Analysis of the Costs to Deliver Pharmacy Professional Services to Residents of Ontario Long-Term Care Facilities

Final Report: November 6, 2009

Prepared for

Ontario Pharmacists’ Association (OPA)
&
Canadian Association of Chain Drug Stores (CACDS)

Prepared by

MENTORx / PharmAccount®

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Executive Summary

MENTORx was engaged by the Ontario Pharmacists’ Association (OPA) and the Canadian Association of Chain Drug Stores (CACDS) to conduct an analysis of the enhanced costs incurred by Ontario long-term care (LTC) pharmacies to provide services to residents of the province’s licensed long-term care homes. LTC homes include nursing homes, homes for the aged and charitable homes. These enhanced service costs are over and above those incurred in the routine dispensing of their medications, yet they are required by the operating standards of the homes and to provide optimal patient care.

The sampling frame for the study included 14 LTC pharmacy provider organizations that currently serve approximately 87% of LTC homes in Ontario. Cost data were collected using a survey template reviewed by the Ontario Ministry of Health and Long-Term Care (“the Ministry”). Data collection began on August 11, 2009. By the close of data collection on October 3, 2009, data had been received from 10 LTC pharmacy organizations for a response rate of 71.4%.

The 10 responding LTC pharmacy provider organizations maintain a total of 49 pharmacies that provide care to residents of 462 licensed LTC homes in Ontario. Collectively, these pharmacies service a total 1,616 nursing units that provide care to 59,428 LTC residents or 77.2% of the estimated 77,000 residents of Ontario LTC facilities. The typical LTC contract period among respondents was reported to be 3 years. Participating LTC pharmacies demonstrated good geographic dispersion across Ontario’s 14 Local Health Integration Networks (LHINs).

The measurement model used to calculate the additional costs incurred by pharmacies to provide these contracted services to residents of LTC homes consisted of three primary components: (1) Start-up equipment and related services amortized over the typical LTC contract length; (2) Costs to implement and operate electronic records systems to assist in appropriate management of LTC residents’ medication therapy, and; (3) Ongoing operating costs of providing service including professional consulting services and dedicated customized LTC services.

Across the 10 reporting LTC pharmacy provider organizations, the mean (average) annual cost of providing these enhanced services to residents of LTC homes was found to be $1,176 per resident with a median (50th percentile) value of $1,004. This translates to an average cost of $98 per LTC resident per month or $3.22 per day.

The general categories of annual costs per resident included: Start-up equipment and services ($105); Electronic record systems ($148); Professional consulting services ($336), and; Ongoing operating costs ($587). Significant differences were observed among participating LTC pharmacy provider organizations in the costs associated with providing selected LTC pharmacy services which may vary depending on economies of scale, depth of services offered, expectations of service levels and the number and location of the homes.
Purpose of Project
The purpose of this analysis was to calculate the costs to deliver pharmacy professional services to residents of the licensed long-term care (LTC) facilities in Ontario. These enhanced service costs are over and above services associated with routine prescription dispensing activities as we reported in our June 2008 report titled Costs of Ontario Community Pharmacy Services, yet they are required by the operating standards of the homes for the provision of optimal patient care.

Costs considered in the current analysis include:

- Required equipment start-up costs amortized over the typical contract period of the LTC pharmacy provider;
- Ongoing operating costs incurred to provide services to LTC residents inclusive of pharmacy personnel time and all required materials and supplies;
- Costs to implement and operate an electronic records system including electronic medication administration records (eMARs) to assist in the appropriate management of LTC residents’ medication therapies.

Background
The Ontario Ministry of Health and Long-Term Care is responsible for the health and safety of approximately 77,000 residents of Ontario’s licensed long term care homes. To ensure the quality and safety of the pharmaceutical care provided to LTC home residents, the Ministry has established program standards for services that each LTC pharmacy provider must deliver to their client homes. These standards are in addition to the Acts and Regulations governing conventional community pharmacy practices in Ontario and are generally more typical of those required for hospital-based pharmacy providers.

LTC homes in Ontario contract with pharmacy providers to supply prescription medications for their residents under the Ontario Drug Benefit (ODB) Program. In addition, the contracts stipulate that the pharmacy must provide a number of supplemental services including, but not limited to, compliance packaging, dispensing of free government stock medications, storage and assistive equipment, specialty supplies and electronic medication control and monitoring services. LTC pharmacy providers do not currently receive reimbursement from ODB for these supplemental services that support the care of its beneficiaries.

LTC pharmacies also provide clinically trained pharmacists who work in the homes on a regular basis and function as part of their medical teams. Many of these highly skilled clinicians have advanced training and experience in geriatrics and provide a variety of medication management services such as assisting with prescribing, patient assessment, drug therapy monitoring and establishing appropriate therapeutic outcomes for residents. They also conduct audits, educate patients and nursing home staff on medications and diseases, participate in multi-disciplinary meetings and assist with the development of policies and procedures necessary to ensure safe and effective medication use within the facility. Whenever possible, clinical pharmacists also perform individual patient drug reviews and give resident-specific recommendations on therapy.

In March 2007, there were 560 Ontario pharmacies submitting LTC claims to ODB. However, 90% of LTC claims submitted to ODB originated in only 28 LTC pharmacies (i.e.,
approximately 5%), suggesting that most of the remaining pharmacies were providing primarily emergency services only.

In 2007, OPA formed a working group to determine what services were being provided by LTC pharmacies and their staff. The resulting document outlined a description of the supplies, equipment and services being provided and referenced their benefits and impact to the residents, their caregivers and the Ministry.

This document was supplied to the Ministry through the working group established by the Ministry which was considering ways in which additional pharmaceutical services could be provided to LTC residents under an enhanced MedsCheck program. A program was subsequently developed but the decision on the necessary reimbursement for these services was transferred to a new working group to examine reimbursement for all of pharmacy services for long term care. This group concluded that an Ontario Long Term Care Pharmacy Services Additional Costs Survey was needed.

Methods

Study Sample
The sampling frame for the study included 14 pharmacy organizations that provide care to residents of LTC homes in Ontario (Attachment 1). Key contacts at each LTC pharmacy organization in the sample frame were supplied to the consultant by the OPA’s Long-Term Care Working Group who assisted in promoting participation in the study.

Data Collection
Data were collected via a Microsoft Excel survey template created by the Working Group on the Reimbursement for Pharmacy Professional and Dispensing Services to Long-Term Care Homes that was formed by the Ministry (Attachment 2). The data collection template was supplemented by a user’s guide that included a glossary of key terms used in the template (Attachment 3). These key terms and directions to users were also embedded as viewable comments in the survey template itself.

The survey template and user’s guide were distributed via email (Attachment 4) to key contacts within each LTC provider organization in the sample frame beginning August 11, 2009. Reminders were sent by the consultant to non-respondents beginning September 3, 2009. A minimum of three email reminders and two telephone call reminders were made to all non-respondents. The deadline for receipt of data was October 3, 2009.

Measurement Model
The measurement model used to calculate the additional costs incurred by Ontario LTC pharmacies to provide care to residents of LTC homes consisted of three primary components: (1) Required start-up equipment and services amortized over the pharmacy provider’s typical LTC contract length with serviced homes; (2) Costs to implement and operate electronic records systems including electronic medication administration records (eMARs), and; (3) Ongoing operating costs of providing service.
The measurement model included the following specific data fields:

1.0 Required start-up costs amortized over the typical LTC contract period
   Equipment and Services, including
   - Medication carts
   - Treatment carts
   - Fax machines
   - Installation of data transmission lines
   - Printers
   - Policy and Procedure manuals
   - Computer hardware and software
   - Pill crushers
   - Refrigerators
   - Digital pens for order transcription (pens for Digital MARs are separate)
   - Orientation and initial training of LTC staff
   - Customization and preparation

2.0 Electronic Records Systems
   - Digital Medication Administration Records (dMARs)
   - Electronic Medication Administration Records (eMARs)
   - Electronic prescribing applications (ePrescribing)
   - Connectivity costs

3.0 Pharmacy Paid Ongoing Costs for LTC Services
   3.1 Professional LTC Consulting Services
      - Consultant pharmacists
      - Other professionals separate from dispensing pharmacy staff
   3.2 Professional Activities with Separate Costs
      - Educational events for staff & residents
      - Professional training
      - Meetings & administrative functions
      - Routine on-call services
      - Disaster recovery services
      - Emergency preparedness
   3.3 Dedicated Customized LTC Services
      - LTC adherence packaging
      - Additional professional resources required for LTC prescription packaging
      - Administrative costs for LTC services
      - Educational materials supplied to the homes
      - Forms & other supplies provided to the homes
      - Technology services
      - Pharmacy paid ongoing costs for dMARs
      - Pharmacy paid ongoing costs for eMARs
      - Pharmacy paid ongoing costs for ePrescribing
      - Other services provided to the homes

1 Refer to the User Guide & Glossary of Terms in Attachment 3 for a detailed definition of all terms.
Results

By the close of data collection on October 3, 2009, a total of 10 LTC pharmacy provider organizations had submitted completed surveys. The 10 responding organizations maintain a total of 49 pharmacies that provide care to residents of 462 licensed LTC homes in Ontario. Collectively, these pharmacies service a total 1,616 nursing units that provide care to 59,428 LTC residents, or 77.2% of the estimated 77,000 residents of Ontario LTC facilities. The average LTC contract period among respondents was 3 years.

Characteristics of LTC pharmacies that participated in the project appear in Table 1. Each participating LTC pharmacy serviced an average of 9.7 homes, 33.3 nursing units and provided care to 1,203 LTC residents. The typical nursing home was found to contain 3.3 nursing units with approximately 37 residents each.

Table 1: Characteristics of LTC Pharmacies

<table>
<thead>
<tr>
<th>Characteristics of LTC Pharmacies (n=49)</th>
<th>Range</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTC Homes Served / Pharmacy</td>
<td>1 – 27</td>
<td>9.7</td>
</tr>
<tr>
<td>Nursing Units / Pharmacy</td>
<td>5 – 97</td>
<td>33.3</td>
</tr>
<tr>
<td>Residents / Pharmacy</td>
<td>141 - 3362</td>
<td>1202.9</td>
</tr>
<tr>
<td>Nursing Units / Home</td>
<td>1.7 – 4.8</td>
<td>3.3</td>
</tr>
<tr>
<td>Residents / Nursing Unit</td>
<td>24.4 – 51.6</td>
<td>36.8</td>
</tr>
</tbody>
</table>

Local Health Integration Networks (LHINs) are not-for-profit corporations that are responsible for planning, integrating and funding local health services in 14 geographic areas of Ontario. LHINs were created by the Ontario government in March of 2006, to work with local health providers and communities to plan, integrate and fund local health services including LTC homes. An interactive map of the 14 LHINs and the communities contained in each may be found at: http://publicreporting.ltchomes.net/en-ca/lhin_map.aspx.

Table 2 illustrates the distribution of participating LTC pharmacies across the 14 LHIN areas of Ontario. It should be noted that some LTC pharmacies service homes in more than one LHIN.
Electronic record systems and related applications are increasingly being demanded by homes and supplied by LTC pharmacy providers to improve the effectiveness, efficiency and safety of patient care and medication use. Some of the systems in use have been developed by pharmacy providers and others are supplied by other manufacturers. In all cases, the pharmacy is expected to pay for installation, training and ongoing costs such as user fees and 24-hour support. These systems include digital medication administration records (dMARs), electronic medication administration records (eMARs) and electronic prescribing (ePrescribing) applications. They interface with the homes’ electronic charting and to the Ministry’s required core data system (RAI-MDS). Long-term care stakeholders recognize that alignment of pharmacy programs with the data systems of the homes is needed to prevent fragmentation that would create expensive inefficiencies and substantially increase costs to integrate systems at a future date.

Table 3 illustrates the implementation of selected electronic record systems by the 10 reporting LTC pharmacy provider organizations among the 462 LTC homes they service.

### Table 3: Electronic Record Systems in LTC Homes

<table>
<thead>
<tr>
<th>Electronic Record System</th>
<th>Number of LTC Pharmacy Organizations Using (%)</th>
<th>Number of LTC Homes Using (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homes with dMARs</td>
<td>3 (30)</td>
<td>134 (29.0)</td>
</tr>
<tr>
<td>Nursing Units with dMARs</td>
<td>3 (30)</td>
<td>497 (30.8)</td>
</tr>
<tr>
<td>Homes with eMARs</td>
<td>5 (50)</td>
<td>38 (8.2)</td>
</tr>
<tr>
<td>Nursing Units with eMARs</td>
<td>5 (50)</td>
<td>142 (8.8)</td>
</tr>
<tr>
<td>Homes with e-Prescribing</td>
<td>6 (60)</td>
<td>21 (4.5)</td>
</tr>
<tr>
<td>Nursing Units with e-Prescribing</td>
<td>6 (60)</td>
<td>6.3 (3.9)</td>
</tr>
</tbody>
</table>
As indicated in Table 3, none of the electronic record systems are supported by all 10 reporting pharmacy provider organizations. Moreover, even among those organizations that support one or more of these systems, none have installed them in all LTC homes they service. In at least one instance, a pharmacy provider who had previously implemented e-Prescribing in client homes subsequently discontinued use of the system due to technical problems and excessive costs.

As described previously, the measurement model used to calculate the additional costs incurred by pharmacies to provide care to residents of LTC homes consisted of three primary components: (1) Start-up equipment and services amortized over the typical LTC contract length; (2) Costs to implement and operate electronic records systems to ensure appropriate management of LTC residents’ medication therapy, and; (3) Ongoing operating costs of providing service including professional consulting services and dedicated customized LTC services.

Table 4 illustrates the average annual per-resident costs of providing additional LTC pharmacy services across the 10 provider organizations that participated in the study.

### Table 4: Annual Per-Resident Cost of LTC Pharmacy Services by Cost Category

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Mean Cost Per Resident</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment &amp; Services*</td>
<td>$105</td>
<td>$53 - 199</td>
</tr>
<tr>
<td>Electronic Records (dMARs, eMARs, e-Rx)*</td>
<td>$148</td>
<td>$0 - 434</td>
</tr>
<tr>
<td>Professional LTC Consulting Services</td>
<td>$336</td>
<td>$78 - 650</td>
</tr>
<tr>
<td>Ongoing Costs of LTC Services</td>
<td>$587</td>
<td>$340 – 1,123</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$1,176</strong></td>
<td><strong>$784 – 1,903</strong></td>
</tr>
</tbody>
</table>

* Start-up costs amortized over a typical three-year contract.

Across the 10 reporting LTC pharmacy provider organizations, the mean (average) annual per-resident cost of providing additional pharmacy services beyond conventional prescription dispensing was $1,176, with a range of $784 to $1,903. The median (50th percentile) value was $1,004.

The inter-quartile range calculated for total LTC pharmacy services costs was $442. The inter-quartile range is a measure of dispersion that reflects the distance between the 25th percentile value ($918) and the 75th percentile value ($1,360). In contrast to the full range which is typically anchored by relatively extreme values, the inter-quartile range is often a better indicator of the relevant range for the values in a distribution. The inter-quartile range of $442 is relatively narrow, suggesting that significant agreement exists in the center of the distribution.

In an effort to explain the variance in costs reported by participating LTC pharmacy providers we examined the data for significant differences in selected service areas within the broader categories listed in Table 4. The results of this analysis appear in Table 5.
Table 5 illustrates that much of the variance in reported LTC pharmacy service costs appear to be explained by five specific service areas. As indicated previously, only six of the 10 participating organizations currently support electronic medication administration records (eMARs) for clients. Among those that do, the service adds an annual per-resident cost of $235. Consultant pharmacists who provide specialized on-site clinical and administrative services during their regular visits to client homes represent another significant cost ($211) as does adherence packaging ($112) which assists nurses to accurately and efficiently administer medications to residents. The broadest range of costs reported by participating pharmacies was for additional professional resources required for LTC prescription packaging which is significantly influenced by the amount of government stock that is dispensed.

**Limitation of Analysis**

Some pharmacies that service LTC homes are so-called ‘closed’ pharmacies that do not concurrently provide prescription drugs and services to the members of the general public. In contrast, other LTC pharmacy providers also maintain active conventional community pharmacy practices that dispense medications and provide care to members of the general public. No attempt has been made in this analysis to distinguish between these two organizational forms.

**Summary**

The mean annual cost of providing residents of Ontario LTC homes with pharmacy services beyond conventional ambulatory prescription dispensing was calculated to be $1,176 or $3.22 per resident per day. Significant variance was observed across the full range of values reported by the LTC pharmacy provider organizations that participated in the analysis with a low of $784 and a high of $1,903. However, the inter-quartile range was relatively narrow at $442, suggesting significant agreement toward the center of the distribution.

Annual costs were driven in part by start-up costs of equipment and electronic records systems amortized over the typical three-year LTC home contract length which represented 21.5% of total costs. Professional LTC Consulting Services contributed an additional 28.6%, with ongoing
costs that include administrative services and the costs of medication adherence packaging representing the remaining 49.9% of costs.

The Consultant
The consultant for this project was Desert Mentors LLC, d/b/a MENTORx, a consulting firm with headquarters in Glendale, Arizona, USA. MENTORx specializes in community pharmacy-based research and evaluation projects. The managing partner for MENTORx is Michael T. Rupp, Ph.D., an internationally recognized expert in community pharmacy operations, financial management, and professional services cost and reimbursement. He is the creator of PharmAccount® (www.pharmaccount.com), an Internet provider of financial analysis services for community pharmacies and a tool for instructing pharmacists and pharmacy students to conduct accurate cost analyses related to pharmaceutical product and service delivery.

During more than twenty years as an academic researcher and industry consultant, Dr. Rupp has worked closely with virtually every segment in community pharmacy, including international, national and state professional and trade associations, buying groups, chain pharmacy organizations, state and national government agencies and numerous computer and technology vendors. In addition to his role as managing partner for MENTORx, Dr. Rupp also serves as professor of pharmacy administration at Midwestern University in Glendale, AZ. He may be contacted at 623-572-3528 or desertmentors@earthlink.net.
Attachment 1: Ontario LTC Pharmacy Providers Survey Recipients

1. Classic Care Pharmacy  
   Burlington, ON  L7L 6L9

2. Dean’s Pharmasave  
   North Bay, ON  P1B 4Y3

3. Desjardin Pharmacy  
   Ottawa, ON  K1B 0A3

4. GeriatRx Pharmacy  
   Toronto, ON  M2P 1T7

5. Jeffers Pharmacy  
   Orangeville, ON  L9W 2E1

6. Medical Arts Dispensary Ottawa  
   Ottawa, ON  K2P 2C4

7. Medical Pharmacies Group Inc.  
   Pickering, ON  L1W 3X6

8. Medisystems  
   Toronto, ON  M3B 2T8

9. National Pharmacy  
   Guelph, ON  N1H 3H9

10. Medico Pharmacy /Omnicare  
    Don Mills, ON  M3C 1J4

11. Pulse Rx LTC Pharmacy  
    Woodbridge, ON  L4H 3H9

12. Rexall Specialty Pharmacy  
    Mississauga, ON  L4Z 1R9

13. Summit Pharmacy  
    Aurora, ON  L4G 6W1

14. Cedar Springs Pharmacy  
    Burlington, ON  L7N3J6
Attachment 2: Ontario LTC Costing Template

(attached as separate file)
Ontario Long Term Care Pharmacy Services
Additional Costs Survey

USER’s GUIDE & GLOSSARY OF TERMS

Note: Due to the complexity of the information and differing methods of describing LTC pharmacy services and their associated costs, it is extremely important to refer to this Guide while completing the survey.

Additional Professional Resources for LTC Prescription Processing = Pharmacists’ and technicians’ time listed under this heading represent additional hours required to provide in-pharmacy LTC dispensing services, over and above the ‘Routine Costs to Dispense a Prescription’. See definition below.

Adherence Packaging = Also commonly referred to as “compliance or multi-dose” packaging. In LTC this generally refers to specialized packaging which assists nurses in efficiently and accurately administering medications to residents. This can include strips/paks, blister/bingo cards, Dosetts and other assistive packaging. This does not include vials. See individual headings for further definition.

Automated Packaging Equipment = Machines required for packaging multi-dose packs for individual patient use. A typical strip packaging machine services approximately 2000 residents. Although smaller units are available, they have limited capabilities. Machines may be purchased outright or leased. If purchased, the cost is usually amortized over a 5 year period. Servicing is provided by the manufacturer at a contracted price. A canister is the individual storage device for a medication which fits into the automated packaging machine. It must be calibrated to handle each strength of each separate medication from each manufacturer. There are canister supply and calibration costs.

Beds = Number of residents that any home can accommodate at any one time. There can be up to a 30% turnover in residents in one year.

Benefits = Non monetary compensation provided to employees.

Biohazard Waste Removal = Many homes under the direction of the compliance officers from the MOHLTC require the pharmacy provider to arrange and pay for unused meds to be picked up and disposed of in an environmentally safe manner. Service is generally monthly but can vary according to the size of the home.

Blisters/Bingo Cards = Cardboard cards with plastic pouches and foil backing for medication storage. They are personalized to an individual resident and may contain a single drug or be used for multi-dose packaging. Single drug cards are for 28, 30, 31 or 34 days, while multi-drug cards are generally for a 7 day supply and indicate the time for administration.

Bonuses = Other monetary compensation paid to employees as a reward for their job performance.
Communication = Costs incurred by professional staff in staying in contact with the homes.

Computer Hardware = Equipment required for medication management, information and tracking; online and electronic ordering, charting and transmission systems.

Computer Software = Software tools and programs required for medication management, information and tracking; online and electronic ordering, charting and transmission systems. It may be developed by the pharmacy provider, customized, purchased or contracted for benefit of the home.

Consultant Pharmacists = Pharmacists employed by the pharmacy provider to conduct clinical and pharmaceutical care services in the homes. They often have specialized geriatric training. They visit the homes on a regular schedule for a certain number of hours or visits which is established by contract with the homes’ management or owners.

Compendium of Pharmaceutical Specialties (CPS) = A well recognized annual publication of medication monographs available either as a hard copy or online via subscription.

Customization and Preparation = The needs of each nursing unit of each home must be determined prior to the introduction of any new pharmacy product or service. Often this requires several meetings to determine user preference plus the collection of data that is not collected in a pharmacy. This information must then be inputted for each resident, it includes their diagnoses, actual time and dosing instructions of each medication, nursing directives for treatments, special orders on swallowing, diet and other preferences. Also the pharmacy must collect and record the resident’s age, creatinine clearance and other lab values, billing instructions and responsible party contact information. Preparation of MARs can include taking and insertion of the resident’s photo.

Customized LTC Technology = Hardware and software developed by pharmacy to assist LTC staff in being more efficient and effective in completing their responsibilities in patient care. Responsibilities include ongoing training and support.

Data Transmission Lines = Electronic lines for connection of the fax machines or computers. Some homes provide their own lines, but many expect pharmacy to install and pay for the services.

Dedicated LTC Billings and Receivables = Costs associated with creating invoices and collecting all payments due. Most accounts must be collected by mail since the LTC client does not come into the pharmacy. Often, accounts are sent to family members or other payers which can make collection complicated. Complications include dealing with trusts and estates. Contrary to public opinion, many medications used in LTC are not covered by the ODB and must be collected from the responsible party.

Dedicated LTC Equipment Maintenance = Specially trained service technicians are required to visit the homes and maintain all pharmacy related equipment.

Dedicated LTC Management = LTC pharmacy providers have staff who do not work directly in the pharmacy nor in the homes, but who provide administrative support, leadership or customer service. This may be a percentage of a full time position.
**Delivery Costs** = Due to the large distances, many LTC pharmacy providers must cover on their daily deliveries to homes, this can be a significant expense. It is complicated because most homes want their deliveries all at the same time at the end of the day. The expense of the service is not covered by the delivery charges covered under ‘routine dispensing costs’.

**Digital Paper** = Special paper required for use with digital pens.

**Digital Pens** = Electronic writing tools which are used to transmit digital orders directly to the pharmacy. One pen and access to a spare are needed on each nursing unit for physician orders. Bluetooth digital pens required for digital MARS are much more costly than regular digital pens.

**Disaster Recovery** = Expenses incurred while assisting homes in recovery from outbreaks, floods, fires or other disastrous situations.

**Educational Events** = Educational programs provided by the professional staff that are targeted to the homes’ staff and residents for health protection and promotion activities. The events may occur in the homes or in other locations outside the pharmacy.

**Educational Materials** = Professional reference texts, videos, journals, newsletters, charts, posters and in-service information provided by pharmacy to LTC homes for educational purposes.

**eMARs** = An electronic Medication Administration Record (MAR) that provides the ability to electronically order, track and document medications from pharmacy to the point of administration to the resident, and link directly to a resident’s individual charting system. These systems are being requested by the homes and the Ministry. A number of vendors have developed different models which tend to fall into two categories. Those that have integrated systems that work with other health information system functions such as Admissions, Discharges, Transfers (ADT), finance and clinical tracking such as MEDecare, Point Click Care (PCC), and Goldcare. And those with stand alone software that are implemented to work in relative isolation or require interface applications such as Catalyst, ClearScribe and Momentum. The pharmacy is required to pay the vendor a licensing fee and/or a transaction fee based usually on a resident per day. Additionally, there are potentially high infrastructure costs associated with assessing and implementing changes to facilitate these point-of-care technologies within the home.

**Emergency or Contingency Drug Box** = A locked container for storing an emergency supply of medications supplied and audited by pharmacy. The type and quantity is decided by the Medical Advisory Committee of the home.

**Emergency Preparedness** = Assistance provided by LTC pharmacy providers in preparing homes for business continuity during an emergency situation.

**Emergency Services** = Provision of emergency medications for immediate use. This often involves the store pharmacists, but may also include the consultant pharmacist, technicians and delivery staff. Costs need to be separate from those provided for on-call service. Emergency services may involve arrangements with other local pharmacies with the LTC pharmacy paying any charges.
**ePrescribing** = The process of generating, authorizing and transmitting prescriptions from doctors and other prescribers to pharmacists and other dispensers. It eliminates hand-written prescriptions by physicians and facilitates the electronic delivery of prescriptions to pharmacies.

**Fax Machines** = Used on the nursing unit for the transmission of medication orders and information. Generally one fax machine per unit is required.

**Government Stock** = Medications provided free of charge by the Ministry to LTC pharmacies for dispensing to LTC residents. Currently there is no dispensing fee or administrative handling charge paid to the pharmacy. Dispensing government stock medications require adherence to all customary procedures for supplying and documenting any prescription. Government stock drugs can represent approximately 15% of all LTC prescriptions.

**LHINs** = Local Health Integration Networks were created by the Ontario government in March 2006 to work with local health providers and community members to determine the health service priorities of each of the fourteen regions. They plan, integrate and fund local health services including Ministry licensed long term care homes. A listing of the LHINs, their locations and their homes can be found at [http://publicreporting.ltchomes.net/en-ca/lhin_map.aspx](http://publicreporting.ltchomes.net/en-ca/lhin_map.aspx)

**MARs/TARs** = Computer generated records updated daily with printed reports supplied monthly by pharmacy to the homes. The Medication or Treatment Administration Record lists all the medication or treatment orders for an individual resident. The nurse signs the form each time a dose of drug or a treatment is given. This is documented evidence and becomes part of the patient’s permanent chart. A copy of the completed form is sent to pharmacy before the start of every month for audit/correction by pharmacy staff prior to them printing new MARs/TARs for each resident.

**Medication Carts** = Portable storage units for medications which are taken to the bedside or other locations for administration of medications to residents. The home dictates the number of carts required for each nursing unit. Several different designs are available and the homes usually request their preference. Carts can be customized with electronic interfaces.

**Medication Cups** = Small containers provided by pharmacy for holding medications while they are being administered to a resident.

**Meetings and Administrative Functions** = Activities for which the consultant pharmacists and other professional staff are paid separately. These are procedural functions not associated with professional training.

**MOHLTC Licensed Homes** = Licensed homes regulated by the Ontario MOHLTC, may be a Nursing Home, a Home for the Aged, a Charitable Home or a Home for Special Care. The names of these homes and local health integration network (LHIN) in which they are located may be found at [http://publicreporting.ltchomes.net/en-ca/lhin_map.aspx](http://publicreporting.ltchomes.net/en-ca/lhin_map.aspx)

**Multi-dose Packaging** = One package or container holding one dose of several medications to be given at one time to one patient and labeled according to all regulations. Packages are generally machine filled, while containers can be blister cards or Dosetts.

**Network Audit of Home** = Determination by a technology specialist of the requirements for setting up and operating an online system in a home.
Number of Residents/Beds per Home = There is no standard size home as the number of beds varies widely from approximately 30 beds to well over 400.

Nursing Unit = Typically there are about 33 beds per unit. Number varies depending on the age and configuration of the home.

Ongoing Procedure Support = Requirement to have staff available to answer verbal inquiries from the homes about the use of the application 24 hours a day, 7 days a week.

Other Professionals = Generally, specially trained LTC pharmacy technicians and nurses employed by the pharmacy to provide supportive services for the residents benefit. They do not dispense nor are they considered part of the pharmacy operations staff.

PDA = Personal digital assistant is a hand held computer used by the physicians to enter residents orders into the pharmacy system.

Pill Crushers = Specialty devices for powdering tablets. Often large “Silent Knight” or other expensive crushers are needed to provide the strength required while protecting the users wrist from strain.

Policy and Procedure Manuals = Binders containing all the standardized policies and procedures to be followed in medication management, administration, treatment, ordering, destroying, documenting and charting. All pharmacy related activities may be included such as quality assurance procedures, medication error reporting and safety procedures. The manuals are customized by pharmacy for each home and supplied for each unit. They are reviewed and updated on an ongoing basis. Some homes request that their manuals be available online.

Printers = Machines used on the nursing units to print information related to medication orders.

Professional Training = Educational activities for which the consultant pharmacist or other professional staff are paid separately or for which there are additional costs involved such as registration, travel or other expenses.

Quarterly Physician Reports = Computerized report prepared and supplied every three months by pharmacy to the homes of all a physician’s current orders for a resident. It is used for physician and pharmacist review and re-ordering. It becomes documented evidence in the resident’s chart and is a requirement of current MOHLTC Standards.

Refrigerators = Small units used in locked medication rooms for storage of temperature sensitive medications. Newer specialized refrigerators may be requested for storage of vaccines and other biologicals.

Residents = People living in long term care homes.
Routine Costs to Dispense a Prescription = These costs are excluded from the *Ontario LTC Pharmacy Services Additional Costs Survey*. They are the costs of dispensing and pharmacy services which are comparable to those in standard retail community pharmacy, such as, but not limited to:

- interviewing patient (this would be the LTC caregiver) to obtain information required to provide prescription services
- selecting, counting, packaging (this would be vials for oral meds). LTC packaging costs reported must be those over and above the costs of vials
- appropriately labeling the medication
- counselling the patient (LTC caregiver) on medication if needed
- performing all drug program administrative requirements
- tracking patient files and managing drug benefits and inventory using a pharmacy practice management system
- providing pharmacy services such as ongoing counselling, adherence monitoring, triage and patient/caregiver enquires
- ordering, stocking and local delivery of medications if requested
- appropriately allocated indirect and overhead costs including rent, salaries and taxes

**Note:** In the 2008 *Costs of Ontario Community Pharmacy Services* (COCPS) report, pharmacies with up to 26% of their business in ODB prescriptions had a median cost of $17.20 per prescription while those with up to 90% of their business had median cost of $11.06 for these services.

Routine On-Call Services = Requirement of MOHLTC Standards that a pharmacist be available 24 hours a day, 7 days a week. Pharmacies vary in how the on-call pharmacist is compensated, either by a stipend for carrying a pager/cell phone and reimbursement for actual emergency services or just when called.

Server = Hardware device for running computer software systems for a home.

Specialized Forms = Records to assist with medication management including but not limited to forms for physician orders and charting, communications, drug ordering and receiving, narcotic and scheduled drug tracking, audits, error reporting and emergency supplies.

Start-Up Costs = Costs incurred by the pharmacy for supplies and services for a home, prior to the dispensing of one prescription.

Statistical Reports = Pharmacy is expected to create, edit and supply custom reports according to criteria established by the home. They often relate to medication use by therapeutic class, physician or nursing unit. They may be according to disease state or therapy modality.

Strips/Paks = Are flexible plastic pouches filled, sealed and labeled by a computer controlled packaging machine. They are supplied in strips for each resident according to the day of the week and the time the medication is to be administered.

Travel = Costs involved in travel by professional staff to homes.
Training Hours/Visits = Teaching sessions to instruct staff on new uses/procedures and/or new equipment or technology. They often involve many sessions to cover all staff on different shifts. Training has to be repeated on a regular basis to cover staff turnover.

Transaction Fees = Charges incurred by the pharmacy on behalf of the home for the transfer of information related to resident care.

Treatment Carts = Portable storage units for treatment supplies which are taken to the bedside or other locations for resident care. The home dictates the number of carts required for each nursing unit. Several different designs are available and the home usually requests their preference.

Turnover of Beds = The replacement of one resident by another after discharge or death. There is approximately a 30% turnover in residents per year.

User/Licensing Fees = Charges incurred by pharmacy on behalf of the home for the use and/or support of proprietary software in medication management and resident care.

Wages = Salary paid for work associated with MOHLTC licensed homes and not for similar services provided to retirement homes, group homes and other long term care facilities.

Wireless Infrastructure Costs = Costs assumed by pharmacy for assisting the home in establishing a non-cabled connection for their computers.

Web Access = Costs assumed by pharmacy to allow the home access to the internet.

Wireless Router = A network device supplied by pharmacy to allow access to the internet or a computer network without the need for a cabled connection.
Dear Ontario LTC Pharmacy Provider,

Recently, you should have received a notice from the Canadian Association of Chain Drug Stores alerting you to a study our firm (MENTORx) has undertaken on behalf of the CACDS and the Ontario Pharmacists’ Association to determine the costs of providing pharmacy services to residents of LTC facilities in Ontario. I want to thank you in advance for your participation in this important project.

Attached you will find the data collection survey as a 3-page Excel spreadsheet. The three pages are, Step 1: Background Data; Step 2: Start-up Costs; and Step 3: Ongoing Costs. To advance to each page of the survey simply click on its tab at the bottom of the screen.

Note that all fields that require data entry are colored pale yellow on the survey. Even if the answer is '0' we must have an entry in each yellow cell. Also note that throughout the survey there are comments that provide additional explanation for the item in question. These comments are indicated by a small red triangle in the upper right-hand corner of the cell. While some comments are visible, most have been hidden so as not to be too distracting. To view the comment simply hover your cursor over the field. For your convenience we have also attached the comments in a separate Users Guide and Glossary. It might be helpful to print that out and have it available for reference as you complete the survey.

Because time is of the essence in this project, we need your response by **Monday, August 31**. The completed survey should be sent by email attachment directly to me at desertmentors@earthlink.net with 'Ontario LTC Pharmacy Services Study' in the Subject line. Please be assured that your data are secure and that we never share individual respondent data with anyone outside of our firm.

Thank you again for your willingness to participate in this important project. If you have any questions regarding this project please refer them to me at this email address.

Best regards,

Michael T. Rupp, Ph.D.

MENTORx / PharmAccount