

# Ambulatory oncology nursing telephone services: A provincial survey

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## Abstract

*A survey of telephone nursing provided through ambulatory oncology programs in Ontario was conducted May to July 2006. Of 38 programs, 58% used primary nurses, 24% used a centralized triage approach, and 18% used a mixed model. About half of programs used protocols (61%), routinely documented calls (55%), and/or provided orientation to telephone nursing (45%). Few programs (29%) monitored telephone service quality. Practice strengths included: improved patient access, early symptom management, and increased continuity of care. Revealed barriers to using protocols were limited access to or awareness of protocols, management of multiple symptoms, inconsistencies with physician practices, concern that protocols replace critical thinking, inadequate time, and lack of electronic protocols. Participants acknowledged the need for electronic documentation, standardized criteria to monitor service quality, and further research to benchmark best practices.*

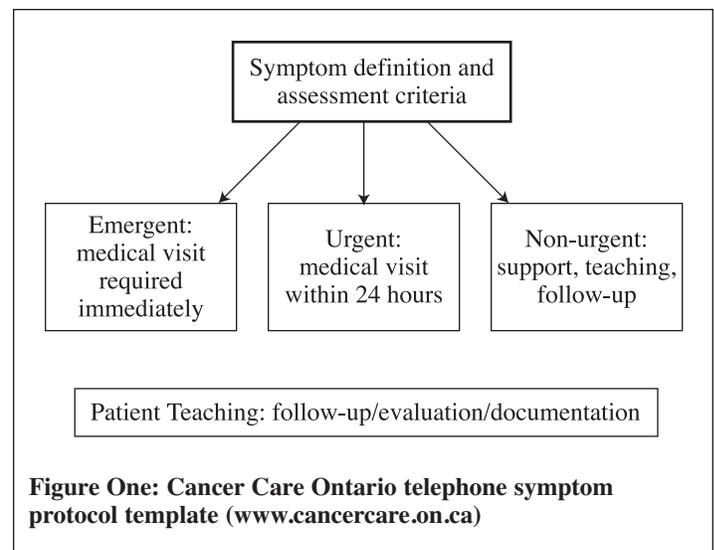
## Background

Most oncology patients are treated and monitored from home through ambulatory programs. An important supportive service for patients is access to health professionals by telephone for guidance in self-care, triaging symptom management to the appropriate level of care, and accessing oncology-related health information. Hence, oncology nurses are confronted with a variety of patient reported problems that require prompt assessment over the telephone, problem identification, and appropriate intervention. The revised College of Nurses of Ontario (CNO) Telepractice Guidelines (2005) acknowledges the role of the telephone within nursing practice and provides direction for establishing quality services.

The CNO defines nursing telepractice as “the delivery, management and coordination of care and services provided via information and telecommunication technologies” (CNO, 2005, p. 3). The telepractice nursing role is to establish a therapeutic nurse-client relationship that follows a process of assessment, planning,

implementation of education and health care support, evaluation and documentation (Canadian Nurses Association [CNA], 2001; Cooley, Lin, & Hunter, 1994). There are two main models for telephone service delivery (Wilson & Hubert, 2002). The primary nurse model is one in which the patients’ assigned nurse responds to outpatient calls along with routine in-person nursing duties. The centralized telephone triage nursing model assigns one nurse to manage all incoming calls for a specific period of time.

Key elements necessary for quality telephone-based services that minimize the risk of litigation are orientation for nurses providing telephone services, access to protocols that guide the process, documentation of calls, and quality assurance monitoring (Coleman, 1997; CNO 2005). In 2001, a task force of nurses through the Nursing Professional Advisory Committee at Cancer Care Ontario (CCO) was formed to develop the Telephone Nursing Practice and Symptom Management Guidelines (CCO Guidelines) for 12 common symptoms experienced by individuals with cancer or undergoing treatment for the disease. There are protocols for anorexia, diarrhea, constipation, stomatitis, dysuria/hematuria, nausea/vomiting, breathlessness, fatigue, fever, pain, skin alteration, and radiation-induced skin reaction. In 2004, the CCO Guidelines were disseminated in both English and French and are available on the internet ([www.cancercare.on.ca](http://www.cancercare.on.ca)). The protocols guide nurses to conduct a standardized assessment for the specific symptom and triage symptom management to the appropriate level of care, including self-care (Figure One). In addition to triage, nurses also provide advice and patient teaching, referrals to other resources, psychosocial support, and arrangements for home services (Wilson & Hubert, 2002). For example, the presence of diarrhea would be associated with symptom characteristics (i.e. number of stools per day, consistency, and pain) that would designate the patient as needing emergent, urgent or non-urgent levels of care. Urgent and non-urgent levels of care for diarrhea involve nurses educating patients on dietary needs, over-the-counter medication use, or titrating prescription medications.



**Figure One: Cancer Care Ontario telephone symptom protocol template ([www.cancercare.on.ca](http://www.cancercare.on.ca))**

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There has been little evaluation of telephone nursing services in Canada (Cooley et al., 1994; Hamilton & Grant, 2006; Kelly, Faught, & Holmes, 1999; Stacey et al., 2003; Wilson & Hubert, 2002). A systematic review of studies of telephone-based health services in primary care found that approximately 50% of the symptom calls could be managed by telephone alone without in-person visits and that nurses' care was equally as safe as physician care (Stacey et al.). Nurses in ambulatory oncology programs have an advantage over call centre nurses because their patient populations are usually known to them (Wilson & Hubert, 2002).

The objectives of this study were to explore and describe the characteristics of telephone-based nursing services provided through ambulatory oncology programs for cancer patients in Ontario, identify factors influencing the use of telephone protocols in practice, and identify opportunities to enhance the quality of these telephone services.

## Methods

A descriptive study was conducted from May to July 2006 with organizations in Ontario that provide ambulatory oncology services. Eligible programs were defined as providing outpatient services that include assessment, treatment (chemotherapy, radiation therapy), and supportive care for individuals with cancer who are living at home or staying at a cancer lodge. In Ontario, there are 14 Integrated Cancer Programs (ICP) that offer the full range of cancer services including diagnostics, treatment, supportive care, and palliative care. Associated with each ICP are several hospitals offering chemotherapy. The ICP serves as the "hub" where cancer patients' plan of care is developed. The plan for chemotherapy is subsequently implemented within the ICP or at one of the satellite or affiliate settings closer to the patient's home.

Data were collected using a questionnaire that was based on a previous survey conducted to examine nursing services offered through Canadian province-wide call centre programs (Stacey et al., 2003). Questionnaire items were modified to reflect oncology nursing and ambulatory care. Face validity of the survey questionnaire was established by a group of 11 researchers and practitioners with expertise in oncology nursing and research methods. An online version of the questionnaire was developed and pre-tested by nurses associated with another ambulatory patient program and a community care service.

The questionnaire was administered as an online survey using the Survey Monkey® software. At each ambulatory oncology program, one registered nurse who was involved in an administrative or leadership role (e.g., nurse manager, clinical educator) was sent the online survey with an invitation to participate as the "survey respondent" on behalf of his/her organization. Potential survey respondents were identified by the oncology nursing program committee at CCO. The distribution procedures of the survey were based on Tailored Design Method for Surveys (Dillman, 2000), in which an initial email was sent to the identified survey respondents at each ambulatory oncology program, followed by email reminders sent at two, four, and six weeks. Laurentian University's Research Ethics Board approved the study.

Data collected in Survey Monkey were downloaded into SPSS (version 12.0) for analysis. Quantitative data were summarized by calculating frequencies and significance testing of cross-tabulated data used Fisher's Exact Test. Qualitative thematic content analysis was used to process those answers gathered from open-ended questions.

## Results

Of 71 programs invited to participate, 51 responded to the survey and, of those, 39 provide telephone services by nurses. Survey respondents represented programs from across Ontario serving populations ranging from fewer than 10,000 to more than 500,000

(see Table One). The number of nurses who provide telephone services ranged from one to 40 working full-time and one to 18 working part-time hours within any single program. Most programs have one or more nurses with certification in oncology providing telephone-based practice.

Most programs (n=33) provide telephone services during regular working hours only (e.g., Monday to Friday). Of the remaining six programs, three provide access to nurses 24 hours a day, one provides mostly out-of-regular-hours contact, one provides 24-hour access for patients on continuous infusion pumps, and one program did not respond to this question. Almost all programs (37/38) encourage patients to call before proceeding to emergency or medical clinics.

**Nursing Telephone Service Characteristics.** Of the 39 programs, 38 responded to survey questions describing their telephone services. Of these, 22 use a primary nurse model (58%), nine assign nurses to a centralized triage telephone office (24%), and seven use a mix of

**Table One: Characteristics of ambulatory oncology programs (n=39)**

Characteristics	Number of programs (frequencies)
Size of population served	
Less than 10,000	2
10,000-99,999	5
100,000 to 499,999	18
More than 500,000	10
No response/don't know	4
Number of new patients referred to the program	
Less than 100	6
101 to 500	5
501 to 1000	3
1001 to 2500	6
More than 2500	4
No response/don't know	15
Geographic region in Ontario	
Algoma	1
Central east – Toronto	7
Central west – Hamilton	3
Eastern – Ottawa	6
Northeast – Sudbury	4
Northwest – Thunder Bay	2
South – Windsor	1
Southeast – Kingston	2
Southeast – Belleville	1
Southwest – London	1
Grand River – Kitchener	3
Muskoka – Simcoe	3
Peel – Mississauga	1
Durham – Oshawa	2
No response	2
Programs having >1 nurse responding to calls who is designated as	
Oncology certified	28
Advanced practice degree	7
Nurse practitioner	6
Programs encourage patients to call prior to going to emergency or medical clinic	
Yes	36
No	1
No response	2

these models (18%). The services provided for patient initiated calls include: symptom management (97%); triage advice (95%); teaching (84%); health information by referring to patient education resource (61%); and health information by referral to a website (39%). In addition to incoming calls, 22 programs initiate calls by nurses for post-treatment monitoring of patients (58%) and 8 programs initiate calls by nurses to newly referred patients (21%). Nurse-initiated follow-up telephone calls were reported in 6 of 7 (86%) programs serving populations of <100,000 compared to 14 of 28 (50%) programs serving populations >100,000 ( $p=0.20$ ; Fisher's exact test). New patient calls initiated by the nurse were reported in 4 of 7 (57%) programs serving populations <100,000 compared to 4 of 28 (14%) programs serving populations >100,000 ( $p=0.03$ ; Fisher's exact test).

**Elements of safe telephone practice.** Seventeen of 38 (45%) programs provide orientation for nurses to telephone-based practice, 19 (50%) do not provide orientation, and two provided no response. Orientation is done using preceptors (64%; 11/17), classroom learning (59%; 10/17), and/or self-directed study (53%; 9/17) with the average length of time ranging from 0.3 to 15 hours (median five hours). Of the eight programs that provide nurses with feedback on their telephone performance, the approaches used included telephone audits, patient feedback, assessment during performance appraisal, and/or feedback when problems arise. A strength identified by some programs was the yearly review of telephone standards and guidelines.

Thirty-eight programs provided information about documentation. Of these programs, calls are documented routinely at 21 sites, as necessary at 14 sites, and not at all at three sites. Electronic documentation was reported for eight of 35 programs, while the remaining 27 programs reported using paper-based systems.

Eleven out of 38 programs reported undertaking activities to monitor or evaluate the quality of the telephone services. Service evaluation included: response times (4/11); use of telephone protocols (3/11); client satisfaction (3/11); charted audits (2/11); symptom control (2/11); appropriateness of triage (2/11); disposition of calls to clinic visit or self-care alone (1/11); and health-related quality of life (1/11). No programs have publicly available evaluation reports.

Of the 23 programs that use protocols, 17 used the CCO Guidelines (74%), five used guidelines developed by their program (22%), and one did not report the origin of protocols used. Protocols are used as desk references in 21 programs and as orientation resources for telephone care in 15 programs. One respondent reported that "a strength" of their program is the use of protocols 75% of the time. When asked about the proportion of nurses who would use the French version of the CCO Guidelines, 1/36 programs reported >50%, 4/36 programs reported 10 to 50%, 9/36 programs reported <10%, and 23/36 programs reported 0% of nurses.

Thirty-four respondents identified barriers to using telephone protocols that were related to protocol characteristics, nurses' practices, and the working environment. The most common barrier cited was time constraints that interfered with finding and using

protocols. Barriers specific to the protocols included lack of accessibility (e.g., large document, not beside all phones), inadequacy of protocols when dealing with patients experiencing multiple symptoms, limited number of symptom guidelines, concerns about being up-to-date, and lack of electronic format for protocols. For example, one nurse described the challenge of working with an "unwieldy paper version to reference while dealing with a paper patient chart". Barriers related to using protocols in nursing practice included lack of nurses' awareness of their existence, experienced nurses feeling confident with their telephone skills and neglecting the protocols, and concerns that protocols may replace nursing judgment or critical thinking. Practice environment barriers that were reported to influence the use of protocols included inconsistent expectations from supervisors, lack of support for protocol use amongst oncology teams, and incompatibility with physicians' current practices.

When the four key elements, as identified by the CNO (2005), for safe telephone nursing practices were analyzed in relation to electronic versus paper-based documentation systems, differences were noted (see Table Two). Programs that use electronic documentation were more likely to have all calls documented ( $p<0.05$ ). When the key elements of safe telephone practice were examined based on model of nursing services, there was no statistically significant difference between primary nursing versus other models of nursing services (see Table Three).

**Strengths of telephone-based nursing services.** Thirty-one participants described strengths of their telephone nursing services, grouped by three main themes: a) system responsive to patients' needs; b) continuity of care; and c) effective multidisciplinary care. Respondents reported that nurses respond to patients' needs by: managing patients' symptoms from a distance to avoid unnecessary visits; providing prompt call back (within a day); reinforcing teaching; and providing consistent information. One respondent reported, "patients find it a source of security to have someone available". Overall, respondents perceived that patients feel supported by their oncology team, less anxious, and are satisfied with the services. For example, one respondent stated that "for patients on home chemo[therapy], one of the chemo nurses is on call 24 hours a day to provide immediate attention to problems concerning their ambulatory pumps".

Telephone services were reported to enhance the continuity of care both within the oncology team and between the oncology team and community based providers. For example, continuity was enhanced by patients having a direct link to their oncology team, nurses having access to the health record, calls being documented, and availability of services such as the coordination of home care,

	Use Protocols		Provide Orientation		Document Calls		Monitor Quality	
	Yes	No	Yes	No	Yes	No	Yes	No
Electronic	7	1	5	3	8	0	4	4
Paper-based	16	11	12	13	13	14	7	17
Fisher's Exact Test (2-sided)	p=0.22		p=0.69		p=0.01		p=0.40	

	Use Protocols		Provide Orientation		Document Calls		Monitor Quality	
	Yes	No	Yes	No	Yes	No	Yes	No
Primary Nursing	11	11	8	12	21 (12+9*)	1	8	11
Other models	13	3	9	7	14 (9+5*)	2	3	13
Fisher's Exact Test (2-sided)	p=0.09		p=0.50		p=0.56		p=0.17	
(*routine or as necessary)								

as needed. In programs using a primary nurse model or smaller centres, patients were described as being familiar with the nurse(s) through pre-established relationships. One respondent wrote that “patients like the idea of having one contact nurse to call in and speak with”.

A third main strength of telephone-based programs identified was ensuring effective multidisciplinary care. Through these services, patients were described as having their symptoms addressed early to avoid emergency visits or hospitalizations, nurses triaging calls to minimize unnecessary physician contacts, and nurses having higher accountability for follow-up care. Another strength reported by many respondents was the high level of expertise of the nurses handling the calls, many of whom were certified oncology nurses. Some respondents also identified that the use of protocols to guide calls was “a strength”.

**Opportunities for improved services.** Identified opportunities to improve telephone-based services were focused on improving the protocols, having access to an electronic chart with documenting capabilities, adequate staffing to handle call volume, using a primary nurse model, providing support for non-nursing-related calls, and designing a more formal orientation program for implementing protocols in telephone nursing practices. More specifically, nurses want protocols to be available electronically and integrated with documentation such that there are checklists to standardize documentation. As one respondent suggested:

*I would love to see a standardized electronic tool that would be utilized throughout our region so that we consistently assess, document, educate and intervene with patients in the same way (evidence-based)... the standards are a great start, but we need to somehow embed this approach and body of knowledge in the clinical tools rather than having them separate, where a clinician will have to refer to [them].*

Respondents suggested the need to address concerns of nurses and patients related to telephone services. Nurses’ concerns included liability issues associated with providing telephone advice and high-volume patient workloads that interfere with promptness of callbacks. As one participant said, “if short-staffed, this [answering telephone calls] is the position pulled”. Respondents also described the tension between managing the call as nurses versus redirecting calls to the primary care physicians. Patient-related concerns, as identified by nurse respondents, included waiting for calls to be answered, busy telephone lines, having to leave voicemail messages, not knowing the nurse who is calling, and having to seek care from professionals not familiar with oncology issues (e.g., drop in clinics, emergency rooms). One participant stated that patients want “quicker call-back times, especially when awaiting same-day lab work.”

Respondents supported the use of CCO protocols and suggested that nurses in related programs (e.g., community nurses, emergency departments) should be aware of these oncology-specific symptom management guidelines. Finally, respondents identified the need for a province-wide set of indicators of call quality to monitor nurse and patient satisfaction, as well as other relevant outcomes.

## Discussion

This is the first study known to profile the current telephone-based nursing services in ambulatory oncology programs. The typical program provided telephone services on weekdays using a primary nursing model with patient-initiated calls requiring symptom management, symptom triage advice, and teaching. Programs serving populations <100,000 were more likely to initiate calls by nurses to newly referred patients. Only about half of the programs met the CNA guidelines for safe nursing telephone practices that include using protocols (61%), routine documentation of calls (55%), and orientation (45%). Few programs (29%) monitor the quality of the telephone services. Although there were several strengths of the

telephone services primarily focused on improved access and continuity of care, there are issues related to symptom management protocols, providing orientation, and evaluating safety and quality of telephone nursing services.

The use of well-developed telephone protocols does not prescribe to “cook-book nursing” but, in fact, promotes evidence-based nursing practice by providing guidelines based on research evidence that can be integrated with other types of evidence such as individual patient needs and preferences, and provider clinical expertise. All Canadian province-wide nursing call centre programs have protocols to guide nursing practice and most are integrated within the electronic documentation system (Stacey et al., 2003). However, it is unclear if protocols designed for use in primary care are appropriate for ambulatory oncology patients who are receiving cancer treatments. Given that the CCO guidelines were created specifically for oncology patients, it would be worth making improvements based on the feedback from the nurses in this study. In our survey, nurses were more likely to document their calls when they had access to electronic health records. Another study found that nurses at a provincial call centre were more likely to use protocols when they were embedded within the electronic documentation system (Stacey, Pomey, O’Connor, & Graham, 2006). Therefore, these protocols need guidelines for handling patients experiencing multiple symptoms, and an electronic format to improve accessibility and link between electronic protocols and the electronic health record. Using standardized charts, checklists, and electronic tools has the potential to decrease the time nurses spend consulting patient charts and documenting calls, another concern expressed by nurses in our study.

Orientation is designed to help nurses develop their knowledge and skills in providing telephone-based nursing care. In this survey, oncology programs ranged from providing no orientation upwards to 15 hours of orientation. Canadian call centres reported providing nurses with 40 to more than 155 hours of orientation (Stacey et al., 2003). In addition to learning about the organization, the orientation focuses on developing assessment skills over the telephone, practice with using protocols and documenting simulated calls, skill development coaching by a mentor, and ongoing monthly performance feedback from supervisors. Nurses in our study suggested the need for a provincial orientation program that could be implemented within the different centres. Furthermore, orientation for symptom management could be extended for nurses working in related programs such as community-based nursing or emergency departments.

Although nurses have been providing telephone advice for ambulatory oncology patients for many years, there has been little evaluation of the quality of these services and inconsistent use of outcomes measures that does not permit comparison across programs. The top three outcomes measured in 8–10% of programs in our study were response time, use of telephone protocols, and client satisfaction. Client satisfaction was also commonly measured in province-wide programs in British Columbia, Alberta, Ontario, Quebec, and New Brunswick (Stacey et al., 2003). Given the high rate of patient satisfaction, it is not usually a sensitive-enough measure for monitoring program quality. Additional measures could include disposition of calls, response time in relation to symptom severity, patient empowerment in self-care, involvement of patients in determining the best course of action, and workload measures.

Finally, despite distinguishing between different models of telephone care (e.g., primary nursing, centralized triage office), our study did not seek to identify or promote one model. There are advantages and disadvantages to both approaches and little evidence to suggest that one model is superior. Previous studies have suggested that primary nursing strengthens continuity of care in the patient-nurse relationship, prevents hospital emergency visits, and increases

nurses' participation in patient care (Cooley et al., 1994; Wilson & Hubert, 2002). There needs to be more research to determine best practices for telephone nursing services, including the effectiveness of protocols in improving safe, quality telephone care.

Key limitations influencing these findings were the potential for non-response bias, reporting bias, and limited generalizability. Although we had an overall response rate of 72%, a higher proportion of participants with telephone services by nurses (38 of 39) provided descriptions of their services with few questions left unanswered. As well, those responding may have been more likely to provide responses that were perceived to be expected. Given the confidential nature of the survey and that data collected reflected the perceptions of respondents describing their program policies and practices rather than individual nurse practices, it cannot be ascertained that all survey responses accurately reflected the reality of nurses' practices. Finally, this study took place in one Canadian province. While the characteristics of the programs and barriers to using protocols were specific to Ontario settings, there was consistency across programs within Ontario and they are likely to be relevant for other programs providing telephone services to ambulatory oncology patients.

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## Conclusions

Although most programs provide telephone services by nurses for oncology patients during regular weekday office hours, few programs met all elements required by the CNA for safe telephone nursing practice (e.g., orientation to telephone nursing, protocols to guide calls, documentation of calls, monitoring of call quality). Opportunities for enhancing the telephone services included development of telephone-friendly protocols integrated with electronic documentation, the design of protocol guidelines for managing patients with multiple symptoms, development of standardized orientation for tele-oncology nursing, establishment of standardized criteria to monitor program quality, and consistent measures to facilitate comparison across programs. Further research is needed to explore how nurses are overcoming the aforementioned barriers and creating strategies to improve their telephone practice. As well, there is a need to measure the quality of the assessments and safety of telephone care provided, including timeliness of responses to patient-initiated calls.