the physician has hospital relationships outside of the LHIN. Table 2 highlights the distance patients travel for care and systemic treatment by their LHIN of residence. Over time, many of the LHINs are expecting to repatriate some patients where appropriate.

Table 2. Systemic Treatment Patient Travel Patterns

<table>
<thead>
<tr>
<th>LHIN</th>
<th>Percentage of patients seeking treatment within LHIN of residence, 2006/07</th>
<th>Median distance (km) traveled per patient to treatment hospital by LHIN of residence, 2007/08</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>39.4%</td>
<td>15.6</td>
</tr>
<tr>
<td>Central East</td>
<td>58.1%</td>
<td>18.6</td>
</tr>
<tr>
<td>Central West</td>
<td>46.1%</td>
<td>18.4</td>
</tr>
<tr>
<td>Mississauga Halton</td>
<td>57.2%</td>
<td>16.3</td>
</tr>
<tr>
<td>Champlain</td>
<td>99.2%</td>
<td>19.3</td>
</tr>
<tr>
<td>Erie St. Clair</td>
<td>77.6%</td>
<td>15.7</td>
</tr>
<tr>
<td>Hamilton Niagara Haldimand Brant</td>
<td>95.5%</td>
<td>16.1</td>
</tr>
<tr>
<td>North East</td>
<td>93.9%</td>
<td>20.4</td>
</tr>
<tr>
<td>North Simcoe Muskoka</td>
<td>72.4%</td>
<td>40.3</td>
</tr>
<tr>
<td>North West</td>
<td>98.3%</td>
<td>7.5</td>
</tr>
<tr>
<td>South East</td>
<td>84.3%</td>
<td>44.7</td>
</tr>
<tr>
<td>South West</td>
<td>91.4%</td>
<td>21.5</td>
</tr>
<tr>
<td>Toronto Central</td>
<td>90.0%</td>
<td>6.2</td>
</tr>
<tr>
<td>Waterloo Wellington</td>
<td>76.0%</td>
<td>8.8</td>
</tr>
</tbody>
</table>
System Level Pressures

Between 2007/08 and 2008/09, the median wait time from a patient's referral to a medical oncologist to their first chemotherapy treatment remained stable at 4.7 weeks. In 2008, CCO began reporting systemic treatment wait times in more detail by measuring the time from when a patient is referred to a medical oncologist to when the patient sees the medical oncologist (an interval called referral to consult). This interval varies widely between cancer centres (Figure 4). These variations reflect regional differences in the number of patients seen, the number of medical oncologists and other pressures. In 2009, CCO will begin reporting on the time from when a patient consults with a medical oncologist until that patient receives his or her first treatment (an interval called consult to treatment).

Figure 4.
Wait Times for Systemic Treatment
Percentage of patients seen within target (14 days), referral to consult, by cancer centre, Ontario, Q1 to Q3, 2008

Report date: March, 2009
Data source: ALR/Data Book
Prepared by: Cancer Informatics

Notes:*December data excludes Carlo Fidani (Peel)
**Data available from April 2008 for Simcoe Muskoka RCC and Southlake RCC
Data reported by fiscal year

CSQI 2009
Regions face challenges delivering systemic treatment in a safe and efficient manner. Cancer cases are rising, the use of chemotherapy is increasing and there is a trend toward more aggressive systemic treatments — which improve survival, cure and control. The current system is under further stress due to a variety of pressures, including:

- Increasing patient desire to have chemotherapy closer to home
- Lack of consistent standards to guide systemic treatment provision
- Increasing complexity of care (e.g., multiple treatments per patient, older patients with more comorbidities) and inconsistent funding mechanisms that have not reflected complexity of care
- Multiple, sometimes incongruent, planning assumptions associated with regional demand
- Lack of standardized data resulting in inconsistent understanding of treatment activity, including care delivered in the community

To address these challenges, three key parallel initiatives were undertaken under the auspices of the Regional Systemic Treatment Programs to ensure access to safe, high-quality chemotherapy as close to home as possible:

**Standards**

CCO is providing guidelines and direction to ensure quality of care in the regions. Supported by the medical literature, expert opinion and consensus building, CCO created a set of evidence-based standards, *The Regional Models of Care for Systemic Treatment: Standards for Organization and Delivery of Systemic Treatment* (see Appendix A). These standards provide a practical approach to guide organizational improvements and delivery of safe, high-quality systemic treatment across the province. These standards apply to all institutions and programs delivering ambulatory systemic treatment within the province of Ontario, and address the types of providers and their roles, education of providers, service type/complexity, quality assurance and safety, facility requirements, and administrative and organizational responsibilities.

Regions use these standards locally to set institutional policies and guide organizational change to promote evidence-informed policy, access-to-care options and system redesigns. Systemic treatment providers use them to improve the quality of clinical decision making.

More detailed description of the standards to follow in Section 5.

**Planning**

CCO is coordinating evidence-based planning for all systemic treatment services in the province. Planning the strategic implementation of the RSTP has involved an ongoing collaboration with the regions, including the input and guidance of a variety of stakeholders — from frontline care providers and system administrators to senior management and executive leadership. A systemic treatment planning network of CCO and regional representatives has evolved to ensure alignment between and among the regions and CCO.

The planning process has consisted of iterative refinements of data and planning assumptions to ensure a consistent and transparent evidence base. Forecast modelling enabled the quantification of demand, which is linked to provincial capacity (HHR and infrastructure) and to implementation.

**Funding**

CCO is developing and implementing a case-mix-based funding model that will distribute systemic treatment funding more equitably to each facility, based on the resources it needs to deliver care. CCO is moving toward funding hospitals for the delivery of systemic treatment care in a way that takes into account the case mix of patients. CCO will be allocating funding based on need and performance using a methodology that involves funding growth in all RSTP hospitals to meet patient care needs.

Regions are accountable for the funding of the Regional Systemic Treatment Programs and systemic services through contracts and performance management.
Ultimately the goal is to converge and align these three large initiatives (standards, planning and funding) into a more coordinated approach to high-quality, sustainable, patient-focused systemic treatment programs (Figure 5).

This provincial plan builds upon the individual plans developed within each region and identifies provincial level strategies that support regional level implementation requirements. While population structure, patient travel behaviour and health service accessibility are key drivers of need, other social and demographic conditions also play a significant role in how regions will plan and allocate resources. Distinct and specific regional conditions and challenges were articulated in the Regional Systemic Treatment Program plans, and have been summarized in Section 9 of this document.

**Figure 5.**
CCO Strategic Direction for RSTP

<table>
<thead>
<tr>
<th>CCO Strategic Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Challenge</strong></td>
</tr>
<tr>
<td>STANDARDS How to best organize the delivery of ambulatory systemic treatment that factors in patient safety, evidence-based decision making, and patient care close to home.</td>
</tr>
<tr>
<td>PLANNING How to best support long-term, evidence-based planning of ambulatory systemic treatment that is regionally grounded and responsive to inter-regional and provincial influences.</td>
</tr>
<tr>
<td>FUNDING How to most equitably fund hospitals for the delivery of systemic treatment care that takes into account the case mix of patients.</td>
</tr>
<tr>
<td><strong>The Vision</strong></td>
</tr>
<tr>
<td>STANDARDS Integration and alignment of regional systemic treatment programs that are patient focused, quality driven, and sustainable over the long-term.</td>
</tr>
<tr>
<td>PLANNING</td>
</tr>
<tr>
<td>FUNDING</td>
</tr>
</tbody>
</table>
Section 4

Standards for the Organization and Delivery of Systemic Treatment

Through the Program in Evidence-Based Care (PEBC), CCO sponsored the development of a set of evidence-based standards, *Regional Models of Care for Systemic Treatment: Standards for Organization and Delivery of Systemic Treatment* (see Appendix A). Founded on literature and jurisdictional reviews, as well as expert input, the standards identify requirements for:

- Healthcare providers and their roles
- Education of healthcare providers
- Service type and complexity
- Quality assurance and safety
- Administration and organizational responsibilities

There are more than 36 individual standards within the standards document. To facilitate the strategic implementation of these standards, CCO’s Clinical Programs identified the following priority standards and targets (Table 3). This prioritized set of standards provides regions with a clear timeframe for RSTP.

Table 3 represents the first wave of the priority standards that specify minimum requirements for hospitals providing different levels of systemic treatment over the next three months, 18 months and three years. Alignment to this group of priority standards will help regions ensure the defined standard of care regardless of where care is provided. Within a region, additional priorities may be further identified.

For a detailed description of the standards for systemic treatment facilities, see Appendix A.

### Table 3. Priority Standards

<table>
<thead>
<tr>
<th>Priority 1</th>
<th>Patient and provider safety requirement to be achieved within three months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All patients to be assessed by an oncologist</td>
</tr>
<tr>
<td></td>
<td>All orders to be prepared by a pharmacist or pharmacy technician under the supervision of a pharmacist</td>
</tr>
<tr>
<td></td>
<td>Nurses providing systemic treatment to have specialized training as appropriate</td>
</tr>
<tr>
<td></td>
<td>Safe handling of cytotoxic agents in accordance with CCO guidelines</td>
</tr>
<tr>
<td></td>
<td>Regimen complexity to be appropriate to the facility’s level of service</td>
</tr>
<tr>
<td></td>
<td>Regional engagement plans developed at a broad level</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Priority 2</th>
<th>Patient-centered care and the efficient use of resources to be achieved within 18 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Multidisciplinary cancer conferences</td>
</tr>
<tr>
<td></td>
<td>Resource use maximized and appropriate to service volume</td>
</tr>
<tr>
<td></td>
<td>Computerized Physician Order Entry (CPOE) implemented in Level 1, 2 and 3 facilities</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Priority 3</th>
<th>Ongoing regional engagement and use of evidence in decision making to be achieved within three years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intra-regional support available for mentoring providers and continuing medical education (CME)</td>
</tr>
<tr>
<td></td>
<td>Participation in clinical trials as appropriate</td>
</tr>
<tr>
<td></td>
<td>CPOE implementation at all centres</td>
</tr>
</tbody>
</table>
Regional Models for Organizing Program Delivery and Facility Levels

The configuration of systemic treatment facilities within a LHIN reflects a regional model of service delivery based upon alignment with the standards (Figure 6). The RSTP provides a context for safe and high-quality service provision. A regional model of care is dynamic and will change depending on health human resources, infrastructure and programs available at new and existing facilities. Changing demand and funding will also affect levels of service.

There are four levels of hospital service. Levels are determined by the range of standards met (see Appendix A for a description of standards by level). Levels of systemic treatment service range from the ability to provide complex highly-specialized chemotherapy to the provision of low-risk treatment under the direction of an oncologist (Table 4).

Figure 6. Structure of a Regional Model of Service Delivery
Implementing the Standards in Every Region: An Incremental Approach

Ontario is moving toward a system that decentralizes less complex chemotherapy to community hospitals and concentrates more complex treatment within regional cancer centres (RCCs). This strategy is integral to the provincial direction for RSTP and supported by the standards. With provincial and regional support, community hospitals will be in a position to work closely with RCCs that are experiencing increasing demand. This will not only facilitate the ability to provide care closer to home, but will help increase capabilities at regional cancer centres.

Over the next three years, all facilities providing systemic treatment are expected to become a part of an integrated system with appropriate formal partnership agreements. There will be agreements between facilities within an RSTP to help formalize these partnerships. This involves linking systemic facilities within a region, and connecting with other facilities supporting the systemic program (e.g., transfusions, hydrations, injections to chemotherapy patients). Given the variation in demand, resources and patient travel, there will be different models of service delivery in different regions. The establishment of RSTPs in each LHIN will take place over the next three years and beyond.

One of the most significant transformations in the organization of the system-wide delivery of systemic treatment in Ontario will be the reduction in the number of facilities providing this service across the province — from the 93 facilities in 2007/08 to an anticipated 86 facilities currently planned for 2012/13 and beyond. This change reflects decisions made by regions about the model for program delivery, which takes into account expected alignment with the standards. Future changes to the number of systemic treatment facilities are expected to occur as regions continue local planning. This number may increase or decrease depending on individual RSTPs. Table 5 highlights the systemic treatment facilities (by level) planned for the future.

<table>
<thead>
<tr>
<th>Complexity</th>
<th>Level 1 (RCC)</th>
<th>Level 2 (RCC)</th>
<th>Level 3 (Affiliate)</th>
<th>Level 4 (Satellite)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Investigational New Drug Program</td>
<td>✓</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>High complexity procedures including: Concurrent Head and Neck Chemorads and/or Radiolabelled Conjugates</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Medical oncologist on site determines treatment plan</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>1st dose of high risk systemic treatment</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>1st dose if approved by the RSTP</td>
</tr>
<tr>
<td>All other systemic treatment</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

✓ = Yes, X = No; Chemorads = chemotherapy in combination with radiation therapy; RCC = regional cancer centre
Table 5.
Number of RSTP Facilities Planned for 2012/13+, by Region and Level

<table>
<thead>
<tr>
<th>Region</th>
<th>Level One</th>
<th>Level Two</th>
<th>Level Three</th>
<th>Level Four</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central East</td>
<td>1</td>
<td>3</td>
<td>3*</td>
<td></td>
</tr>
<tr>
<td>Central West/Mississauga Halton</td>
<td>1</td>
<td>3*</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Champlain</td>
<td>1</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Erie St. Clair</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hamilton Niagara Haldimand Brant</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>North East</td>
<td>1</td>
<td>1</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>North Simcoe Muskoka</td>
<td>1</td>
<td></td>
<td>3**</td>
<td></td>
</tr>
<tr>
<td>North West</td>
<td>1</td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>South East</td>
<td>1</td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>South West</td>
<td>1</td>
<td></td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Toronto Central</td>
<td>2</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Waterloo Wellington</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: Table does not include two children's hospitals providing systemic treatment
* Indicates one site is planned to become operational after 2012/13
** Indicates two sites are shared with the North East region.

Implementation of Standards:
Examples from the Regional Plans

In the North East: There are plans to cease systemic activity at four facilities to ensure safety and maximize the use of resources and competencies. One low volume facility will remain open because of its critical geographic location.

In North Simcoe Muskoka: The plan is to leverage video-conferencing opportunities for multidisciplinary cancer conferences (MCCs) within their region, presenting innovative opportunities to improve active participation by multiple disciplines involved in the care of patients receiving systemic treatment.

In Erie St. Clair: A lack of patients at one facility in Erie St. Clair has resulted in health professionals unable to maintain knowledge and skills, and the consequent decision to cease providing systemic treatment at this facility.

In the South East: Currently, there are plans to keep systemic suites operational at both of the Level 4 facilities in their LHIN, but eventually move to one facility to ensure adequate volume.

In the North West: Sioux Lookout Meno Ya Win Health Centre uses Telemedicine to link cancer patients to medical oncologists in Regional Cancer Care - Northwest, enabling live, two-way videoconferencing.

In Hamilton Niagara Haldimand Brant: Extended operational hours of systemic treatment suites have helped to mitigate the increasing demand for services. This type of strategy will require ongoing alignment of interdependent and overlapping health human resources and related services with the hospital.

In the Greater Toronto Area (GTA) regions: There are plans to develop formal partnerships within and beyond LHIN boundaries to ensure effective long-term management and delivery of systemic treatment and related services.

For detailed description of regional challenges and opportunities see Section 9.
Section 5
Strategic Planning

CCO’s strategic planning efforts are focused on how to best to support long-term, evidence-based planning of ambulatory systemic treatment that is regionally grounded and responsive to inter-regional and provincial influences. These efforts are grounded in a system-focused planning framework and analytic approach, and form the evidence base for the consistent and effective implementation of the standards (Figure 7).

Collaboration to Ensure Implementation of Standards

Over the past two years, CCO has been working closely with the regions to generate a picture of the state of systemic treatment in Ontario by using consistent methods and data to understand population demographics, cancer incidence, treatment and service volumes, health human resources (HHR), as well as programs and infrastructure (Figure 8).

Key elements and tools include forecasted demand, related capacity requirements and regional models, which were then rolled up to the provincial level. It is this standardized approach to planning with an assessment of current state, projections for future state and related assessment of needs that allows us to identify expected challenges and gaps in service.
Figure 8.
Collaboration and Tools Timeline

Collaboration and Provincial Support

Regional Orientation and Planning Sessions

RSTP Planning Day II

RSTP Planning Day III

RSTP Planning Day IV

Weekly Core Team Meeting

Bi-weekly Teleconference with Regional Leads

Daily support and online Webex forum

April 2007 Jul 07 Oct 07 Jan 08 Apr 08 Jul 08 Oct 08 Jan 09 Apr 09 June 2009 Sept 2009

Tools

Planning Guide

Information Package

Information Package

Demand Forecast Model release

Final Regional Plans submitted

Provincial Plan

Systemic Treatment Funding Model Technical Briefings

PEBC Standards for the Organization & Delivery of Systemic Treatment released

Hospital Survey Completed by Hospitals & Information Package

Information Package

Hospital Survey validation and update

Draft Regional Plans submitted

RSTP HHR Analytics Working Group Recommendations

April 2007 Jul 07 Oct 07 Jan 08 Apr 08 Jul 08 Oct 08 Jan 09 Apr 09 June 2009 Sept 2009
**Forecasting Demand and Matching Future Capacity Requirements**

The Ontario Cancer Registry estimates that cancer incidence will increase to over 72,000 cases in 2012/13. From a planning perspective, understanding population growth and aging profiles in Ontario provides insight into how many newly diagnosed cancer cases are expected at various points in time.

Based on current trends, North Simcoe Muskoka, Central and Central West/Mississauga Halton regions are expected to see the highest rate of growth in new cancer cases over the next three years. The Toronto Central, North West and North East regions are expected to show the lowest rate of growth in forecasted incident cases.

Future growth in systemic treatment is affected, not only by incidence, but by historical utilization, current and future rates of utilization, location of services and providers, and historical and anticipated patient travel patterns. Rates of utilization are, in part, growing because of increased rates of screening and increasing capacity to treat cancer. Growth in the numbers of new drugs and regimens has expanded opportunities for systemic treatment. It has also posed resource planning challenges.

The number of visits can be estimated using the forecasted number of cancer cases by disease site group. Forecasted systemic utilization can then be examined in terms of the number of patients treated and their corresponding visits (see Appendix B for detailed methodology).

---

**Meeting Demand**

Using provincial demand forecasts, we anticipate the number of systemic cases likely to require treatment in 2012/13. The annual growth rate is approximately 3%–5%. In the first scenario, it is assumed that treatment utilization rate will remain unchanged, resulting in 40,746 cases in 2012/13, which represents growth of 11% from 2007/08 to 2012/13. In a second scenario, we consider an upper estimate of demand in which it is assumed that all regions achieve the minimum treatment rate set to the provincial average disease-site-specific treatment utilization rates across all LHINs. In this second scenario, 43,093 cases are forecasted for 2012/13, reflecting a growth of 17% from 2007/08 to 2012/13. Together, these two scenarios provide a range of anticipated volumes of treated cases in the future (Table 6).

**Distribution of Future Volumes**

While the vast majority of volumes will continue to be treated at Level 1 and Level 2 facilities, Level 3 (affiliate) and Level 4 (satellite) community facilities anticipate the largest relative increase (15%–20%) in the overall volumes of patients treated over time. This will occur as work is done to implement regional models and provide systemic treatment closer to home. This comparison is illustrated in Table 7.

The service capacity required to meet the forecasted demand is assessed by considering the health human resources, infrastructure and other aspects of a program available to meet the rising demand in light of the standards. Capacity limits may be related to factors such as the health human resources required to meet demand, limitations of the physical clinic, and/or available funding. Throughout our planning exercise, this key information has been collated at a regional level with input from oncology nurse managers, oncology clinic managers, and heads of pharmacy and medical oncology. The findings have been analyzed and provide a baseline to support planning and strategy development.
### Table 6.
**Summary of Forecasted Total Treated Patients in Ontario**

<table>
<thead>
<tr>
<th>LHIN of Facility</th>
<th>Actual 2007/08</th>
<th>Lower Forecast 2012/13</th>
<th>Upper Forecast 2012/13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>2,293</td>
<td>3,038</td>
<td>3,130</td>
</tr>
<tr>
<td>Central East</td>
<td>2,944</td>
<td>3,437</td>
<td>3,531</td>
</tr>
<tr>
<td>Central West/Mississauga Halton</td>
<td>3,067</td>
<td>3,293</td>
<td>3,475</td>
</tr>
<tr>
<td>Champlain</td>
<td>3,633</td>
<td>4,083</td>
<td>4,375</td>
</tr>
<tr>
<td>Erie St. Clair</td>
<td>1,673</td>
<td>1,824</td>
<td>1,869</td>
</tr>
<tr>
<td>Hamilton Niagara Haldimand Brant</td>
<td>4,346</td>
<td>4,828</td>
<td>5,227</td>
</tr>
<tr>
<td>North East</td>
<td>2,080</td>
<td>2,292</td>
<td>2,337</td>
</tr>
<tr>
<td>North Simcoe Muskoka</td>
<td>1,141</td>
<td>1,409</td>
<td>1,509</td>
</tr>
<tr>
<td>North West</td>
<td>830</td>
<td>874</td>
<td>926</td>
</tr>
<tr>
<td>South East</td>
<td>1,420</td>
<td>1,546</td>
<td>1,765</td>
</tr>
<tr>
<td>South West</td>
<td>3,288</td>
<td>3,620</td>
<td>3,888</td>
</tr>
<tr>
<td>Toronto Central</td>
<td>8,387</td>
<td>8,575</td>
<td>9,052</td>
</tr>
<tr>
<td>Waterloo Wellington</td>
<td>1,610</td>
<td>1,928</td>
<td>2,008</td>
</tr>
<tr>
<td><strong>Provincial Total</strong></td>
<td><strong>36,712</strong></td>
<td><strong>40,746</strong></td>
<td><strong>43,093</strong></td>
</tr>
</tbody>
</table>

### Table 7.
**Percentage Increase in Forecasted Volumes by Facility Levels, 2007/08 to 2012/13**

<table>
<thead>
<tr>
<th>Facility Levels</th>
<th>Lower – Upper Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1 and Level 2</td>
<td>9%–16%</td>
</tr>
<tr>
<td>Level 3 and Level 4</td>
<td>15%–20%</td>
</tr>
</tbody>
</table>
Section 5A

Health Human Resources for Systemic Treatment

Systemic treatment delivery involves a number of specialized health professionals, each of whom plays an integral role in the safe delivery of IV chemotherapy. The following is a list of all providers involved in the delivery of systemic treatment in an outpatient setting:

- Medical oncologist
- General practitioner in oncology (GPO)
- Pharmacist
- Pharmacy technician
- Primary care nurse
- Specialized oncology nurse
- Advanced practice nurse (APN)
- Administrative/coordination support

Cancer patients who receive systemic treatment interact with many of these healthcare professionals in the pre-treatment, treatment and post-treatment steps of the cancer care journey, which involve assessment, treatment planning/treatment, education and supportive care. Psychosocial and palliative care specialists also play an integral role in the care of cancer patients. In addition to these health human resources, there is also a need to connect patients with related cancer services. For example, patients may require surgery or radiation alongside systemic treatment. Thus, there is a strong need for organization and coordination of care among the various providers.

Through the course of the disease pathway, each of these healthcare professionals plays a critical role and holds responsibilities to ensure the highest possible quality of care. They provide not only cancer treatments but also pain and symptom management; caregiver support; psychological, cultural, emotional and spiritual support; and bereavement support for loved ones. For example, palliative chemotherapy is often the final treatment for patients with advanced forms of cancer. An appropriate supply of healthcare professionals is essential to the safe delivery of systemic treatment.

A Note About Patient and Provider Safety:

Chemotherapy involves the use of cytotoxic drugs that can be life-saving for the patient. These drugs can be hazardous to both the patient and the provider. Patients may experience acute and/or delayed toxicities associated with treatment. Providers can experience toxic effects if treatment is not delivered safely.

For additional detail, see PEBC Safe Handling of Parenteral Cytotoxics: Recommendations, 2007.

Across the province, the sustainability of systemic treatment is at risk because of insufficient health human resources in all areas to meet increasing demand. Regions anticipate a large turnover of systemic treatment professionals related to the aging of the existing workforce. Several regions are already experiencing challenges associated with reduced numbers of medical oncologists and other providers.

Current trends suggest that medical oncology resources are already over-stretched and working at capacity. Further, increasing turnover will result in a loss of oncology expertise, and a new generation of medical oncologists may have different practice patterns than their predecessors (e.g., desire to balance clinical and research responsibilities, workload expectations). As a result, there are significant implications from rising demand that include increasing wait times for systemic treatment and increasing pressure on the health human resources providing care.

To address the critical shortage of medical oncologists, a minimum of 40 new alternate funding program (AFP) medical oncology positions is required under the current model of care (see Appendix C for detail). It is recognized that filling these positions will be a significant challenge. We recommend that 15 of these positions be created immediately and allocated to those regions identified as having the greatest need.
These AFP new positions are required across the province to manage future care in accordance with the current model of care. Given the methods currently used to deliver systemic treatment, this estimate assumes:

- Twenty-five percent of the growth in the number of consults will be seen in academic settings and 75% of that growth will be seen in community settings.
- Current workload estimates of 188 consults per year per academic medical oncologists and 247 consults per year per non-academic medical oncologist.

Workloads have considered earlier estimates and reflect current practice (see Appendix C for detail). Estimates focus on the number of new cancer cases receiving a consult by a medical oncologist. For the purposes of RSTP planning, an academic setting refers to a Level 1 facility, and a non-academic or community setting refers to Level 2 or 3 facilities (see Table 4 for additional description). Out of scope are the Level 4 facilities that do not require a visiting or on-site medical oncologist according to the standards.

Planning for the future, CCO recommends an equitable distribution of workload and will consider new models of care. Given the current challenges, it may be difficult to completely fill all required new AFP medical oncology positions over the next three years. While the number of medical oncologists is predicted to grow, it will not meet the future demand for care. This reinforces the need to re-assess roles and responsibilities within the care team.

**Alternate Funding Program**

The alternate funding program (AFP) model provides a pool of funding for a group of medical oncologists from which they each draw a stable monthly stipend. Participants must meet certain standards and treatment volumes. An AFP environment tends to foster a team-based approach to care, and provides the organizational structure to ensure that physician qualifications and practices meet quality standards.

**Access to Primary Care**

Family physicians play a facilitation role for patients receiving systemic treatment. A lack of access to a family physician, and consequentially to diagnostic services, becomes especially challenging. Family physicians are also called upon to provide caregiver support and ongoing parallel patient care services during their systemic treatment, and/or continuing contact with the healthcare system after treatment is completed. Inter-regional patient travel patterns, and access to primary care and physician referral patterns must be taken into account when planning regional systemic treatment. Family physicians help facilitate the goal of providing systemic treatment close to the patient’s home.

**General Practitioners in Oncology**

A general practitioner in oncology (GPO) provides oncology care at a cancer centre, at satellite clinics or in a primary care setting. The majority of GPOs are family doctors but a few are internists. They may or may not have additional training in the field of oncology but have largely gained experience informally by working with medical oncologists. They support a variety of functions within cancer programs, including assessment of patients during treatment and follow-up, triaging patients with complications, management of acute reactions in chemotherapy suites, ordering of chemotherapy for stable patients according to the treatment plan, and assisting on inpatient services. GPOs provide a variety of services and current contribution to care varies across the province. For example, in some facilities, GPOs provide a substantial amount of outpatient care, while in other facilities they primarily provide inpatient care.

General practitioners in oncology, as members of systemic treatment teams, supervise intravenous systemic treatment, consult with medical oncologists, address and manage toxicity, and participate in education programs.
Pharmacy and Nursing Resources

In addition to physicians, nurses and pharmacists play an important role in systemic treatment provision. Within these two groups of providers there are further distinctions that include: pharmacists, pharmacy technicians, primary nurses and specialized oncology nurses, including advanced practice nurses.

The pharmacist’s primary role is to make sure that a patient’s medications are the most effective and are used in the most appropriate way. In the oncology setting, pharmacists review and verify systemic treatment orders, and supervise the preparation and dispensing of systemic treatment and supportive care medications to make sure patients receive treatment best suited to their medical needs and current medical condition. They also supervise and manage the dispensing and documentation of clinical trials, perform medication reconciliation, and promote safe medication practices. In addition, in collaboration with nurses and physicians, pharmacists provide patient education/follow-up related to medications and their expected benefits and side effects, and potential drug–drug and drug–disease interactions. Pharmacists are also collaborators with medical oncologists in the selection and planning of systemic treatment for patients with organ dysfunction. Pharmacists in the cancer centre are also responsible for the supervision of pharmacy technicians and management of the computerized physician order entry (CPOE) system. They must be knowledgeable in drug reimbursement programs and often are responsible for the management of these programs. Collaboration between cancer programs and community pharmacies can lead to optimal patient outcomes.

Pharmacy technicians work under the direct supervision of a licensed pharmacist and perform many pharmacy-related functions. In the oncology setting, pharmacy technicians prepare systemic treatment, help dispense/document clinical trials and oral drugs related to cancer treatment under the supervision of a pharmacist, support the computerized physician order entry (CPOE) system, and help with drug reimbursement program adjudication. Pharmacy technicians can also manage inventory for the pharmacy, and prepare unit dose and other pre-packaged products.

Nurses are systemic treatment patients’ primary contact within the oncology setting. Following the establishment of a patient’s treatment path by an oncologist or several oncologists, depending on disease complexity, nurses play a key role in administering IV chemotherapy and delivering safe care.

A primary nurse is a registered nurse who has specific skills in providing preventive, educational or supportive services to patients while they undergo chemotherapy. The primary nurse works with a specific group of patients in coordination with one or two medical oncologists. In addition to primary nurses, there are two groups of specialized nurses that are essential in the delivery of systemic treatment. These are specialized oncology nurses and advanced practice nurses, who have different specialized skills in oncology and work in the clinics and in chemotherapy suites. It is important to note that registered nurses in Ontario should not administer intravenous systemic treatment until they have received additional nursing education and have demonstrated competency in the delivery of chemotherapy.

The specialized oncology nurse’s enhanced knowledge and skill can be used to manage symptoms and side effects of treatment, counsel patients in coping strategies, teach self-care behaviours, and monitor the responses to treatment and nursing interventions. An advanced practice nurse (APN) has an advanced level of clinical nursing practice and has completed specialized training in oncology. There are two sub-groups of APNs: clinical nurse specialists and nurse practitioners. These nurses work independently and in collaboration or consultation with the healthcare team to provide direct and comprehensive care for patients and families. This care includes stabilization of acute illness prevention and management of complications, and chronic disease management to promote optimal health. The nurse practitioner, for example, performs in-depth and/or focused physical assessments, generates differential diagnoses, and develops appropriate therapeutic care plans that consider the patient’s/family’s unique needs and goals of treatment.

It is the uniqueness of the clinical domain in combination with specialized training in oncology and other professionals...
in practice that influence positive clinical outcomes in the systemic treatment patient population.

**Team-Based Approach**

An interdisciplinary team-based approach, with the medical oncologist as the team leader and patient steward, is understood to be the most appropriate approach for future planning. Such an approach can facilitate the effective use of available resources to provide the best possible patient care but requires that roles and responsibilities be clearly identified. The team-based approach is common in health care and aligns with other CCO and MOHLTC health human resource activities and priorities.

As the roles and responsibilities of the care team evolve further, provider caseloads and standards will need to be re-assessed. For example, the introduction of additional GPOs or APNs may alleviate some of a medical oncologist’s duties in follow-up patient care, allowing him or her to focus on initial consults and plan the treatment for additional new cases.

**Future State**

Overall, systemic treatment requires a highly trained multi-disciplinary team to deliver safe, high-quality care. The team often includes nurses with specialized oncology and palliative care skills, family physicians, palliative care physicians, social workers and counselors. Palliative chemotherapy often can be the final treatment for patients with advanced forms of cancers or cancer that has spread to other parts of the body. In addition to these key health human resources, there is also a need to connect patients with related cancer services. For example, patients may require surgery or radiation alongside systemic treatment. Thus, there is a strong need for organization and coordination of care among the various providers, and patient navigation to ensure the continuity of care. An ideal setting is one that allows adequate time for medical oncologists, nurses, pharmacists and other providers to work together to provide personalized patient care.

**Examples of Opportunities to Improve Patient Care from the Regional Plans:**

**In Central:** The Regional Steering Committee recognizes several areas for further development. This includes the cross appointment of physicians to allow for easier and more timely sharing of resources and mentoring.

**In Central East:** Efforts will focus on the development of a systemic treatment program with a linked plan for radiation service to appropriate provider(s). For certain facilities, this will require a plan with neighbouring regions.

New models of care should be based on the standards and principles of safety, care close to home and best practice. This requires an appropriate configuration of all health human resources. The regions have identified the need for other systemic treatment providers to support service delivery. There is variation in the current capacity to build new and support existing interdisciplinary team-based models of care. In summary, regions have identified these additional resource needs:

- Advanced practice nurses (APN) and primary care nurses
- Pharmacists and pharmacy technicians
- General practitioners in oncology (GPOs)
- Other allied health professionals
- Integrated palliative care services
- Strategies for recruitment and retention

In addition to pursuing innovative models of care, CCO will continue to work with stakeholders to:

- Improve the collection of data related to provider supply, activities and treatment outcomes
- Improve the utilization of existing health human resources
- Improve the process of care delivery through an interdisciplinary approach to care
- Investigate inpatient care workload associated with systemic treatment

CCO will begin this work in the fall of 2009/10.
Section 5B
Structures and Processes

In addition to supporting a specialized interdisciplinary team-based workforce, there are related infrastructure and program requirements for meeting the systemic treatment needs of the province. While the individual needs of the regions and hospitals vary, several common areas have been identified:

- Implementation of Computerized Physician Order Entry (CPOE)
- Infrastructure required to organize multidisciplinary cancer conferences (MCCs) to increase access for systemic treatment cases
- Optimization and increase of physical chemotherapy suite and pharmacy space
- Suite resources (pumps, chairs)
- Pharmacy infrastructure (space and medication safety cabinets, ventilated hoods)
- Common (electronic) patient records
- Patient navigation, single referral within region

**Computerized Physician Order Entry (CPOE) Systems**

CCO’s CPOE system for systemic treatment is one of the most extensive adoptions of such technology in Canada. CPOE systems prevent medication errors and adverse drug events by using electronic tools to automate processes around prescribing. These improvements in safety, in turn, reduce hospital admissions and save lives.

In the systemic treatment suite, CPOE can decrease delays in chemotherapy orders, reduce errors related to deciphering handwriting and prevent mistakes. Within the systemic treatment standards, CPOE has been identified as a significant patient safety enhancement tool and is recommended as a requirement for all systemic treatment facilities. The identified priority standards, summarized previously in Table 3, highlight the importance of implementing CPOE in all Level 1, 2 and 3 centres within 18 months. CPOE should also be implemented in all remaining Level 4 satellite centres within three years of establishing an RSTP. As of January 2009, several systemic facilities had not yet implemented CPOE.

CPOE will become increasingly important in all centres as RCCs shift less complex chemotherapy cases to community and satellite facilities. Therefore, our strategy is to align with the ongoing implementation work of the provincial CPOE program. The CPOE program is investigating regional solutions based on the achievements made in Level 1 and 2 facilities. This work supports adoption in the community and satellite systemic facilities. Widespread use of CPOE will provide a more comprehensive view of orders in all centres, leading to improved data reporting and performance measurement.

**Multidisciplinary Cancer Conferences**

The use of MCCs is a priority standard to be achieved within 18 months in all systemic treatment facilities, regardless of facility level (Table 3). Also known as a tumour board, an MCC is defined as a regularly scheduled multidisciplinary conference to prospectively review and amend (when needed) the treatment plan for individual cancer patients and make recommendations on disease management. While the patient’s medical oncologist is responsible for making treatment decisions, the primary purpose of the MCC is to ensure that all appropriate diagnostic tests, all suitable treatment options and the most appropriate treatment recommendations are generated for each cancer patient. MCCs also provide a forum for continuing education of medical staff and other health professionals; contribute to improved quality of patient care; develop standardized patient-specific disease management protocols; innovation and research; participation in clinical trials; and linking regions to ensure appropriate referrals and timely consultation to optimize patient care. MCCs differ significantly from rounds or a mortality and morbidity conference, as they are prospective case reviews performed by multiple disciplines, used for constructing a treatment plan.
Currently, CCO is supporting the implementation of MCCs within each region. Although participation rates have been increasing (primarily among surgeons and other members of surgical teams), there are opportunities to improve representation by those disciplines involved in the care of patients receiving systemic treatment. Strategies include connecting closely with our MCC project to support knowledge transfer, and identifying opportunities within regions to support the use of MCC.

**Infrastructure Considerations**

Regions have identified space constraints and are challenged with adequately accommodating existing patient case loads. In addition, the increasing complexity of drugs contributes to increasing pharmacy resource requirements to safely prepare drugs. It has also been recommended that new facility designs consider adjoining pharmacy and chemotherapy suite space.

To address capacity challenges, some facilities are planning to increase existing chemotherapy suite and pharmacy space. While improvements are under way across the province, CCO anticipates additional capital requirements over the next three years. The lead time required for capital upgrades will limit rapid growth and expansion of services for some hospitals. Therefore, strategies are also needed to address the short-term, immediate impacts.

**Opportunities for Innovation**

A number of regions have placed a priority on developing a single point of entry for referrals, where a single regional referral office would service all facilities. The aim for many regions is to offer patients the option of accepting the next available appointment at any facility within the region. This will help reduce wait times and maximize use of resources. Alternatively, patients can choose to wait for the next available appointment at the facility closest to their home.

**Examples of Infrastructure Challenges and Opportunities from the Regional Plans:**

**In Central West/Mississauga Halton:** This region is facing short-term challenges related to the opening of a fifth facility that will not be operational until 2014. Similar to other regions, they are challenged with how best to accommodate increasing volumes while the new Level 3 facility is being built. There is a need to focus on maximizing current infrastructure resources in the short term.

**In Toronto Central:** Hours of operation at Princess Margaret Hospital have been extended to 8:00 p.m. from Monday to Friday and the facility is open on Saturdays. Even with extended hours, some systemic facilities report trouble meeting wait time targets. As a result, they are investigating the redesign of processes within their hospitals’ suites while stressing the critical need for added space for chemotherapy preparation and storage in the pharmacy.

*For a detailed description of regional challenges and opportunities see Section 9.*

**Planning Program Elements**

Developing key aspects of the program is essential to high-quality regional systemic treatment programs. Throughout this planning exercise, regions identified several common program elements that require support and development:

- Accessible and up-to-date drug information
- Ongoing education, formalized training and certification for staff
- Intra-regional collaboration, sharing of best practices (safety, patient education)
- Review of New Drug Funding Program (NDFP) drug utilization
- Data reporting, quality improvement initiative
- Relationships with community partners
Drug Formulary

The CCO Drug Formulary is an information resource that serves as a valuable reference for clinicians, administrators and patients. It uses best practices and a standardized accessible language that facilitates the safe use of drugs in the Ontario cancer system. The formulary consists of standardized treatment regimens, supportive care regimens and relevant patient information. It is an important component to providing high-quality systemic treatment services. The formulary also defines data standards for monitoring, evaluation and reporting on systemic treatment services across the Province. CCO is working to enhance the formulary to better support regional services and standardization of practice across the province.

High-Quality Data

Consistent, high-quality data are required from all systemic treatment facilities to support ongoing planning, monitoring and evaluation. This involves ensuring accuracy, timeliness, completeness and consistency of reporting across systemic treatment facilities and regions. The importance of having quality data even from non-RCC hospitals cannot be overstated.

Data currently submitted by facilities are used to calculate systemic treatment activity and wait times for the RCCs. Accurate wait times data for both RCC and non-RCC facilities are necessary for decision making and assessing capacity across the province.

In addition to data on wait times, CCO and the regions gather data on volumes, the use of the CPOE Oncology Patient Information System (OPIS) tool by providers, and some regimens and drugs. For example, CCO’s New Drug Funding Program (NDFP) receives details on the use of approved drugs funded by the program. This allows for the system-level monitoring of drug utilization, calculation of costs and identification of opportunities to improve quality of care.

Detailed systemic information is collected through CCO’s Activity Level Reporting (ALR) from 14 RCCs and several community hospitals. CCO’s corporate Data Quality Program will be working toward improving the accuracy of this information and the RSTP will work closely with this program in the interest of data quality.

While only two months behind real time data, ALR does not currently capture non-RCC community hospital systemic treatment activity. NACRS data as an alternative source captures 100% of systemic treatment suite data across the province. The NACRS data, however, has a one-year lag time and lacks detail on disease site group, treatment regimen and drug information. Efforts are also needed to improve the consistency of chemotherapy coding in NACRS.

Knowledge Translation

Given the current and evolving state of systemic treatment, there is a need to ensure the ongoing education and training of all team members involved in systemic treatment delivery. CCO and the regions plan to continue collaboration at the inter-regional level. Many regions have pointed out the need to leverage existing work to support the development of high-quality programs across the province. Knowledge transfer and exchange will be fundamental to implementation. These activities can support the identification and uptake of best practices.

Examples of Opportunities to Improve Patient Care from the Regional Plans:

In South West: Over the next three years, there are plans to provide education opportunities through Videocare for all community chemotherapy clinic staff and cancer patients. Opportunities include training initiatives and systemic treatment patient education.

In Waterloo Wellington: There are plans to investigate regional education initiatives for all healthcare staff. This includes partnerships between medical schools, satellite clinics and Grand River Regional Cancer Centre.

In Champlain: There will be a focus on better organizing the region’s New Drug Funding Program reimbursements to maximize the use of available funding. The Champlain RSTP plans to coordinate reimbursements through the regional cancer centre for all satellites.

For a detailed description of regional challenges and opportunities see Section 9.
Section 6

Funding Strategy

From the outset of the RSTP initiative, it was evident that a new approach to funding was required. The funding rate per case was the same for all centres, which was inconsistent with evidence that centres differed in the type and intensity of treatment provided. Without explicit recognition of case mix, centres that provided more resource-intensive care faced financial disincentives.

Case Mix Funding

In 2006/07, as part of the RSTP initiative, Cancer Care Ontario began to develop a funding model that would result in a more equitable distribution of systemic case funding. Rather than providing a fixed amount to centres for each new case regardless of treatment intensity, funding for new cases would be distributed according to the health human resources required to provide care.

The principal objective of the new funding model was to recognize underlying differences in case mix, and related treatment, across centres. As part of the RSTP strategy, the funding model was required to support the implementation of the clinical standards initiative and to be responsive to the changing resource needs forecasted through the planning initiative.

The Challenge and Solution

Extensive literature reviews and consultations with clinicians and financial managers revealed that a customized approach would be required. First, none of the reviewed case-based payment models for systemic treatment included adequate case mix adjustment. Second, there were no reliable data sources in Canada with which to estimate patient treatment costs.

Systemic Treatment Funding Model Guiding Principles:

- **Accuracy**: The model can account for variation in resource use across different patient types.
- **Clinical meaningfulness**: Patient resource categories are consistent with standard clinical groupings.
- **Simplicity**: The model must be easy to understand and to communicate.
- **Transparency**: The model details, development and evolution are to be available to stakeholders for discussion and review.

Funding Growth and Managing PCOP

Across the province, treatment volumes are expected to increase in regional cancer centres (RCCs), and RSTP community and satellite facilities. Currently, growth is not fully funded outside of RCCs. There is a need to ensure the funding of incremental growth across the province, which allows CCO to leverage and encourage participation in the RSTP.

At the current rate, this is anticipated to represent a total of 3,471 unfunded incremental cases beginning in 2005/06, at a cost of $11.5 million in additional funding in 2009/10. An additional $7.1 million is required to continue to fund growth into 2012/13. This assumes the current funding rate of $3,300 per case.

PCOP funding is investment that aligns new clinical activity commitments with an approved facility functional program. CCO recommends that this funding become a part of the systemic treatment funding managed by CCO.

The developmental process was guided by expert teams of nurses, pharmacists and financial managers. Expected resources per visit are as comprehensive as possible, and include costs of nursing, pharmacy, supplies, equipment and building. The time required for nurses and pharmacists to prepare and administer the drug regimens that their patients receive over a course of care was estimated through a rigorous, consensus-based approach that reflected the actual practice of care in Ontario, and best practice where there is discussion.
Funding Model Results

The funding model has undergone extensive data quality analysis, and has been assessed using multiyear data. The result of this work is a funding formula where a facility’s case funding is weighted according to its resource intensity weight (RIW). The RIW is based on the time required for nurses and pharmacists to prepare and administer the drug regimens that their patients receive over a course of care.

Using this model, a centre’s funding is more reflective of the care they provide to their patients relative to other funded centres (see Appendix D for greater detail). Centres that provide more nurse and pharmacist resource intensive care will receive a greater allocation of the available funds based on their centre’s RIW (see Figure 9). The results show low variation in case mix across centres and are stable over time. However, it is expected that this variation will become more significant over time as more centres are compared and the RSTP standards are implemented.

Figure 9.
Case Mix by Facility and Fiscal Year
Beginning in 2008/09, CCO funded incremental new cases in cancer centres based on the new formula. Information from the formula is now being integrated into other systemic treatment activities. In addition, the regimen resource requirements for preparation and administration are being used to inform strategic planning for nursing, pharmacist and pharmacy technician resources. The evolution of the funding formula is supported by the development of a more central and standardized formulary for use by all of Ontario’s cancer centers.

To promote dialogue and transparency, software tools are being developed to allow centres to compare their own patient mix with that of their peers, and to compare their actual resource use with that expected under the model.

The new systemic treatment funding model supports the vision of standardized, equitable and efficient systemic treatment in Ontario. To a degree that has not been possible before, financial managers can assess the cost implications of evolving centre roles, shifting regional patterns of care, and future changes in disease prevalence and mix. This is the first step in improving the mechanism for funding systemic treatment in Ontario. As the system evolves, the new funding model ensures that centres treating similar patients will have similar funding rates.
Section 7

Strategies for Change

This plan recommends that CCO continue to support the implementation of regional plans to address the priority standards, and develop processes and infrastructure that ensure safety and system efficiency, as well as strategies that will ensure service quality. This is in alignment with the long-term goal of improving patient and provider safety. In addition, the formulation of collaborative strategies that ensure an appropriate supply of human resources to deliver care is in alignment with the long-term goal of improving timely access to high-quality systemic treatment as close to home as possible.

Next Steps for Standards

The work of regional implementation is closely linked to the provincial standards. While there are no plans for an immediate update, the standards will be enhanced as new evidence becomes available, or when new needs are identified as a result of implementing the regional plans.

As a result, we recommend that processes be developed to ensure the PEBC standards remain up-to-date. This work is supported by the Systemic Treatment Program Committee and the Standards and Guidelines Working Group (Systemic), which meet regularly to discuss emerging issues among expert clinicians.

Next Steps for Planning

With the focus on establishing and refining the evidence base, planning will remain an ongoing process. Planning is required to manage new and emerging issues that will affect service province-wide. For example, there is a need to carefully assess the effect of oral chemotherapy drug use, inpatient chemotherapy and outpatient-related home care challenges, and the role of other allied health professionals providing support to patients receiving chemotherapy (e.g., dietitians, psychologists, social workers).

Example of an Aspect of Systemic Treatment that Requires Ongoing Planning:

Future planning work will be required to better understand the use of oral chemotherapy drugs. Currently, little to no oral chemotherapy data are collected. There are, however, opportunities to make system level changes to capture oral chemotherapy drug prescriptions using CPOE and other data sources. Our assessment to date has focused on IV chemotherapy.

We are witnessing large advances in oral chemotherapy (anti-tumour) drugs, such as capcitabine for the treatment of metastatic breast cancer. The development of new oral chemotherapy drugs will result in a new demand for resources. The impact is not well understood. While these drugs do not require infusion suite resources, there are patient care requirements and potential implications for demands on medical oncologists, clinical support staff and pharmacists.

Achievements to date include the collaborative and multidisciplinary work of the regions and various RSTP working groups. Representation includes CCO, regions, professional groups and associations, and two Ministry divisions (forecasting and provincial programs). By harnessing Ontario’s collective ability to plan better provincially with the support of the MOHLTC, and locally with the support of the regions, the implementation of the province-wide RSTP will facilitate standardized high-quality service delivery.

CCO plans to continue building and supporting a collaborative planning environment/network for regions. Collaborative problem solving that involves experts, researchers and decision makers will be essential to address future needs for systemic treatment across the province.

We recognize that satisfying the demand for systemic treatment is vital to the success in caring for Ontario’s cancer patients. Opportunities for improvement must be embraced at every turn. Ongoing efforts should be taken to ensure that planning is being conducted in a consistent manner across the province and encourage sharing of information on best practice. Evidence-based planning at
all levels can be used to facilitate effective organization, management and delivery of safe, high-quality systemic treatment in compliance with standards and priorities.

Closely tied to planning, the following strategies will support the long-term goals to improve patient and provider safety (RSTP Goal #1) and improve timely access to high-quality systemic treatment as close to home as possible (RSTP Goal #2).

This plan recommends that CCO support the implementation of regional plans to address the priority standards; develop processes and infrastructure that ensure safety and system efficiency; and collaborate widely on strategies to ensure an appropriate supply of human resources to deliver care.

**Next Steps for Funding**

During the development of this systemic funding formula, a number of suggestions for further improvement were made by the CCO’s Executive Team, the regions and the Joint Planning and Policy Committee (JPPC). These suggestions are aimed at achieving an improved estimate of the complete cost of systemic treatment. This information will lead to even more resource-based and equitable allocation of funds, and improved planning for system capacity requirements.

The Following Funding Issues will be Investigated:

Varying lengths and frequency of treatment suggest that a more appropriate unit of cost should be explored. Also, there are differences in the proportion of patients getting treatment after a consult. A review is needed of the central unit of cost, and resulting total costs of care. This review should also consider the incentives and disincentives associated with different funding models and a team-based approach to care.

The current model uses IV and push-IV routes to determine the case mix for each of the facilities. Other routes of systemic treatment also need to be considered, including the impact of oral drugs and hormones on workload.

Current information suggests that clinical trial regimens are more resource intensive than other regimens, but these regimens have not been incorporated into the current funding formula. Some facilities have a high proportion of clinical trials and the impact of these resources should be evaluated.

Drug regimens have a predetermined dosage and frequency of drug administration. Analysis of the data shows that there is a wide variation of visits per regimen across the province. This needs to be examined to address the variation among hospitals in their use of drug regimens.

The costs and workload related to treating end-of-life patients need to be assessed. For example, the pattern of drug utilization for these patients may be different than for other patients.

This work will continue to build processes and competencies to maintain and enhance these funding models, and integrate them into the planning and delivery of systemic treatment in the future. As a result, we recommend that CCO continue to develop a provincial systemic treatment funding strategy and a related funding model that aligns with the long-term goal to improve timely access to high-quality systemic treatment as close to home as possible (RSTP Goal #2).
Section 8
Conclusion and Recommendations

Clearly articulated strategic goals and a straightforward planning framework formed the foundation for a collaborative planning approach with the regions. Common data, methods and tools, as well as transparent assumptions and a strong principle of inclusive and open dialogue, were enablers of the success of this large-scale planning initiative. It is this standardized approach to planning, with an assessment of current state, future state and related assessment of needs, that allows us to identify gaps and opportunities for program development.

The result is a strategic plan for attaining our regional and provincial goals of ensuring that Ontarians have timely access to the safest chemotherapy as close to home as possible, and ensuring that we continually strive for excellence. The plan identifies key areas of focus and strategies to use resources and knowledge more efficiently and increase collaboration among all healthcare administrators and providers.

This strategic plan sets out priorities for the Regional Systemic Treatment Programs over the next three years. The following list of priority recommendations has been developed with guidance from stakeholders, and in consultation with the regions in response to what they believe are the major challenges and opportunities that will face the province.

**Challenges**

- Growing number of indications for and success of chemotherapy
- Increasing complexity of care, multiple treatments per patient, patients with more comorbidities
- Growing demand for ambulatory services and related costs
- Incomplete data on care delivered in the community
- Increasing desire to have chemotherapy closer to home

**Opportunities**

- New standards to guide systemic treatment provision
- Increasingly transparent and consistent planning assumptions
- Incremental improvements in funding for systemic treatment
- Continued development of interdisciplinary care teams

Having considered the challenges and opportunities that are most likely to impact implementation over the next three years, this provincial plan provides recommendations identified by and for the RSTPs:

1. **Each region will implement its plan, and CCO will support coordinated implementation to address the priority standards.**
   - CCO will build out program elements including provider education and (re)training to:
     - Support the adoption of safe labeling guidelines and high-level critical incident reporting.
     - Develop a repository of safety standards and elements for dissemination across all regions.
     - Standardize safety strategies and tactics.
   - CCO will measure and support regional compliance to standards.

2. **CCO, in collaboration with the regions, will identify areas of improvement that optimize the efficiency of system and service delivery.**
   - CCO will enhance the CCO Drug Formulary to better support regional services, standardization of data and practice across Ontario.
   - CCO and the regions will investigate centralized mixing of chemotherapy.
   - CCO and the regions will investigate computer optimized patient scheduling systems.
• CCO will assess infrastructure impacts related to other services associated with systemic treatment.
  - Identify patient care delivery barriers and opportunities for improvements in patient flow.

3. CCO will establish mechanisms to ensure standardization of quality and safety.
• CCO will promote the use of best practices and tools for maximizing patient and provider safety, and formalize knowledge transfer and exchange between regions.
• CCO will measure and report on utilization and outcomes of multidisciplinary cancer conferences (MCCs).
• Regions will coordinate education and training for RSTP hospitals.
• CCO and regions will promote coordination with primary care and with palliative services.

4. CCO will expand measurement and reporting of systemic treatment delivery across the province.
• CCO will establish comparable reporting of systemic treatment activity for all facilities in the province. This includes systemic treatment wait times, current and forecasted trends; regular census of systemic treatment health human resources and infrastructure; and provider workload and productivity measures.
  - Investigate opportunities to continually improve the reporting of volumes, wait times and systemic treatment health human resources.
• CCO will improve provider workload assumptions to reflect interdependent care team, in concert with HHR strategies and funding model.
  - Conduct further measurement of the interdependence of provider workloads associated with a region’s model of care.
  - Recommend physician, nursing and pharmacy interdependent workloads for system planning.

5a. The MOHLTC should provide funding for additional medical oncology positions.
• Under the current model of care, a minimum of 40 new positions is required across the province to meet the growing demand from 2007/08 to 2012/13.
• MOHLTC should provide immediate funding for 15 of these positions within the Alternate Funding Program*.
• MO AFP positions will be allocated to regions with greatest need.
• CCO will support an equitable funding arrangement for all medical oncologists that promotes stability in the workforce and a team based approach to care.
• CCO and the MOHLTC should work together to bring forward a new model of care supported by recruitment, training and funding strategies to ensure capacity meets demand for today and the future.
* CCO’s recommendations for the additional 25 positions may be modified as new models of care are identified.

b. CCO will research and propose interdisciplinary team-based configurations of HHR to support high-quality systemic treatment, using health human resources optimally to deliver appropriate levels of service.
• CCO will investigate optimal configurations of healthcare professionals within interdisciplinary team-based care that will improve efficiency while maintaining quality.
  - Investigate treatment process, resource mapping and modeling, and identify improvement opportunities.
• Improve on current model of care with development of HHR resources for supportive clinical roles (e.g., GPO, APN).
• CCO will establish a greater understanding of the roles of systemic treatment health professionals within academic, community RCC and community non-RCC settings.
6. **The MOHLTC should provide funding to CCO to support the growth of systemic treatment in non-cancer centre hospitals and to monitor volumes, wait times and quality.**

- MOHLTC should fund all incremental growth in systemic treatment across all hospitals. This requires an investment of $18.6 million.
- MOHLTC should transfer the management of Post-Construction Operating Plans to CCO. CCO will then include this as part of systemic treatment funding management.

7. **CCO will develop and implement a coordinated approach to funding systemic treatment that includes funding hospitals based on resource intensity.**

- CCO will identify an appropriate unit of cost that covers a patient’s entire course of care, including the impact of clinical trials, oral delivery, drug related costs not covered by the New Drug Funding Program, and cancer-related support services including central venous access devices, diagnostics and labs.
  - Report on recommended unit of funding, related costs, benefits and risks.
  - Identify processes and structures to align and coordinate funding strategies.

Over the past two years, CCO has been working closely with the regions to develop this coordinated provincial plan for systemic treatment that is responsive to both system level issues and local needs. Our strategic planning has involved the ongoing collaboration, input and guidance from a wide range of stakeholders, from frontline care providers and system administrators to senior management and executive leadership. The overarching goals of the RSTP are to improve patient safety in the delivery of systemic treatment throughout the province, and to improve timely access to high-quality systemic treatment as close to home as possible.

This plan outlines strategies for the integration of clinical standards, system planning and funding strategy. The development of this strategic plan is an important milestone but it is in many ways just a starting point. Together with the regions and the Ministry of Health and Long-Term Care, Cancer Care Ontario will drive improvements in equitable access to safe and timely systemic treatment as close to home as possible.
Section 9
Regional Profiles

Central

Population
• The Central LHIN is one of the most populous LHINs. This trend is expected to continue into 2012. In addition, this LHIN has a high proportion of recent immigrants and visible minorities, a higher than provincial average proportion of low income population, and a slightly higher than provincial average percentage of self-reported physical inactivity.

Systemic Treatment Utilization and Demand
• Based on 2006/07 travel patterns, the average Central LHIN outflow rate is 60%; however, this does not appear to be uniform across the LHIN. Less than 30% of patients in the northern area of Central LHIN received treatment outside the LHIN. Almost half of systemic treatment patients in the southern area of the LHIN traveled outside of the LHIN, many to the Toronto Central LHIN.
• The major disease site groups managed locally include breast, colon, prostate and lung. Significant hematological malignancies are also treated within the Central LHIN. Patients requiring high intensity chemotherapy (acute leukemia/bone marrow transplants) or combined modality treatment (head and neck) currently receive care in the Toronto Central LHIN.
• Over the next few years, the prevalence of cancer patients in the population is expected to increase. If current limitations, funding restrictions and human resource challenges have been addressed, the Central LHIN projects that through repatriation and population growth, the number of systemic treatment cases managed locally will increase by 46.9%. There is an opportunity to increase the numbers of Central LHIN patients receiving treatment close to home.

Regional Capacity
• HHR: Addressing HHR shortages across the Central LHIN is critically important. Adequate resources are required to provide systemic treatment services. Current shortages and difficulties in recruiting medical oncologists (in part because of different funding models), and a lack of primary care nurses, advance practice nurses, GPOs, and pharmacists, are major barriers to increasing capacity within the Central LHIN.
• Infrastructure: The Central LHIN has reached its capacity to provide systemic treatment within the current funding and infrastructure. Infrastructure gaps will need to be addressed. There is inconsistent funding available for all hospitals to implement CPOE, a lack of operating dollars for upgraded and existing space for chemotherapy, and a lack of adequate operating funds essential to meet the anticipated growth in systemic treatment. At same time, the Stronach Regional Cancer Centre will open in fall 2009, allowing more patients requiring combined modality treatment to be treated closer to home. The opening of the Gale and Graham Wright Prostate Centre at North York General Hospital (NYGH) will support treatment in the LHIN. It is anticipated that a larger number of prostate cancer patients with early stage and metastatic disease will be treated within the Central LHIN at NYGH.
• Inter/intra regional partnerships: Over the next few years, Central will strive to coordinate services and facilitate transfer of information between regional systemic treatment sites. Partnerships and inter-regional collaboration also provide opportunities to improve systemic treatment services in the future. The Central LHIN plans to develop processes to share systemic treatment related education, information, training and organization planning.
Central East

Population
- Central East is a mixed rural and urban area. It is home to 11.8% of Ontario’s population, and includes approximately 25% of the City of Toronto’s population. The population distribution of Central East reflects the provincial population in terms of age and sex, and has a similar proportion of senior citizens. Relative to the province, Central East had a higher proportion of immigrants and visible minorities. There is also a higher unemployment rate and lower average income in Central East.

- Drawing upon cancer incidence expressed as age-adjusted rates, the highest forecasted growth in the Central East region is for prostate, followed by kidney and renal pelvis, melanoma of the skin, colon and rectum. Notwithstanding, breast, colon and rectum, lung and prostate will continue to have the highest incidence rates.

Systemic Treatment Utilization and Demand
- Considering all disease site groups, patient outflow for the Central East region was approximately 41.86% in 2006/07. Most of these systemic treatment patients were receiving treatment in neighboring LHINs.

Regional Capacity
- There are tremendous opportunities to meet the current and future demand for systemic treatment over the next three years, especially within the eastern area of the Central East LHIN. The RSTP aims to provide systemic treatment for 90% of this segment of the population.

- Within the western area of Central East LHIN, the RSTP also plans to accommodate future growth. Over the next three years, it is projected that volumes in this area will continue to increase. Planning is proceeding to increase capacity within Scarborough.

- HHR: There are clear shortages in the number of medical oncologist in the Central East LHIN, which is a barrier to providing adequate systemic treatment. Central East has the lowest ratio of medical oncologists in the province. There is a need to support the current and anticipated growth over the next three years.

- Infrastructure: There are several infrastructure gaps related to the standards. Overall, the region lacks CPOE solutions, and safety, education and training programs for staff. Opportunities do exist across the Central East LHIN to improve the delivery of systemic treatment. Planning is under way to develop a stronger partnership between programs. This will be a key enabler for collaboration around a single CPOE solution, clinical trials, establishing a joint training, education and safety program, which will help address current gaps in the short to medium term.

- Inter/intra regional partnerships: Communication within and among the regions is important to the success of the Central East LHIN RSTP. Currently there is limited access to MCCs for all regional hospitals. Currently only R.H. McLaughlin Durham Regional Cancer Centre and Peterborough Regional Health Centre actively participate in regional MCCs. However, a formal plan for regional tumour boards with MCCs is one component of the management of care by specific disease site in the Central East region.

Regional Priorities
- Regional priorities include planning to meet population need; distributing consistent quality access through the LHIN; using evidence-based care that leads to best outcomes; ensuring all aspects of systemic care match best practice; and making sure that the final product is comprehensive care that helps patients cope with cancer.
Champlain

Population
- Champlain's population is spread across the region in both rural and urban areas. Residents of Champlain are predominantly well educated and active, although disparities do exist. Population, cancer incidence and prevalence continue to grow within the region, leading to an increase in service intensity, treatments per case and treatment time. This is a serious consideration for the expected utilization of systemic treatment in the Champlain. Champlain has slightly higher cancer rates compared with Ontario.

Systemic Treatment Utilization and Demand
- The majority of Champlain systemic treatment patients seek care within their LHIN of residence, with inflow from the South East LHIN. Inter-regional travel between these neighboring LHINs highlights the need for ongoing dialogue with the South East LHIN. This is particularly relevant with regard to the Perth and Smith Falls districts, which previously fell within the Champlain catchment area.
- Within Champlain, systemic treatment is available for all disease site groups (DSGs), however, treatment by disease site group is not consistent within every LHIN hospital. Treatment for all DSGs is available at The Ottawa Hospital Cancer Center (TOHCC), the Level 1 facility within the region. Fewer and less complicated DSGs are treated at the remaining satellites. Among the satellites providing systemic treatment, Renfrew and Winchester treat the most DSGs.

Regional Capacity
- HHR: The availability of the appropriate health human resources presents a challenge to the overall implementation of the RSTP plan. The Ottawa Hospital will require additional medical oncologists to support the anticipated growth. Within the LHIN, all medical oncologists are affiliated with TOHCC. There are no community medical oncologists practicing in Champlain LHIN satellites. This does pose challenges in terms of providing medical oncologist coverage across the region. Current funding mechanisms for family physicians are barriers for maximizing their role in supporting the care of systemic treatment patients.
- Infrastructure: Because they have different levels of infrastructure capacity, each existing satellite varies significantly in the complexity of care provided and, therefore, the volume of systemic treatments delivered. Considered a priority, CPOE is being implemented across all satellites to better support safe delivery. Funding and current levels of resources do not permit the use of MCCs across all Champlain sites. Funding will also be required for central venous access device management, psychosocial support, laboratory and diagnostic monitoring, end-of-life care etc. These are all important aspects of Champlain's regional RSTP plan.
- Inter/intra regional partnerships: Champlain has a well established Regional Cancer Program with strong commitment and engagement of regional partners including administrators, clinicians and key decision makers. Many opportunities exist for the implementation of Champlain’s regional systemic treatment plan. There are plans under way to use the expertise of more developed and comprehensive satellites within Champlain LHIN to inform other satellite centers.

Priorities
- The Champlain LHIN has launched an initiative to enhance their RSTP using the standards as the improvement framework. Champlain has focused on standardization of care, linked processes and infrastructure; funding for operational and capital costs and physician reimbursement; education of health professionals; and enhanced communication.
- Immediate priorities include strengthening the quality of their existing program by standardizing care; improving communication (electronic and access to team members); and improving the systemic treatment knowledge of all team members. Once adequate funding has been received, Champlain will focus on improving access to treatment closer to home in regional satellites.
Erie St. Clair

Population
- The Erie St. Clair LHIN includes Essex County, the Municipality of Chatham-Kent and Lambton County, and was home to 651,060 people in 2006. Overall, the population of the Erie St. Clair LHIN is older than the Ontario provincial average, specifically among those 85 years and older. Life expectancy among males and females in the Erie St. Clair LHIN is significantly lower than life expectancy for Ontario overall. The incidence of cancer is also significantly higher for the Erie St. Clair LHIN than for Ontario.

Systemic Treatment Utilization and Demand
- In the Erie St. Clair LHIN, 74% of systemic cancer cases were treated within the LHIN in 2006/07. Patient outflow does occur where certain complex systemic treatment cases are unable to be treated within the LHIN. For example, a proportion of Erie St. Clair LHIN systemic treatment patients received treatment at the London Regional Cancer Program. With the exception of kidney, thyroid, bladder and uterus, most of disease site groups are treated within the LHIN at the Windsor Regional Cancer Centre (WRCC), which is a Level 2 facility. The remaining affiliate and satellite centers treat fewer disease site groups.

Regional Capacity
- HHR: The recruitment and retention of health human resources to support systemic treatment may also pose a risk to the successful delivery of safe and high-quality systemic treatment. Erie St Clair has been identified by the Ministry as having below the provincial average of Family Practitioners. Family Practitioners are important in the delivery of care. Specialists and primary physicians challenges are critical especially in the rural areas of the LHIN. These challenges create significant capacity issues for oncologists and clinics at WRCC. Medical oncologist and pharmacist shortages are another HHR issue in the ESC region.

- Infrastructure: Erie St. Clair’s ability to provide systemic treatment is reaching capacity as volumes continue to increase. In addition to health human resources, delivery will require additional functional space and financial resources within 3 to 5 years to meet complexity and intensity of systemic treatment required. Increased complexity and intensity are resulting in higher cost per case than previously provided.

- Inter/intra regional partnerships: The RSTP plans to establish a relationship with Bluewater Hospital to facilitate assessment, implementation and ongoing evaluation of the standards and service delivery.

- Erie St. Clair has identified a priority to increase the percentage of patients receiving care within the LHIN. The RSTP is committed to repatriating 10% of patients from South West and will maintain a close working relationship with the South West RSTP to minimize the financial burden.

Priorities
- The RSTP plans to focus on the achievement of the following three priorities over the next three years, as the standards are implemented: ensure patient safety and related standards; focus on patient-centred care and efficient use of resources; and continue ongoing engagement at the regional level, ensuring the use of evidence in decision making.
Hamilton Niagara Haldimand Brant

Population
- The Hamilton Niagara Haldimand Brant (HNHB) LHIN is home to approximately 11% of the Ontario population. HNHB has a higher proportion of seniors as compared with the provincial average. Approximately 3% of the HNHB population is Aboriginal, half of whom live on a reserve.
- It is expected that the demand for cancer services in the HNHB LHIN will continue to grow.

Systemic Treatment Utilization and Demand
- The vast majority of HNHB residents seek systemic treatment in their LHIN of residence. Only 5% of patients receive treatment outside of the HNHB LHIN. These patients travel to neighbouring LHINs for their systemic treatment.
- Patients from outside of the HNHB LHIN are treated within the LHIN. This patient population makes up about 15% of the patients receiving systemic treatment in the LHIN. These systemic treatment cases are predominantly from Mississauga Halton and Waterloo Wellington LHINs, which both border HNB. It is understood that these travel patterns are a result of historical referral patterns before the existence of the Grand River Regional Cancer Centre in Waterloo Wellington and the Carlo Fidani Cancer Centre in Mississauga Halton.

Regional Capacity
- HHR: The current capacity to continue to provide and increase care closer to home is limited primarily by the number of medical oncologist positions. For example, wait times in breast and gastrointestinal cancers are directly related to inadequate medical oncology resources. This includes support from GPOs.
- The most vulnerable site is the Brantford General Community Oncology Clinic. One medical oncologist, who has retired and is no longer part of the AFP, supports one clinic per week in Brantford. The second medical oncologist is a full time PhD student who does one clinic per week. To meet systemic treatment patient needs, considering the Systemic Therapy Task Force Report Guidelines, the HNHB LHIN requires additional FTE medical oncologists and hematologists to support the current volumes.
- Infrastructure: Information management infrastructure is required to support the clinical and management processes and a coordinated, efficient system across the care continuum and across the region. The HNHB Regional Cancer Informatics Strategy identifies a requirement for funding to support the regional plan. Incremental investment from both internal and external funding sources is required to achieve the goals of the HNHB informatics strategy.
- Inter/intra regional partnerships: HNHB plans to build on the many years of collaboration with the community oncology clinics and other providers in the LHIN to achieve a coordinated system of systemic treatment services across the LHIN. To achieve this, the HNHB RSTP plans to take a systems approach to defining the clinical and management processes across the program. The RSTP is working to make sure that quality measures are in place across all systemic treatment facilities in the region.

Priorities
- The two long-term goals of the HNHB RSTP are to improve patient safety in the delivery of systemic treatment, and to improve timely access to high-quality treatment as close to home as possible. The next steps are to build health human resource capacity, to implement the disease site team model across the LHIN, and to link the Niagara team with the Department of Oncology at McMaster University.
Central West and Mississauga Halton

Population

- The Central West and Mississauga Halton (CW/MH) LHINs are home to nearly 15% of Ontario's population. Together they anticipate the highest overall growth into the year 2012. These regions have a very heterogeneous population with a larger immigrant population and a higher percentage of visible minorities compared with the provincial average.

- The incidence of cancer in the CW/MH LHINs is expected to increase at a higher rate than many of the other LHINs within the province over the next five years.

Systemic Treatment Utilization and Demand

- Approximately 75% of the systemic treatment activity was attributed to four major disease site groups: breast, colorectal, lung, and non-Hodgkin’s lymphoma.

- Patient outflow occurs in CW/MH as only 50% of residents seek treatment in their own LHIN, as of 2006/07. The majority of the remaining 41% received treatment in the Toronto Central LHIN. This net export represents an obligation and opportunity for CW/MH to repatriate patients to the region so they can be treated closer to home, particularly among patient requiring treatment for common cancers. Conversely, CW/MH provides treatment for those patients living outside this LHIN, as a result of patient inflow from other regions. Based on previous years’ trends, new patient activity is increasing annually. Intensity and complexity of systemic treatment is expected to increase significantly over time.

Regional Capacity

- **HHR:** Medical oncology physician resources are significantly lacking. This requires urgent attention given the expected demographic growth in cancer diagnoses. The LHIN is under-resourced in terms of health human resources to support systemic treatment. This is a challenge given current and future volumes.

- **Infrastructure:** There are significant limitations in all CW/MH systemic treatment facilities because of a lack of infrastructure and human resources. There are some specialized programs particularly under-serviced in the region, including facilities for the treatment of leukemia, head and neck cancer, and malignancies of the central nervous system. There are also significant pressures on ambulatory space for seeing and treating cancer patients. The addition of a new Level 3 systemic treatment facility at Halton Health Sciences in 2014 will support the regions. Nevertheless, it will remain a challenge as to how best to accommodate the expected increase in systemic treatment visits that will occur in the region by 2014.

Priorities

- The CW/MH RSTP plan has identified the following three issues as high priorities for the implementation of the program: regional data collection and management to regularly report on clinical activity and drug expenditures; safety and standards for chemotherapy administration including nursing certification; and regional oncology clinical trials. The formation of separate working groups to address each priority is currently in progress.

- Other priorities for the RSTP include regional HHR planning; regional hospital infrastructure review; non-formulary systemic treatment utilization; regional availability of MCCs; and central access for referrals.
North East

Population
- The North East LHIN anticipates an overall decline in population over the next three years. Most of this decline will be among the population under the age of 50. Notwithstanding, the Northeast LHIN has a higher proportion of those aged 65 or older.
- There is also a larger Aboriginal population in this region than provincial average. This segment of the population is growing. Rates of chronic disease incidence also are higher among the Aboriginal population than the population in general. The daily smoking and obesity rates in the LHIN population are also higher than the provincial norm. Income and education play roles in the health of the North East LHIN.

Systemic Treatment Utilization and Demand
- In 2006/07, 93% of North East residents sought treatment in their LHIN of residence, while the remaining 7% outflow were treated elsewhere. The majority of residents seeking treatment outside the North East LHIN did so for more complex cancers requiring more complex planning and treatment.
- Most disease sites are treated within the North East LHIN, although treatment of disease site groups differs by treatment facility and complex of care required.

Regional Capacity
- HHR: The North East LHIN is challenged by the lack of pharmacists and by the limited physician supervision available in the CON(C) (Certified in Oncology Nursing (Canada)) sites. North East LHIN relies extensively on the trained CON(C) nurse to fill the role of a pharmacy technician in the mixing of chemotherapy, which is in the nursing scope of practice. This is an innovative use of resources to address current gaps. The nurses in the smaller communities consult with the RCP pharmacist as required. Nevertheless, there are anticipated shortages of nursing resources. To address issues of upcoming nursing shortages as predicted by many healthcare bodies in Canada, North East would like to incorporate oncology training into the local nursing curriculum to promote initial interest among nursing students in directing their careers into oncology.
- Pharmacist, pharmacy technician and physician shortages in the North East LHIN will also be an ongoing challenge to the delivery of quality systemic treatment.
- Infrastructure: The volume of delivered chemotherapy at each of the sites will probably not increase dramatically over the years, as the proportion of chemotherapy given outside of the Regional Cancer Program varied over the last few years by only a few percentage points. The North Bay General Hospital is building a new facility and expanding its chemotherapy suite to approximately 10 spaces. The Timmins Hospital is quite adequately resourced for space at this time, with approximately six spaces. The North Bay site has a dedicated pharmacist who is very well prepared and versed in the preparation of chemotherapy. Timmins has good pharmacy support; however, this support is not dedicated to oncology.
- The North East RSTP is planning to implement CPOE for its latest site and it will be a compatible system to the RCP in Sudbury. The availability of CPOE that links hospitals in more remote areas will vastly improve communication between the sites.
North West

Population
• The North West LHIN serves a population spread over half of the landmass of Ontario. Aboriginal people make up a substantially greater proportion of the population in North West LHIN (13.9%) than the provincial average (1.7%). The incidence of cancer in the Aboriginal population is increasing at such a fast rate that it now approaches, and will soon exceed, the incidence of cancer of the general population in Ontario.
• There is an immediate need to reduce the burden of cancer for Aboriginal people in Ontario by implementing strategies to address issues such as the lack of accessible services, increasing prevalence of risk factors, low participation rates for cancer screening, greater rates of late-stage diagnosis and greater severity of disease at diagnosis.

Systemic Treatment Utilization and Demand
• The vast majority of patients from the North West LHIN are treated in Northwestern Ontario, with notable exceptions including head and neck and some thoracic patients traveling to Southern Ontario and Manitoba. Historically, some patients from the western area of the North West LHIN are referred to oncologists in Manitoba. Many of these patients return to Ontario to receive their systemic treatment.

Regional Capacity
• HHR: Vacancies exist for many of the key specialist physicians required to deliver and support the North West RSTP. This includes medical oncologists for systemic treatment. Recruiting and retaining healthcare human resources in North West to fill both existing and anticipated future vacancies will likely remain a significant challenge.
• Infrastructure: There are 13 regional satellite hospital sites established across the North West LHIN to provide timely access to care close to home for residents of these communities.
• The systemic treatment programs, especially at satellite sites, will require adequate funding to continue to provide chemotherapy services. This includes financial compensation for family physicians who supervise chemotherapy delivery at satellite sites, appropriate funding that recognizes the workload of the chemotherapy nurse, and increased reimbursement for chemotherapy drugs through the New Drug Funding Program.
• The infrastructure, including pumps and fume hoods, at the Thunder Bay Regional Health Science Centre (TBRHSC) and each satellite site will need to be replaced and upgraded periodically. The North West LHIN’s capacity to provide systemic treatment within this LHIN today is adequate, but planning must continue. With 14 facilities, one Level 2 regional cancer centre and 13 Level 4 satellite sites, the region has sufficient capacity to meet the current demand for systemic treatment.

• Inter/intra regional communication: Optimizing the use of telemedicine is an opportunity that North West has seized upon to support and improve the delivery of systemic treatment across the LHIN. More than one quarter of all telemedicine use at TBRHSC involves connecting with cancer patients in the region. For example, the Regional Cancer Care - Northwest is the single largest user, with more than 2,758 videoconference consults in 2007.

Priorities
• The North West’s RSTP priorities are to ensure the availability of timely, high-quality cancer services as close to home as possible through the RSTP outreach clinics, and increase the use of telemedicine.
• Addressing the challenge of recruiting and maintaining adequate health human resources is also a priority for the North West LHIN through the RSTP.
North Simcoe Muskoka

Population
- The North Simcoe Muskoka (NSM) LHIN has a population of approximately 416,900 people. Within Ontario, NSM has the third highest percentage of Aboriginal peoples. This segment of the NSM population has been increasing, and is anticipated to experience a higher mortality rate than the population as a whole. The proportion of the total population that is over the age of 65 is expected to increase.
- Within the NSM LHIN, the rate of incidence for the most common cancers is consistent with historical rates of growth. It is anticipated that the incidence of several disease site groups will increase, including prostate, colon and rectum, melanoma of the skin, thyroid, pancreas and stomach. However, breast, lung, colon and rectum, and prostate will continue to represent the vast majority of cases treated.

Systemic Treatment Utilization and Demand
- Approximately 85% of patients receiving systemic treatment in NSM are residents of this LHIN. In 2006/07 there was an outflow of approximately 28% of NSM systemic treatment patients. For example, patients traveled to other LHINs to receive specialized cancer consultation that is not available in the NSM LHIN.
- It is projected that the number of patients from NSM receiving treatment in their LHIN of residence will increase now that radiation treatment is available within the LHIN. Patients who are receiving combined chemotherapy and radiation treatment can now receive their full treatment closer to home.

Regional Capacity
- NSM LHIN is currently under-resourced in a number of areas required to support systemic treatment. Current chemotherapy capacity is limited by a shortage of health human resources (HHR) and physical space.
- HHR: The increasing shortage of all categories of healthcare providers involved in systemic treatment creates challenges. For example, there is a shortage of medical oncologists, pharmacists and nurses in the region. Vacancies and funding shortfalls exist. Funding for the recruitment and retention of physicians, pharmacists and nurses will enable the region to implement a successful and sustainable systemic treatment plan.
- Infrastructure: With the opening of the regional cancer centre in 2011, it is expected that the number of NSM cancer patients receiving treatment in the region will increase and the need to travel to Toronto for treatment will be significantly diminished. Current gaps in infrastructure and funding exist, creating challenges for the region to provide access to care.
- Inter/intra regional partnerships: Within the NSM LHIN, many opportunities exist to improve the delivery of systemic treatment services. In terms of meeting systemic treatment standards and guidelines, there are great opportunities for improvement and growth across the systemic treatment facilities. Networking and collaboration across healthcare facilities in North Simcoe Muskoka, one of the newest RCPs, is evolving. The Royal Victoria Hospital has entered into a partnership with the University of Toronto’s Faculty of Medicine to develop a Family Medicine Residency Program. Hospice House, a 10-bed residential hospice, will open in 2009, and a Gilda’s Club will open in 2010–2011. Both partners will enhance care delivery in the LHIN.

Priorities
- The NSM RSTP has prioritized the need to address current and impending HHR requirements related to pharmacy, medical oncology and nursing.
South East

Population
• Among Ontario’s southern LHINs, the South East LHIN has the lowest population density and a relatively largely rural population. While the majority of the population resides in the medium-sized urban centers spread throughout the LHIN, there are a number of small rural communities. Patient transportation for treatment is, therefore, a challenge.

• The overall population of the South East LHIN is expected to grow approximately 4% over the next three years. Compared with the Ontario average, this LHIN has a higher percentage of residents over 65 years old.

Systemic Treatment Utilization and Demand
• The majority of South East patients receive their cancer treatment in the South East, with a 10% outflow of patients seeking treatment in Champlain. In terms of patient inflow, there is a small proportion of residents from the neighbouring LHIN that receive treatment in South East. Inter-regional travel occurs when systemic treatment patients live near or on LHIN boundaries.

• All disease site groups (DSG) are treated within the South East LHIN. It is anticipated that the number of treated cases will continue to grow in the LHIN. Implementation of the RSTP plan will support the increasing number of cases treated at community and satellite facilities. This will occur as the number of patients electing to be treated closer to home increases.

Regional Capacity
• HHR: Health human resources challenges in the South East LHIN include two vacant medical oncologist positions at the regional cancer center. It is anticipated that the availability of nursing professionals to support systemic treatment facilities across the LHIN may also become an issue in the near future, along with pharmacy recruitment and retention.

• Another challenge relates to physician remuneration for the provision of systemic services at community facilities. This has been identified as a challenge to recruiting and retaining medical oncologists in the South East.

• Infrastructure: In terms of the region’s capacity to provide treatment, there are very real space challenges at the regional cancer centre and at Quinte Health in Belleville. The Cancer Centre of Southeastern Ontario has recently embarked on renovation/expansion projects that will double the number of chemotherapy treatment spaces. This will address the anticipated increase in demand throughout the region.

• Planning continues within the South East LHIN. For example, the RSTP is examining existing facilities and requirements for serving the systemic treatment patient population now and into the future. There is also a need for a mechanism to identify patients for whom treatment within a community or satellite facility is an appropriate option.

• From a funding perspective, drug cost reimbursement for residual systemic drugs is an important concern in the South East, particularly in the smaller satellite facilities. Cost can be significant for and has become a barrier to some existing smaller hospitals within the region.

• Along with HHR and infrastructure, enhanced education and training of health human resources are key to building a high-quality Regional Systemic Treatment Program. The lack of available HHR education and training currently remain a barrier to success. There is a need for supporting infrastructure related to written guidelines and access to online and hard copies of drug information.
South West

Population
- The South West LHIN is home to close to a million residents with a largely rural population. It has slightly more seniors over the age of 50 relative to the provincial average. The projected population growth rate is less than the provincial average, which is similar to Erie St. Clair, Toronto Central and South East LHINs.
- A high percentage of patients in this LHIN reside in rural areas. Regional geography provides challenges for patient travel to treatment sites, especially during the winter months.

Systemic Treatment Utilization and Demand
- Patients living within the South West LHIN generally receive systemic treatment in their LHIN of residence. The South West LHIN also provides treatment for residents residing in the Erie St. Clair LHIN. In 2006/07, there was an inflow of patients (28%) who reside in Erie St. Clair. Overall, there is generally a small proportion of outflow. For example, 6% of South West LHIN patients received treatment in the neighbouring Waterloo Wellington LHIN in 2006/07.
- There is a total of seven systemic treatment facilities in the South West LHIN. As systemic treatment for common cancers is increasingly given in community hospitals closer to patients’ homes, the regional cancer centre (RCC) continues to anticipate growth. For example, even with a 10% repatriation of chemotherapy patients closer to home, the RCC anticipates only a slight reduction in the overall rate of increase.

Regional Capacity
- Overall, HHR is one of South West’s greatest challenges. There are increasing shortages of physicians, and nursing and pharmacy staff. Challenges exist in the short to intermediate term.
- Physician support remains a critical issue in Owen Sound. This particular systemic facility may not be able to increase capacity for treatment.
- Infrastructure: Capacity exists to increase treatment in all regional sites, except the London Regional Cancer Program, if funding is made available for infrastructure build.
- With regard to additional infrastructure, another Level 4 facility near London, has expressed interest in joining the South West RSTP. As a result, work has started to explore this option.
- Overall there exist barriers and challenges to the successful implementation of the regional systemic treatment program in the South West LHIN. Without new funding to support regional systemic treatment partners, implementing the RSTP and increasing systemic treatment capacity in the South West region is not possible.

Priorities
- The South West RSTP plan outlines several priorities for the RSTP. Priorities align with Ontario cancer system goals and include ensuring safe chemotherapy administration; standardizing care; communicating effectively between partners; advocating for funding; and educating all systemic treatment providers.
Toronto Central

Population

- The Toronto Central (TC) LHIN is a completely urbanized region with a diverse population. There is a large proportion of immigrants and visible minorities with more than 100 languages spoken. Many of these characteristics are shared by other LHINs in the Greater Toronto Area. The number of new cancer patients is projected to increase significantly across Ontario largely because of an aging population and population growth.

- The demographic patterns in TC LHIN may be the reason for higher rates of particular cancers that may disproportionately affect certain groups. For example, hepatoma (a cancer of the liver) appears to be more common in Asian populations.

Systemic Treatment Utilization and Demand

- Systemic treatment is available in TC LHIN for every disease site group.

- The majority of Toronto Central LHIN patients requiring systemic treatment receive care within their LHIN of residence, but make up only 35% of the patients treated within the LHIN.

- Of the patients receiving systemic therapy in TC LHIN, 65% are from other LHINs. Some of these patients appropriately cross LHIN boundaries for closest-to-home care, but many are coming for clinical trials; specialized, complex, multidisciplinary care; innovative or novel therapies; or provincially resourced services. Particular strain is evident in the system with respect to diseases and procedures — such as leukemia and transplantation — that require considerable inpatient resources.

- Shared care, when possible within the Greater Toronto Area, has been identified as a sustainable and patient-centered approach to care. This approach would see specialized services provided in the Toronto Central LHIN while basic support services would be provided in a patient’s LHIN of residence. Additional infrastructure and budgetary support would be necessary to provide this model of care.

- If a gradual shift in the provision of systemic treatment closer to home across the province is realized, Toronto Central anticipates a slower increase in volumes over time.

Regional Capacity

- **HHR:** Toronto Central anticipates a large turnover related to the aging of the workforce, resulting in an increase in retirement. With this comes a loss in oncology expertise. Toronto is already finding that new recruits have much less experience. Oncology education/training is therefore important for the future delivery of safe care.

- **Infrastructure:** Both Princess Margaret Hospital and Odette Cancer Centre have CPOE systems for chemotherapy. Implementation of CPOE is anticipated to occur in Mount Sinai Hospital within the next year. Other hospitals in the region have all expressed a desire to implement a CPOE system and are awaiting support and funding opportunities, as well as the results of the piloting and testing of the new cancer CPOE system in Ontario.

- **As treatment volumes increase, there is a need to appropriately upgrade infrastructure to support the added number of patients being seen and the added complexity of care. The most critical need is space for both chemotherapy preparation and storage in pharmacy and patient administration facilities to accommodate larger volumes and longer administration times.**

- **Inter/intra regional partnerships:** Current gaps exist in the availability of MCCs by particular disease sites. There may also be gaps in appropriate medical oncology expertise participating in existing MCCs.

- **There are two significant areas in the standards with which the Toronto Central RCP is in only partial concordance: Computerized Physician Order Entry and Multidisciplinary Cancer Conferences.**
**Waterloo Wellington**

**Population**
- Within the Waterloo Wellington LHIN, cancer incidence is predicted to increase by 12% for males and by 7.9% for females by 2010. The highest forecasted growth is expected in these disease site groups: prostate, colorectal, breast, lung and bronchus, kidney/renal and melanoma. Nevertheless, breast, colon and rectum, lung and prostate will continue to have the highest incidence rates.

**Systemic Treatment Utilization and Demand**
- In 2006/07, approximately 70% of the LHIN patients diagnosed with cancer received treatment within the Waterloo Wellington LHIN boarders. The region will be reviewing referral patterns to ensure it meets the needs of the community.
- The disease site groups treated at Grand River Regional Cancer Centre (GRRCC) and the Cambridge systemic treatment facility include all disease sites except head and neck. Guelph General Hospital, Louise Marshall Hospital in Mt Forest and Groves Memorial Hospital in Fergus predominantly treat gastrointestinal, breast and lung disease sites, as well as provide supportive care treatments. Overall, treatment regimens vary from disease site to disease site according to complexity.

**Regional Capacity**
- **HHR:** There are increasing shortages among all categories of health human resources providing and supporting systemic treatment. This is particularly acute for physicians, nurses and pharmacy staff.
- To have medical oncologist support available to meet the growing demand for medical oncology services, there is a need for funding for additional healthcare providers in the system.

**Infrastructure:** Continuous monitoring and building of capacity in the community clinics is required. With the support of the medical oncologists, family physicians, internists, and pharmacy and nursing in the community clinics. The Waterloo Wellington RSTP facilities plan to support both chemotherapy and supportive care treatments.
- At present, the Waterloo Wellington RSTP has capacity to increase the number of treated patients in the systemic suite at the GRRCC and the community clinics. The community clinics have not yet reached full capacity for systemic treatment.
- The RSTP in Waterloo Wellington is now redesigning processes to make the best use of its existing capacity to provide treatment at the GRRCC and community clinic facilities.
- To ensure the success of the RSTP, the region needs funding for CPOE implementation, and dedicated educational time and funding for all Waterloo Wellington healthcare professionals working in oncology.
Appendix A

PEBC Systemic Standards

The Regional Models of Care for Systemic Treatment: Standards for Organization and Delivery of Systemic Treatment are available online at:

The following tables, taken from the standards, outline the hospital level-specific standards.
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Table 1. Standards for Health Care Providers and their Roles.

All levels of care:
- Where the Standard identifies that services are to be provided in a multidisciplinary environment, all providers required for the service at a particular level are available or readily accessible.
- All patients being considered for systemic treatment must be assessed by an oncologist.
- All treatment plans are recommended and parenteral systemic treatment prescribed by the consulting oncologist.
- Individual treatments as part of an approved course may be ordered by a family physician or internist with oncology training.
- Ongoing care must be coordinated with the consulting oncologist.
- Only Registered Nurses with appropriate chemotherapy certification may administer parenteral drugs.
- Only pharmacists or pharmacy technicians will prepare systemic treatment.

<table>
<thead>
<tr>
<th>Level 4 (Satellite)</th>
<th>Level 3 (Affiliate)</th>
<th>Level 2 (ICP)</th>
<th>Level 1 (ICP)</th>
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<tbody>
<tr>
<td><strong>Oncologists</strong></td>
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<tr>
<td>• Access to oncologist from a level 1, 2 or 3 hospital required to determine and recommend the treatment plan, to manage disease status, and to discuss patient management issues with the health care team.</td>
<td>• Oncologist(s) on staff and on site.</td>
<td>Level 3 plus: • Developed specific subspecialized practices.</td>
<td>Level 2 plus: • Academic responsibilities including teaching and research.</td>
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<tr>
<td><strong>Family physicians / Internists</strong></td>
<td>• Supervise IV systemic treatment administration with one physician on site or readily available (within 15 minutes) during the drug administration time.</td>
<td>Same as Level 4.</td>
<td>Same as Level 3.</td>
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<tr>
<td>• Consult oncologist regarding patient management issues (e.g. dose alteration).</td>
<td>• Assess and manage toxicity.</td>
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<tr>
<td>• Participate in education programs related to the management of patients receiving systemic treatment.</td>
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<tr>
<td><strong>Nurses</strong></td>
<td>• Administer systemic treatment, including monitoring and intervening for side effects and reactions, and provide supportive care to the patient.</td>
<td>Level 4 plus: • Plans to implement Advanced Oncology Nurse.</td>
<td>Level 3 plus: • Specialized oncology nurses working towards the national certification CON(C) within five years of employment.</td>
</tr>
<tr>
<td>• Provide patient education related to planned systemic treatment, in collaboration with pharmacist and physicians.</td>
<td>• Communicate with ICP or affiliate team members and collaborating with supervising physicians as necessary.</td>
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<td>• Advanced Oncology Nurse to manage selected patient populations independently or interdependently with oncologists.</td>
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<td>• Manage symptoms.</td>
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<td><strong>Pharmacists</strong></td>
<td>• Review and verify systemic treatment orders and supervise the preparation and dispensing of systemic treatment.</td>
<td>Same as Level 4.</td>
<td>Level 3 plus: • ICP pharmacists provide support and consultation to regional systemic treatment program.</td>
</tr>
<tr>
<td>• Consult with ICP or affiliate pharmacist as required.</td>
<td>• Pharmacist or pharmacy technician manages the new drug funding program reimbursement process.</td>
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<td>• Dedicated oncology pharmacists provide clinical services.</td>
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<tr>
<td>• Provide patient education related to medications in collaboration with nurses and physicians.</td>
<td>• Establish protocols for medication use in clinical trials.</td>
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<tr>
<td>• Supervise/manage dispensing and documentation of clinical trials.</td>
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<tr>
<td><strong>Pharmacy technicians</strong></td>
<td>• Prepare systemic treatment under supervision of a pharmacist.</td>
<td>Same as Level 4.</td>
<td>Same as Level 3.</td>
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</table>

Abbreviations: Advanced Practice Nurse prepared at the Master’s level; ICP – integrated cancer program; IV – intravenous; CON(C) Certified Oncology Nurse (Canada).
Table 2. Standards for the Education of Health Care Providers.

All levels of care:
- Minimum standards are met for orientation and annual continuing education/mentoring in systemic treatment for all staff working in oncology services.
- Providers are competent to provide the designated level of service and have ongoing education to maintain that competence.
- Registered nurses meet organizational policy and standards to be certified in chemotherapy administration.

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<tr>
<th>Level 4 (Satellite)</th>
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<th>Level 2 (ICP)</th>
<th>Level 1 (ICP)</th>
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<tbody>
<tr>
<td><strong>Oncologists</strong></td>
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<tr>
<td>• Ongoing CME as per Royal College of Physicians and Surgeons of Canada.</td>
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<tr>
<td>• Participation in multidisciplinary cancer conferences as required.</td>
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<td>Same as Level 3.</td>
<td>Same as Level 2.</td>
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<tr>
<td><strong>Family physicians / Internists</strong></td>
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<tr>
<td>• Initial orientation and annual continuing medical education.</td>
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<tr>
<td>• Mentoring should be available by an oncologist.</td>
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<tr>
<td>• Relevant training for systemic treatment being delivered.</td>
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<tr>
<td>• Knowledge of CCO regional systemic treatment guidelines and standards and regional policies and procedures.</td>
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<tr>
<td>• Participation in multidisciplinary cancer conferences as required.</td>
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<tr>
<td>Same as Level 4.</td>
<td>Same as Level 3.</td>
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<tr>
<td>• Level 4 plus:</td>
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<tr>
<td>• Registered Nurse specialized in oncology, certified in systemic treatment administration, and annually updated in guidelines and procedures.</td>
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<td>• Plans to implement Advanced Oncology Nursing roles.</td>
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<tr>
<td>Level 3 plus:</td>
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<tr>
<td>• Specialized Oncology Nurses working towards CON(C): certification should be obtained within 5 years of new employment.</td>
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<tr>
<td>• Advanced Oncology Nurse (Clinical Nurse Specialist or Acute Care Nurse Practitioner, Master’s preparation) with additional knowledge and skills in managing patients on systemic treatment.</td>
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<tr>
<td>• Additional education for nurses managing transplant patients.</td>
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<tr>
<td>Same as Level 2.</td>
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EVIDENCE-BASED SERIES #12-10

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<tr>
<th>Pharmacists</th>
<th>Pharmacy technicians</th>
</tr>
</thead>
</table>
| • Specialized training in oncology.  
  • RSTP should provide a training or certification program for staff involved in the handling of cytotoxic agents and have a policy on re-training. This may be done at or in collaboration with an ICP or Affiliate institution.  
  • Training may include institutional training/orientation program for oncology pharmacists, continuing education programs or courses, oncology pharmacy review courses (e.g. ASHP Oncology Review course), preceptorship programs. | Same as Level 4.  
Same as Level 3.  
Same as Level 2. |

Abbreviations: CCO – Cancer Care Ontario; CME – continuing medical education; CON(C) – Certified in Oncology Nursing (Canada) (www.cna.aiic.ca); CVAD – central venous access devices; ICP – integrated cancer program; ASHP – American Society of Health-System Pharmacists
## Standards for Service Type and Complexity

All levels of care:
- Services are provided in the most appropriate setting where patients can be assured the best quality outcomes.
- Each level has access to the other levels where necessary, for consultation or transfer for service delivery.

<table>
<thead>
<tr>
<th>Service type</th>
<th>Level 4 (Satellite)</th>
<th>Level 3 (Affiliate)</th>
<th>Level 2 (ICP)</th>
<th>Level 1 (ICP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complexity</td>
<td>Low to high complexity</td>
<td>Same as Level 4 plus: Delivery of first dose high risk drugs.</td>
<td>High complexity</td>
<td>Same as Level 2.</td>
</tr>
<tr>
<td></td>
<td>- Assessment for, management and coordination of central venous access devices (such as PICC or port-a-cath).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Drugs with a high risk of hypersensitivity reaction at first dose will only be given at level 4 centres as agreed upon by the RSTP.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Delivery of systemic treatment in presence of co-morbidity or significant organ dysfunction that increases risk of toxicity and need for dose adjustments, if agreed upon by RSTP.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Monitoring and management of hypersensitivity reactions.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Same as Level 4 plus: Adhere to CCO patient education standards.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient education</td>
<td>If possible, on site patient education program that meets the CCO standards.</td>
<td>Level 3 plus: Patient education program related to radiation treatment.</td>
<td>Same as Level 2 plus.</td>
<td>Level 2.</td>
</tr>
<tr>
<td>Supportive care</td>
<td>Access to supportive care services to address specific patient needs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical trials</td>
<td>If clinical trials are given at the institution, they must be under direction of oncologist.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Family physicians or internists with oncology training may be co-investigators.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Specific clinical trial education for patients and health care providers.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Specific clinical trial education for patients and health care providers.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Clinical trials including phase 2 and 3.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: CCO – Cancer Care Ontario; ICP – integrated cancer program; PICC – peripherally inserted central catheter; RSTP – Regional Systemic Treatment Program.

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**Table 3.** Standards for Service Type and Complexity.
**EVIDENCE-BASED SERIES #12-10**

### Table 4.
**Standards for Service Volumes.**

All levels of care:
- There is sufficient patient volume at the location to maintain competency and skills of professional providers to address the acuity and complexity of the treatment modalities and/or to provide cost-effective use of resources and drugs. (Refer to Discussion in Section 2 of EBS #12-10 Standard).
- The number of patients that can be treated will be affected by the complexity of treatment regimens.
- Staffing must be sufficient to provide safe quality care at all times, including during vacation, illness, etc.

### Table 5.
**Standards for quality assurance and safety.**

All levels of care:
- Cancer care includes management of complications of therapy.
- All centres will follow CCO’s Safe Handling of Cytotoxic Agents Standards.
- Up to date guidelines from the Regional Systemic Treatment Program are available for staff for relevant disease sites and relevant symptom management.
- Training and guidelines include management of oncology emergencies.
- Access to specialized centres (ICP level 1 or 2 or Affiliate 3) for support of quality and standards.
- Provision of systemic treatment in the most effective manner.

<table>
<thead>
<tr>
<th></th>
<th>Level 4 (Satellite)</th>
<th>Level 3 (Affiliate)</th>
<th>Level 2 (ICP)</th>
<th>Level 1 (ICP)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safe handling</strong></td>
<td>• Policies and educational programs available for all staff involved in systemic treatment including storage, transport, spill management, preparation, administration, and waste disposal.</td>
<td>Same as Level 4.</td>
<td>Same as Level 3.</td>
<td>Same as Level 2.</td>
</tr>
<tr>
<td><strong>Patient outcomes</strong></td>
<td>• Patient safety program that includes review of all medication adverse events and system improvement. Quality Indicators: • Assessment of toxicities and documentation of adverse reaction.</td>
<td>Same as Level 4.</td>
<td>Same as Level 3.</td>
<td>Same as Level 2.</td>
</tr>
<tr>
<td><strong>Organization outcomes</strong></td>
<td>• Multidisciplinary cancer conference participation encouraged (in line with CCO standards) Quality Indicators: • Track volume of patients treated. • Other indicators such as monitoring adherence to guidelines.</td>
<td>Level 4 plus: • Multidisciplinary cancer conference participation required.</td>
<td>Same as Level 3.</td>
<td>Same as Level 2.</td>
</tr>
<tr>
<td><strong>System outcomes</strong></td>
<td>Quality Indicators: • Percentage of patients treated close to home.</td>
<td>Level 4 plus: • Monitoring systemic treatment wait times according to CCO standards.</td>
<td>Same as Level 3.</td>
<td>Same as Level 2.</td>
</tr>
</tbody>
</table>

**Abbreviations:**  
CCO – Cancer Care Ontario; ICP – integrated cancer program.
### Table 6. Standards for Facility Requirements.

All levels of care:
- The necessary infrastructure is in place to provide the service level.

<table>
<thead>
<tr>
<th>Clinic space</th>
<th>Level 4 (Satellite)</th>
<th>Level 3 (Affiliate)</th>
<th>Level 2 (ICP)</th>
<th>Level 1 (ICP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Dedicated systemic treatment area adequate for volume of treatment visits.</td>
<td>Same as Level 4.</td>
<td>Same as Level 3.</td>
<td>Level 2 plus:</td>
</tr>
<tr>
<td></td>
<td>• Adequate space to provide clinical trials if applicable.</td>
<td></td>
<td></td>
<td>• Dedicated clinical trials infrastructure on site.</td>
</tr>
<tr>
<td>Clinic equipment</td>
<td>• Computer, fax and phone accessibility.</td>
<td>Same as Level 4.</td>
<td>Same as Level 3.</td>
<td>Same as Level 2.</td>
</tr>
<tr>
<td></td>
<td>• Computer software available to provide computerized physician order entry.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systemic treatment and facility safety equipment</td>
<td>• Oxygen.</td>
<td>Same as Level 4.</td>
<td>Same as Level 3.</td>
<td>Same as Level 2.</td>
</tr>
<tr>
<td></td>
<td>• Biological Safety Cabinet (class 2) and externally vented.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• IV equipment for parenteral therapy.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• IV equipment for ambulatory or inpatient infusional therapy (pumps).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Personal protective equipment for staff who are handling systemic treatment or waste.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Spill kits and supplies for decontamination.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Emergency resuscitation equipment (e.g. crash cart, other emergency supplies, drugs, oxygen and suction) in case of cardiorespiratory arrest or anaphylaxis.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Supportive drugs for treatment of extravasation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Designated clinical trial storage if doing clinic trials.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional facilities</td>
<td>• Emergency department.</td>
<td>Same as Level 4 plus:</td>
<td>Level 3 plus:</td>
<td>Same as Level 2.</td>
</tr>
<tr>
<td></td>
<td>• Pharmacy for secure storage and preparation of systemic treatment drugs.</td>
<td>• Intensive Care Unit and specialized diagnostic imaging on site.</td>
<td>• Radiation therapy services on site.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Access to inpatient beds for oncology patients.</td>
<td></td>
<td>• Pathology services on site.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Access to local specialized diagnostic imaging (CT, US, nuclear medicine) and laboratory tests/pathology for monitoring of systemic treatment.</td>
<td></td>
<td>• On site MRI.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Access to Intensive Care Unit.</td>
<td></td>
<td>• Specialized diagnostic imaging on site.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Access to facility for insertion of central venous catheters/port-a-caths.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Potential for videoconferencing, remote web-based teaching, and patient management as part of MCC.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: CT – computed tomography; ICP – integrated cancer program; IV – intravenous; MCC – multidisciplinary cancer conference; MRI – magnetic resonance imaging; US – ultrasound.
### Table 7.
**Standards for Administrative and Organizational Responsibilities.**

**All levels of care:**
- Should measure common provincial indicators.
- May also measure regional indicators as defined by the RCP.

<table>
<thead>
<tr>
<th>Level 4 (Satellite)</th>
<th>Level 3 (Affiliate)</th>
<th>Level 2 (ICP)</th>
<th>Level 1 (ICP)</th>
</tr>
</thead>
</table>
| **Data reporting requirements** | • Outcome indicators that are specific, measurable, attainable/achievable/action oriented, relevant, time-framed (SMART).  
• Decision support resources to collate and analyze quality indicators. | Same as Level 4. | Same as Level 3 Plus:  
• CCO data book compliant.  
• Regional vice president and regional systemic treatment leads. | Same as Level 2. |
| **Leadership** | • Physician and administrative leads identified with defined roles to manage strategic and operational issues through regional forums.  
• Formal linkage to a Regional Systemic Treatment Program.  
• Nursing and pharmacy administrative leads identified with defined roles to manage strategic and operational issues through the Regional Systemic Treatment Program. | Level 4 plus:  
• May have formalized linkages with a satellite. | Level 3 plus:  
• Regional vice president and regional systemic treatment leads. | Same as Level 2. |
| **Logistical support** | • Clerical staff and clinic facilities to support patient scheduling, health record management, and clinic management including clinic and administrative supplies for systemic treatment suites and ambulatory clinic visits. | Same as Level 4. | Same as Level 3. | Same as Level 2. |
| **Information systems** | • Information system hardware and support to maintain a secure electronic systemic treatment order/entry program and other electronic systems as indicated (e.g., electronic patient record). | Same as Level 4. | Same as Level 3. | Same as Level 2. |

Abbreviations: ICP – integrated cancer program.
Appendix B

Systemic Demand Model Methodology and Summary

This provincial and regional planning tool was developed by Cancer Care Ontario (Provincial Planning) and University of Toronto (Centre for Research in Healthcare Engineering). Building upon the assumptions underlying existing data, the region leads and steering committee members provided input into model validation and future assumptions. Referred to as the demand model, this tool was designed to support systemic treatment planning and resource management.

The demand model estimates future demand for systemic treatment across the province. This model is a decision support tool that incorporates key regional planning assumptions that have been submitted by the regions. It has been developed to support and inform decision making. The demand model enables testing of different scenarios and assumptions about systemic treatment utilization and patient travel. It is highly flexible, relies on user input to guide the modelling flow, and forecasts future annual demands and models patients' travel patterns. The model outputs future provincial demand by facility levels, which demonstrates that no region functions in isolation.

Data

The demand model uses National Ambulatory Care Reporting System (NACRS) data linked by health insurance number (HIN) to the Ontario Cancer Registry (OCR) to provide FY2006/07 patient volumes by disease site group (DSG). The decision to use the NACRS data set comes out of the work undertaken by the RSTP Methodology Working Group. Regional Working Group members provided input and assisted with validation.

The demand model forecasts resulting systemic treatment demand by patients' LHIN using several key inputs. The modelling tool relies upon incident forecasts (by Local Health Integration Network (LHIN) and by Disease Site Group (DSG)). For the purposes of the model, the DSG classification has been consolidated into 11 groups: one group for each of the top 10 DSGs by volume for FY2005/06 and an 11th group combining the remaining less frequent DSGs. Another input is utilization rates, which are based upon historical systemic treatment volumes. Forecasting is based on forecasts of incidence, which include the impact of increasing age, population and regional risk. The model accounts for prevalence by working with the ratio of incidence to all treated cases, both new and existing (returning patients).

The tool also relies on anonymized historical patient records to describe travel patterns. The Methodology Working Group, along with input from the RSTP leads, helped identify reliable years of provincial volumes. As a result, the tool is currently set to use FY2006/07 and FY2007/08 patient data. The tool can be updated to include future years of data as they become available.

Using these inputs, several model assumptions can be further defined. This includes anticipated patient travel patterns, hospitals in the system and corresponding disease site groups to be treated. In addition, utilization rates can be further defined. To address increasing pressures of prevalence, scenarios can be configured using an increased uptake rate in the model.

Methodology

The first step of the modelling process is to determine the demand originating from each LHIN for every DSG. Note: User input values ("utilization rates") applied to the incident forecasts. The annual demand from a LHIN is then applied to a patient database, which randomly selects an appropriate number of patients and simulates them seeking systemic treatment services. Hospitals can handle different patient complexity levels, depending on the DSG. Note: User has the ability to alter the services provided in hospitals. Based on the scenario being modelled, a sampled proportion of the patients in the database will seek treatment at the closest appropriate hospital to their place of residency. This corresponds to a CCO objective: patients being treated as close to home as possible. Note: The criteria can be either straight-line distance from residence to hospital or the time it takes to drive along the shortest road path. This method
is known as a Monte Carlo Simulation. The results do not reflect any single modelling run, but represent the multiple outcomes that were based on such a scenario and its inputs. This allows for outlier cases to be represented in the model, but weighted directly proportional to their frequency. This produces forecasted systemic treatment demand by facility. The hospital results are presented according to average total volume and DSG.

Retreatments can be included in the model, but requires user input to identify the parameters. Similarly, patient visits can be presented, as can the number of initial treatments (which have to be supervised by an oncologist at a Level 3 or higher facility).

**Model Validation and Verification**

Validation of the model requires one to accept the two main data sources: the incidence forecast and the data set of historical patients. Verification of the model (to accept its functional operation) requires one to check:

- That the number of patients sampled is equal to the number of patients that will seek treatment (demand) (rounded to the nearest digit)
- That the total number of patients who will seek treatment in a given year is equal to the total number of patients treated in a given year
- That the total volume for all the runs is always equal

**Model Assumptions:**

- NACRS-OCR linkage required a 2.6% correction to account for unlinked patients.
- Model is based on observed patient referral patterns, so it would not account for referrals sent to a future hospital based on physician preference or agreements with staff. This highlights the importance of regional input into future assumptions, which have been provided by RSTP regional leads. Nevertheless, the simulation can be configured to push the patient to a new hospital if the criteria were met (lowest home-to-hospital distance; patient is seeking care at a facility closest to home; hospital can provide services that the patient requires, for example). Changes in patient travel have been modelled in certain scenarios.

**Demand Mapping**

To compliment the output data, the model has the functionality to display the proposed catchment areas for a hospital. This also helps both to verify that the model is working properly and to validate that the model is representative of the scenario. Each patient seeking treatment at a specific hospital is mapped (using a custom map created in Microsoft Mappoint 2006) by DSG, so that planners can identify from which areas their patients are arriving.

The model demonstrates to regional planners that no region functions in isolation. One region’s planning assumptions may be contrary to those of another, and this tool helps initiate discussions between regions.
Appendix C

Health Human Resources Planning for RSTP

This appendix outlines the planning assumptions and identifies health human resources requirements to support safe and high-quality Regional Systemic Treatment Programs (RSTPs). It focuses on the current and future state of medical oncologists (MOs) in Ontario. The MO has been identified as the steward of the system and thus represents a starting point from which to identify the interdisciplinary team-based human resource needs.

An appropriate supply of health professionals is essential to the safe delivery of systemic treatment. The supply of professionals available to provide care is related to a number of interdependent factors, including the demand for care, the current and future supply of health professionals, the healthcare activities they undertake and the intensity of those activities (i.e., workload). To better understand these factors, CCO established two expert groups during the planning process, the RSTP Health Human Resources (HHR) Analytics Working Group and the HHR Clinical Reference Panel. These expert groups included several professionals, MOHLTC departments and regional leads. It is important to note that the work of these groups is ongoing. While efforts continue to better understand the full, inter-disciplinary team of systemic treatment professionals, the work of these two groups has informed provincial planning assumptions around the MO.

### Analysis

This document assesses the current state that reflects demand for MOs, availability of current medical oncology resources and understanding of how the system currently manages care. Following this investigation, future demand and need are examined.

### Estimating Demand

Experts identified the need to consider cancer incident cases (table C1), consults and treated cases. These numbers provide insight into the current and future patient populations.

As outlined in Appendix B, systemic treatment volumes were estimated using NACRS records with a chemotherapy code of Z51.1 that were then linked to the Ontario Cancer Registry. This methodology, identified by the RSTP Methodology Working Group, provides provincial estimates on treated cases and visits by all disease site groups. In 2007/08, there were approximately 36,712 treated cases (NACRS-OCR). Projections summarized in the plan, and described in Appendix B, identify an upper forecast of 43,093 treated cases in 2012/13.

### Table C1.

Current and Projected Cancer Incidence in Ontario (Ontario Cancer Registry, 2008)

<table>
<thead>
<tr>
<th>Calendar Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence</td>
<td>60,926</td>
<td>62,634</td>
<td>64,456</td>
<td>66,283</td>
<td>68,139</td>
<td>70,053</td>
<td>72,113</td>
</tr>
</tbody>
</table>
To determine the number of consults, a correction coefficient of 1.2 was applied to treated cases. The ratio of C1S (new case consult) to NACRS-OCR (treated cases) was identified as 1.2 for regions where both data sets are collected. This ratio was then extrapolated to the province. Compared with treated cases, consults were determined to be the most appropriate metric to assess need for medical oncology resources. Medical oncology consults can be identified as a critical component of the MO’s work. The consult may or may not result in a recommendation for systemic treatment.

This method estimates that there were 44,054 MO consults in 2007/08 (i.e., 36,712 x 1.2). This represents current consult load. The future demand for medical oncology consults was estimated in a similar method using the upper forecast of treated cases in 2012/13. This results in a future estimate of 51,711 consults (i.e., 43,093 x 1.2). These results were validated with experts and consideration of cancer incidence projections.

**Estimating Capacity**

Current consults are being managed today with approximately 21,018 out of a total of 44,054 consults taking place in the academic or Level 1 centres. All other consults are occurring outside of these facilities. For the purposes of RSTP planning, an academic setting refers to a Level 1 facility and a non-academic setting refers to Level 2 or 3 facilities. Out of scope are the Level 4 facilities that do not require a visiting or on-site MO according to the standards. Current capacity is shared 50/50 between Level 1 and all other providers.

The medical care is provided by a variety of physicians that includes alternate funding program full-time equivalent (AFP-FTEs), non-AFP fee-for-service (FFS) positions, and a small number of unknown physicians. Estimates of the number of current MO FTEs were derived using a number of data sources, which were then subjected to further validation. Information investigated includes the RSTP health human resources infrastructure and program survey, CCO activity level reporting (ALR) data and earlier analyses, OntMOA (Ontario Medical Oncologists Association) estimates and Ontario Health Insurance Plan (OHIP) billing data. Information was assessed for limitations, completeness and quality. This information was then validated by CCO regional vice presidents (RVPs) and heads of medical oncology.

Best estimates suggest that as of 2007/08, there were approximately 200 MO FTEs in active practice. This estimate includes 166.82 AFP-FTE positions and 21 FFS MOs working within the cancer centres (115 of these MOs hold academic positions within the cancer centres). There are approximately 13 FFS medical oncology positions outside of cancer centres. Planning efforts suggest that each of these 13 positions represents one FTE. In addition, it is important to note that some of these AFP and FFS positions are held by malignant hematologists.

The current activity of MOs was calculated at an average consult caseload of 188 per FTE in Level 1 facilities and 247 per FTE in other centres. Caseload estimates are based upon the average number of consults provided by an AFP MO in Ontario’s regional cancer centre facilities in 2007/08, and represent an example of actual activity. ALR data provided this information, which was examined on a provider-to-caseload basis, rolled up to centre, regional and provincial levels.
**Estimating Care Gap**

Assuming current activity reflects the most appropriate caseload and no increases in medical oncology resources, the following figure (Figure C1) identifies Ontario’s capacity to manage 51,711 consults in the future. This results in an estimated gap in Ontario’s ability to provide 9,096 consults in 2012/13.

These estimates assume current workload will continue and an even distribution of workload for AFP and FFS providers at the AFP levels. It is important to note that activity examined by the working group identified FFS providers working beyond these workload assumptions. AFP workload was used as the basis of calculations, because AFP participants must meet certain standards and treatment volumes; an AFP environment tends to foster a team-based approach to care, and provides the organizational structure to ensure that physician qualifications and practices meet quality standards.

**Filling the Care Gap and Managing for the Future**

To assess gaps in capacity in accordance with current activity, two scenarios were examined. These scenarios consider the identified gap of 9,096 consults. The first scenario identifies additional FTEs required to address the gap based upon a 50/50 division between consults provided in Level 1 facilities versus non-Level 1 facilities (Figure C2).

The second scenario identifies additional FTEs required to address the gap based upon a 25/75 division between consults provided in Level 1 facilities versus non-Level 1 facilities (Figure C3). This 25/75 split is important to consider given the strategy for the RSTP. For example, while the vast majority of volumes will continue to be treated at Level 1 facilities, non-Level 1 facilities anticipate the largest relative increase (15%–20%) in the overall volume of patients cared for over time. This growth will occur as Ontario implements regional models of systemic treatment delivery and provides care closer to home.

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**Figure C1. Estimating Gap in Capacity to Provide Consults**

<table>
<thead>
<tr>
<th>Level 1 medical oncologist</th>
<th>FTE x 188</th>
<th>21,620</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Level 1 medical oncologist</td>
<td>FTE x 247</td>
<td>20,995</td>
</tr>
</tbody>
</table>

**TOTAL CAPACITY** = 42,615*

*(51,711 - 42,615 leaves 9,096 unsatisfied consults)*

---

**Figure C2. Scenario 1**

Assume 50/50 split between Level 1 and non-Level 1 facilities:

- 4,548 consults/188 consults per year = 24 Level 1 positions
- 4,548 consults/247 consults per year = 18 non-Level 1 positions

**TOTAL** = 42 medical oncologists
These scenarios provide insight into requirements for future care. Pressures on existing medical oncology resources will grow as the demand for care increases. Therefore, there is a need for an additional 40 to 42 AFP FTE medical oncology positions within the next three years. Input from senior leadership identifies a strategy that recommends the immediate need for 15 positions in 2009/10, followed by an additional 15 in 2010/11 and 10 in 2011/12. These are new additions to the current pool of medical oncology resources. Future development of medical oncology resources is required to ensure supply for intermediate-term and long-term demand.

The HHR Working Group has assessed forecasts of medical oncology professionals using the Assessing Doctor Inventories and Net-Flows (ADIN) forecasting model for Ontario. These assessments highlight challenges in filling the longer term requirements. Overall, an assessment of these two scenarios suggests that today’s current model is unsustainable. This has been echoed by the HHR Working Group. Therefore, innovative solutions are required.

**Patient Care**

There is critical need to look at new ways of working within the care team. CCO and the regions have begun investigating new models of care (see Figure C5). An interdisciplinary team-based approach, with the medical oncologist as the team leader and patient steward, is recommended for future planning and consideration. The team-based approach is common in health care. It makes the best use of professional staff, and aligns with other CCO and MOHLTC health human resource activities and priorities.

In addition to pursuing innovative models of care, CCO will continue to work with stakeholders to:

- Improve the collection of data related to provider supply, activities and treatment outcomes
- Improve the utilization of existing health human resources
- Improve the process of care delivery through an interdisciplinary approach to care
- Investigate inpatient care workload associated with systemic treatment

**Figure C3. Scenario 2**

Assume 25/75 split between Level 1 and non-Level 1 facilities:

| 2,274 consults/188 consults per year | = 12 Level 1 positions |
| 6,822 consults/247 consults per year | = 28 non-Level 1 positions |
| **TOTAL** | **= 40 medical oncologists** |
**Figure C5. Systemic Treatment Visits by Provider**

- **Biopsy**
  - Suspicion of cancer and diagnosis

- **Staging tests**
  - Consult

- **Systemic Treatment**
  - **Chemo treatment**
  - **Check in with med onc**
  - **End-of-life care**
  - **Follow up with oncologist**
  - **Well-follow-up**
  - **Discharge back to family practitioner**

**Flowchart Notes:**
- Can refer to a Medical Oncologist or a Hematology Oncologist
- Oncologist must be present
- Oncologist may or not be present
- May or may not be necessary
- Usually performed by family doctor and/or surgeon
Appendix D

Funding Methodology Report

Cancer Care Ontario is responsible for administering funds for systemic treatment services provided by the regional cancer centres (RCCs). The current allocation method does not distinguish between the activities in each facility. All RCCs are funded the same amount for each new systemic case that is seen. The case mix approach to funding is used to create an equitable means of allocating funds to the RCCs. The case mix adjusts, or applies a weight, to facilities’ volumes so that the funding is more reflective of the facilities’ patient activity.

Introduction to the 2008/09 CCO Systemic Treatment Funding Methodology

Calculation and Application of a Case Mix Measurement System

Data

The data source for the funding model is CCO’s Activity Level Reporting (ALR) data. RCCs submit regimen-based systemic activity data, which is summarized into case and visit metrics. For the purposes of the model, visits and cases were defined by the S19 Metric (total antineoplastic systemic treatment visits) and the S25 Metric (total antineoplastic systemic treated cases) respectively. Both metrics were then filtered to include only intravenous and push-intravenous activity.

Approach

The overall approach is described in Figure D1.

In the first step, standard information on patient disease and regimen reported by the centres to CCO is consolidated in a database. Based on these characteristics, the second step assigns each patient to a resource group. All patients within a group are clinically similar and homogenous with respect to resource requirements. Step 3 assigns each patient a relative resource weight that is determined by his or her assigned group. For example, patients within a group with a relative weight of 1.10 are expected to cost 10% more than the average cost of all patient types in the province. Step 4 calculates the sum of case weights for a centre which is then divided by its total cases to determine the center’s case mix index (CMI). In the final step, its CMI is multiplied by the provincial average funding rate (currently $3,300) to determine the centre-specific funding rate. The funding rate for a centre with a CMI of 1.10 is $3,630.

Assigning the resource weight requires an estimate of the resource cost of each patient group. The resource cost of each regimen-disease group is estimated in two parts. The first part is an estimate of the expected visits per case. The second part is an estimate of the resource intensity per visit. Combining these provides the estimate of expected resources per case. Expected visits per case are determined from the provincial data as reported by the centres.

Figure Appendix D1.
System Treatment Funding Approach
Methodology

To calculate case mix indices, weights were calculated for each disease site and regimen combination. This was performed through a nursing and pharmacy working group where the amount of workload units (minutes) and expected number of visits were agreed upon for each disease/regimen combination.

Once each regimen was classified, its total workload time was summed according to the standard durations provided for each activity associated with the regimen. These regimen durations were then used to calculate a provincial average and a relative average for each grouping. Each regimen’s weight is then the average duration relative to the provincial average regimen duration. Weights are normalized to a provincial average such that a weight of 1.00 is the overall average weight and any deviation from that signifies a regimen’s resource use relative to the provincial average.

A facility’s case mix is then calculated by applying the provincial regimen weights (multiplied by the expected number of visits for that regimen) to the expected volume data to determine the facility’s total weighted cases. The weighted cases are then averaged to calculate the facility’s case mix value (see Table D2). Hospitals with case mix indices greater than 1.00 will receive more funding per case then the determined amount, while hospitals with a case mix index of less than 1.00 will receive less.

Allocation

Before 2008/09, facilities’ systemic funding was based on the number of C1Ss (new systemic cases to a facility). Each facility received $3,200 for each new systemic case. In 2008/09, for each facility, the funded amount for each new systemic case will be adjusted by the case mix for that facility. For example, a facility with a case mix of 1.05 will receive $3360 for each new systemic case. The case mix adjusted funding will only be applied to incremental volumes for 2008/09.

Table Appendix D2.

<table>
<thead>
<tr>
<th>Facility A</th>
<th></th>
<th>a</th>
<th>b</th>
<th>a \times b = c</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient 1</td>
<td>Regimen 5</td>
<td>Diagnosis A</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Patient 2</td>
<td>Regimen 1</td>
<td>Diagnosis B</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Facility A Case Mix</td>
<td></td>
<td>(1.3 + .9) ÷ 2 = 1.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funding Rate per Case</td>
<td></td>
<td>$3,200 \times 1.1 = 3,520</td>
<td></td>
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</tr>
</tbody>
</table>
Appendix E
Definitions of Key Terms and Abbreviations

ALR
Activity Level Reporting (ALR) data is the primary set of data elements submitted by the regional cancer centres (RCCs) and other healthcare facilities. ALR data are submitted monthly containing data elements which describe the patient, disease, healthcare provider and activity. The systemic activity includes both clinic visits and treatments. Through a set of algorithms, the ALR data are transformed into a set of volume metrics. ALR data contain detailed information, but are limited to the fourteen RCCs and a select number of other hospitals.

DEMAND
The forecasted number of treated cases and related visits.

DEMAND FORECAST MODEL
A decision support aid developed to model the impacts of various planning assumptions on the future demand for systemic treatment within each Ontario hospital and LHIN.

HISTORIC UTILIZATION
The number of treated cases and visits occurring in previous years (e.g., FY2006/07).

INCIDENCE CASE
The number of new cancer cases diagnosed within a given year, within a given population. Criteria: cancer site must be in malignant range, diagnosis date post 1964, Ontario resident, age and sex of patient is known.

LEVELS
The level of care for a facility as defined by the Standards for the Organization and Delivery of Systemic Treatment.

MODELS OF CARE
The organization of current and future systemic treatment services and service providers within a defined geographic area such as a LHIN or province.

NACRS
The National Ambulatory Care Reporting System (NACRS) is administered by the Canadian Institute for Health Information (CIHI), which captures ambulatory care encounters in all Ontario hospitals. NACRS is composed of record level abstracts for outpatient and same-day surgery which is submitted quarterly. Each record is made up of patient, disease and activity-related data elements, describing the event. NACRS data include the outpatient data from all the healthcare facilities in the province, however, they lack some important detail. It is not possible to determine the type of disease for chemotherapy patients.

PATIENT TRAVEL
The relationship between where a treated case lives (e.g., postal code, LHIN) and the facility where a patient receives treatment.

PREVALENCE
Measure of the number of people in a given population who have been diagnosed with cancer during their lives (cases) and who are still alive at a point in time.

TREATED CASE
Within NACRS, this represents a unique combination of health card number and disease site diagnosis who has received systemic treatment. A treatment is defined as a record with a main problem of Z51.1 (chemotherapy for neoplasm).
VISIT
Within NACRS, a unique combination of health card number and disease site diagnosis and service date with a main problem of Z51.1. A single treated case with seven different service dates would have seven visits.

UPTAKE
The proportion of incident cases (patients) who make at least one systemic treatment visit.

PLANNING GUIDE
The planning framework and incremental planning process for the development and implementation of regional and provincial plans for systemic treatment in alignment with the standards.

DATA PACKAGE
Documents, tables and files of information/data designed to support a common shared understanding of the "as-is" and "to-be" states of systemic treatment across the province.
Data packages have provided standardized information on population, cancer incidence, systemic treatment, health human resources, infrastructure and programs.

Abbreviations
AFP – alternate funding plan
APN – advance practice nurse
CCO – Cancer Care Ontario
CME – Continuing Medical Education
CPOE – Computerized Physician Order Entry
FFS – fee for service
FTE – full-time equivalent
GPO – general practitioner in oncology
HHR – health human resources
ICP – Integrated Cancer Program
IV – intravenous
LHIN – Local Health Integration Network
MCCs – multidisciplinary case conferences
MO – medical oncologist
MOHLTC – Ministry of Health and Long-Term Care
OCP – Ontario Cancer Plan
PCOP – post-construction operating plan
PEBC – Program in Evidence-Based Care
RCC – regional cancer centre
RCP – Regional Cancer Program
RSTP – Regional Systemic Treatment Program
Cancer Care Ontario is the provincial agency responsible for continually improving cancer services. As the government’s cancer advisor, Cancer Care Ontario:

• Directs and oversees close to $700 million public health care dollars to hospitals and other cancer care providers to deliver high quality, timely cancer services
• Implements provincial cancer prevention and screening programs designed to reduce cancer risks and raise screening participation rates
• Works with cancer care professionals and organizations to develop and implement quality improvements and standards
• Uses electronic information and technology to support health professionals and patient self-care to continually improve the safety, quality, efficiency, accessibility and accountability of cancer services
• Plans cancer services to meet current and future patient needs, and works with health care providers in every Local Health Integration Network to continually improve cancer care for the people they serve
• Rapidly transfers new research into improvements and innovations in clinical practice and cancer service delivery

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