

Model of care and pattern of nursing practice in ambulatory oncology

by Charlotte T. Lee and Barbara Fitzgerald

Abstract

Background: The worldwide burden of cancer warrants more effective and efficient cancer care management strategies (World Health Organization, 2003). Model of ambulatory care, in particular, has tremendous implications on patient and administrative outcomes (Knight, 2007; Lynch, Marcone & Kagan, 2007; Moore, Johnson, Fortner & Houts, 2008). Nevertheless, little is known about the pattern of practices and the clinic operations in this setting. As part of the hospital's ambulatory redesign program, this survey aims to: a) review and describe existing models of ambulatory care employed by key national and international cancer centres; b) identify models or elements within the models that are appropriate to be adopted for best practice.

Methods: Semi-structured interviews with 10 senior management members at 10 centres (N=10) were conducted. Participants were asked to describe: a) model of ambulatory care employed by their institution (e.g., scope and model of ambulatory nursing practice); and b) strategies used to manage common patient care related issues in their institutions. Interviews were recorded and analyzed according to the objectives of this survey.

Results: A majority of cancer centres employed models of care similar to the existing Hospital model of ambulatory care and are encountering similar challenges in care delivery. Therefore, it was not deemed appropriate to adopt any models from participating centres.

Conclusion: It is crucial for administrators to report and share best practices to ensure high-quality care. The survey of current practice did not yield sufficient data to adequately support the implementation of any specific models at the hospital's ambulatory care settings. Nevertheless, findings from the present review support the principles proposed for the new hospital model of ambulatory care.

Cancer prevalence and incidence are on the rise. The global cancer population was projected to increase by 50% between 2003 and 2020 (World Health Organization, 2003). In Canada, a similar trend has been noted. New cancer cases have increased from 30,000 per year in the 1980s to close to 90,000 for 2010 (Canadian Cancer Society, 2010). Despite a slight decline in some disease sites, the overall incidence continues to increase.

The mounting volume of cancer patients creates challenges for health care systems across the globe in strategizing optimal care that balances cost with quality of care. Launched in 2008, the hospital's ambulatory redesign program aims to further improve

the quality and efficiency of patient care in ambulatory settings (Princess Margaret Hospital, 2009). This program includes components for benchmarking best practice. As such, managers and leaders from 10 cancer centres around the world were surveyed. Items related to model of care and clinical practice management were discussed to identify challenges and solutions encountered within the outpatient oncology community.

This article aims to reiterate the key responses from the interviews. It is hoped that information collected can be shared and thereby prevent redundancy in future quality improvement initiatives.

Methodology

Participants were interviewed using a semi-structured interview guide. The interviews were recorded to ensure accuracy, completeness and richness of data. The semi-structured interview protocol enabled standardization of questions while still allowing the participant to fully respond. The questions were developed from the ambulatory redesign program objectives and discussions within the steering committee. Questions regarding participating institutions' models of ambulatory care, scope and pattern of nursing practice, and strategies in dealing with common ambulatory patient care issues were asked (Table 1). Following the interviews, institution characteristics were gathered from interviewees.

Table 1: Content areas examined by interviews

Institution characteristics <ul style="list-style-type: none">• Patient volume• Number of ambulatory staff nurses• Number of educators
Model of care <ul style="list-style-type: none">• Overall description• Description of nurse-physician collaboration• Challenges to current model of care
Scope and pattern of ambulatory nursing in oncology <ul style="list-style-type: none">• Role and responsibilities of ambulatory nurses• Role of advanced practice nurses (APN)
Strategies in dealing with common ambulatory patient care issues <ul style="list-style-type: none">• Management of clinic tasks that prevent nurses from direct patient care• Workload measurement• Handling outpatient oncologic procedures• Handling overtime clinics• Connecting chemotherapy nurses with ambulatory care• Integrating clinical trial activities into ambulatory care

Results

Characteristics of participating institutions

A majority of survey participants were from Canadian cancer centres, which provided good representation of various care delivery practices across different provinces. All except one participating institution offered cancer care programs to the adult population. Additionally, all participating centres were comprehensive cancer centres that provided all three modalities of cancer treatment, namely, all had surgical, radiation and medical oncology programs. The number of patients treated and the number of staff (full-time equivalent [FTE] RNs and educators) employed allowed comparison with the contextual characteristics at the hospital.

About the authors



Charlotte T. Lee, RN, OCN, CON(C), PhD, Assistant Professor, Program in Nursing Science, University of California, Irvine, 252C Berk Hall, Irvine, CA, USA 92697-3959 Email: charlotte.lee@uci.edu



Barbara Fitzgerald, RN, MScN, Director of Nursing, Princess Margaret Hospital, University Health Network, 610 University Avenue, Toronto, Ontario M5G 2M9. Email: barbara.fitzgerald@uhn.on.ca

Region	Number of participating centres
Australia	1
Canada	6
U.S.	3
Total	10

Number of FTE RNs (n)	Number of FTE educators (n)
1-20 (4)	0-1 (3)
21-40 (1)	1.1-2 (2)
41-60 (1)	2.1-3 (2)
60+ (5)	3.1-4 (3)

Model of care

Overall description. Model of care is defined by Davidson and Elliott (2001) as a “multidimensional concept that defines how health care services are delivered. It determines what roles are needed, who has decision authority and what kind, and establishes role relationships with the patient/family and within the team.” All participating centres emphasized on the interprofessional, patient-centred nature of their models. In addition, these centres also offered comprehensive, inter-professional care throughout the trajectory of patients’ treatment.

No identical models were noted from the interviews. However, they can be categorized by two main characteristics: a) mode of nurse-physician collaboration (partnership alignment versus no formal alignment); b) basis of nursing expertise (disease site-specific versus modality specific).

1. Nurse-physician collaboration: An overwhelming majority of participating centres adopted a partnership model for nurse-physician collaboration (n=8). In this model, a primary nurse is assigned to each physician’s practices and nurses are often the patients’ primary contact. This arrangement is similar to the present Hospital model and is similar to the Nurse Substitute Model of ambulatory cancer care delivery (Porter, 1995). Additionally, all nurses in the aforementioned partnership model practise case management.

Some participants pointed out a major issue associated with the aforementioned partnership model was efficiency (limited by the redundancy of having multiple care providers) and continuity of care. For instance, if a patient received all three modalities of treatment, he/she would have three primary nurses. Communication amongst these nurses is often inadequate, thus redundancy is not uncommon. At the time of the interview, one centre was also in the process of reviewing their ambulatory model of care. This centre may propose for patients to have one primary nurse (case manager) throughout the duration for treatment regardless of treatment modalities.

Another issue associated with nurse-physician collaboration was workload. If a nurse was the primary nurse for three physicians, he/she would have to case manage 60 to 100 patients who were on active treatment at any given time. Much of this workload may be redundant given that many patients already have another primary nurse of another treatment modality.

The only centre that did not have specific nurse-physician alignment also did not case manage all patients. The collaboration between nurses and physicians was intermittent. In this centre, nurses provided care in nurse-led clinics where patients were self-referred or physician-referred. However, no evidence is available to illustrate the effectiveness of this arrangement.

2. Disease-site-specific versus modality-specific nursing expertise: A majority of centres aligned nursing expertise with modality of treatment to facilitate work with physician partners (who are trained by the modality of treatment). However, as nurses are aligned with

more physician partners, they are expected to case manage patients of other disease site groups and sometimes even another treatment modality. This may pose difficulties for nurses to develop well-rounded expertise for patient management.

Disease-site-specific nursing alignment allows nurses to become familiar with the biology, treatment and management of a particular disease site. However, it may also be challenging to ensure nurses gain the competency in all three modalities of treatment; as well, this is not feasible for centres with fewer nurses and physicians due to potential conflicts with scheduling.

Challenges to current model of care. Regardless of characteristics of nurse-physician alignment, similar key challenges were identified by interviewees (see below). These challenges are intertwined (e.g., high patient complexity and increased patient volume lead to nursing workload issues) and are similar to those identified in a previous report (PMH, 2009). Prevalence and intensity of the following challenges indicate needs to introduce changes to our current model of ambulatory care:

1. Increased complexity of treatment (n=10)

More disease site groups employ multiple modalities of treatment. In addition, with advances in cancer treatment, more patients are undergoing cancer treatment for a longer period of time. Both of these changes in disease management lead to higher patient acuity, as well, demands for education and support (navigation, symptom management, psychosocial support).

2. Increased patient volume (n=9)

The approximate increase in patient volume is about 30% and has significant implications on nursing workload.

3. Heavy nursing workload and a lack of workload measurement tools (all Canadian centres)

Despite concerns regarding mounting nursing workload resulting from the challenges listed above, there is a lack of workload measurement tools for ambulatory nursing. Without a means to evaluate workload, it is difficult to lobby for an increase in resource allocation and/or changes in staffing to achieve workload equity.

4. Other challenges identified by interviewees include: insufficient clinic space (n=4), insufficient eligible nurses to work in ambulatory nursing (n=2), and prolonged wait time between referral and consultation (n=1).

In summary, all except one cancer centre employ the nurse-physician partnership model similar to the present model at the hospital. These centres are encountering similar outpatient challenges. This validates the need to examine the feasibility and sustainability of nurse-physician partnership given an increasing patient population and resources not being able to match the growth in volume and demand.

With regards to site-specific versus modality-specific nursing alignment, there is currently no known evidence that demonstrates the benefits and deficiencies of either means. However, it appears to be more feasible to maintain site-specific alignment than modality-specific alignment as centres in the latter categories reported that many nurses worked with physicians in more than one modality. This was not the case in site-specific centres.

Scope and pattern of ambulatory nursing care

Role and responsibilities of ambulatory nurse. As illustrated in Table 4, the role and responsibilities identified by interviewees are similar to those mandated by Cancer Care Ontario.

It is worthy to note the variation of nursing telephone triage practices across all participating centres. While primary nurses are the main patient contact for almost all centres, many of them employ centralized telephone help lines to ensure: a) patients will always be able to speak with a nurse during office hours; and, b) nurses can focus on nursing issues through the elimination of calls for administrative purposes. Phone calls are centralized across sites for centres that employ centralized triage, and clinic nurses rotate to ensure adequate coverage.

Most frequently identified	Less frequently identified
<ul style="list-style-type: none"> • Patient education (n=10) • Support (n=10) • Symptom management (n=10) • Care coordination (n=10) 	<ul style="list-style-type: none"> • Telephone triage (n=8) • Primary contact for patients (n=8) • Obtain insurance authorization (n=2) • Assist physicians during clinics (n=6)

Utilization of standardized assessment tool. All participating cancer centres have mandated the use of a standardized tool for patient assessment. However, the type of tool and the setting of utilization vary amongst our participants (Table 5). Most centres employ their own assessment tool that may be standardized across disease sites or across the institution. Amongst the tools identified, most centres employed standardized tools for assessing chemotherapy toxicities (n=8).

General Assessment
<ul style="list-style-type: none"> • New patient assessment form • Follow-up patient assessment/flow sheet • Edmonton Symptom Assessment System (ESAS)
Symptom Management
<ul style="list-style-type: none"> • Chemotherapy toxicity assessment/flow sheet
Others
<ul style="list-style-type: none"> • Telephone triage guidelines • Stress screening tool

Role of advanced practice nurses (APN). Most interviewees agreed that the role of advanced practice nurses is under development. Based on the roles identified by the interviewees, APNs [which includes nurse practitioners (NPs) and clinical nurse specialists (CNSs)] are involved in a variety of clinical and administrative roles. Overall, the flexibility and contributions of APNs are highly valued—many APN-led clinics have successfully addressed gaps in patient care and alleviate the burden of patient volume in physician practices.

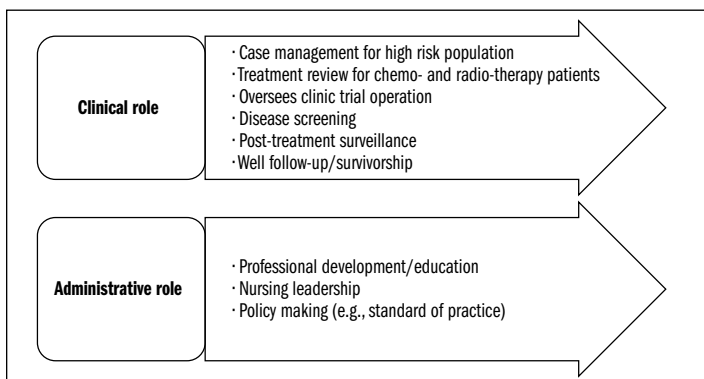


Figure 1: Role of APN

Strategies in dealing with common ambulatory care issues

Management of clinic tasks that prevent nurses from direct patient care. Interviewees were asked specifically about the allocation of the following tasks during clinic: order entry, patient flow and telephone calls. The specific roles responsible for the aforementioned tasks are listed in Table 6.

Contextual differences were noted between participating centres and the hospital's operations; these differences may have contributed to the difficulties for the hospital's nurses in providing direct patient care during clinics:

1. Electronic patient record and ordering system are not prevalent amongst surveyed centres.

Only two centres employ electronic order entry processes similar to the hospital. Both centres have systems in place so that physicians' orders are legitimized (e.g., signature on a written note or e-signature) before being transcribed by clerical support staff.

2. The availability of in-clinic support for the hospital's nurses is relatively lean.

Designated nursing and/or non-nursing support staff take part in clinic operations, these roles are unavailable at the hospital clinics. However, a number of clinics with higher patient volume are staffed with two RNs to facilitate patient flow, order entry and miscellaneous tasks.

3. Patient education classes reduce in-clinic workload.

Two centres implemented pre-treatment education classes for patients so that nurses can spend more time on other customized nursing tasks.

Role for order entry (n)	Role for patient flow (n)	Role for telephone calls (n)
<ul style="list-style-type: none"> • All chemo orders by MDs/NPs (11) • Written order by MDs → input by clerical staff (10) • Verbal order by MDs → input by RNs (1) 	<ul style="list-style-type: none"> • Nursing aids or equivalent (3) • Nurses (3) • Non-nursing support staff (4) • No designated role (1) 	<ul style="list-style-type: none"> • Nursing aids or equivalent (1) • Nurses (3) • Non-nursing support staff (5) • No designated role/ Irrelevant issue (2)

Workload measurement. As mentioned previously, none of the centres utilized any workload measurement tools at the time of the survey. One centre has used GRASP in the past but reported that the tool did not measure outpatient clinic work accurately.

On the other hand, several chemotherapy administration units had workload measurement tools. However, those tools capture patient acuity as surrogate workload indicators. This surrogate indicator alone is insufficient for assessing ambulatory nurses' workload.

Handling outpatient oncologic procedures. A number of outpatient facilities were identified to handle outpatient procedures such as paracentesis, thoracentesis and hydration. They are: a) clinic procedure rooms (n=4); b) chemotherapy administration unit (n=4); c) procedure clinic (n=2); d) ambulance holding area (n=1); e) nurse-led radiation walk-in clinic (n=1); f) affiliated hospital (n=1).

Handling overtime clinics. All participating centres provide nursing coverage for overtime clinics. A few strategies were identified by interviewees regarding nursing coverage. They are:

- Establish nursing shifts for late afternoon and early evening to cover clinics that run long (n=2)
- Nursing supervisor covers for overtime clinics (n=1)
- Nurses stay for the overtime clinics and work shorter hours the following days/week (n=3)
- Nurses stay for the overtime clinics and be paid for their overtime hours (n=1)
- Nurses are scheduled to work longer hours each day for prolonged clinics but for fewer days each week (e.g., work 4 days a week, 10 hours per day) (n=1).

Most centres arranged to have the same nurse stay for the overtime clinic. This reflects the importance of continuity in nursing support during clinic.

Connecting chemotherapy nurses with the rest of the ambulatory team. Chemotherapy units in almost all centres (n=9) administer treatment for all disease site groups, only one centre has sufficient patient volume to provide chemotherapy by site. In addition, a majority of the interviewees identify communication strategies similar to that used by the hospital's chemotherapy daycare staff members (e.g., patient flow chart, communicate through paging, voicemail and/or email).

One centre is currently testing a protocol for improving the efficiency in communication by limiting chemotherapy staff to utilize a particular mode of communication (e.g., paging versus email) for issues for a particular level of urgency. Another centre established weekly nursing staff meetings that include clinic nursing staff and chemotherapy nursing staff members. Further inter-professional integration initiatives are warranted for improving the continuity of patient care.

Integrating clinical trial activities into ambulatory care. Overall, there is a moderate degree of integration between clinical trial services and standard outpatient care. No consistent pattern or standard for managing clinical trial patients was noted from interview data. Several ways of operating clinical trials were noted:

- Centralized clinical trial operation (n=2)
All clinical trial personnel work together as a team for all trials across the cancer centre.
- Centralized clinical trial operation per disease site (n=3)
All clinical trial personnel work together as a team for all trials across the same disease site.
- Decentralized clinical trial operation (n=4)
Principal investigator of the trials determines staffing needs for each clinical trial.

As a result of inconsistencies in managing clinical trial operations, not all trial nurses manage patients' treatments and issues outside of trial protocols. Many centres identify the potentially sporadic communication and ambiguities in roles/responsibilities as top administrative priorities.

Table 7: Involvement of clinical trial nurse
Do clinical trial nurses take over patient care?
• Trial nurses take over care (n=2)
• Trial nurses do not take over care (n=4)
• A mix of both (n=2)

Synthesis and conclusion

The current survey of 10 cancer centres aims to: a) explore and examine model(s) of care appropriate for the hospital ambulatory redesign program; and b) describe the current practice in oncologic ambulatory care settings.

Model of care

A majority of participating centres employs models similar to the present hospital model of care—nurse-physician partnership model that straddles across sites and modality of treatment. As a result, it is not surprising that interviewees expressed similar challenges at their centres.

Under the nurse-physician partnership model, alignment to treatment modalities is ideal only when that cancer centre has many physicians working within the same modality and within the same disease site group. Otherwise, nurses will have to manage another physician's practice in either another disease site or another

treatment modality. Aligning with another disease site would warrant an immense amount of education on the biology of another disease, while aligning with another treatment modality would mean further education on the science of the treatment intervention and implications on patient management. There is currently no known literature to support which option is more feasible or beneficial to enhancing efficiency and quality of patient care.

Other oncologic outpatient issues


Overall, similar strategies are employed at the hospital to handle the most commonly encountered issues with ambulatory care operations, with the exception of staffing support during clinics (hospital nurses has less in-clinic support than most other centres).

In conclusion, findings from the literature review and survey of cancer centres support the following items within the current ambulatory model of care redesign project:

- Rationale behind the need to change based on similar challenges identified by interview participants
- Principles for the new model of ambulatory care (including inter-professional, patient-centred care)
- Positive value associated with expanding APN's role
- Initiatives in reviewing nursing workload measurement in ambulatory clinic
- Emphasis on improving continuity of care across disease sites (e.g., between chemotherapy and ambulatory care team; between clinical trial and ambulatory care team).

Although no specific models can be chosen to be implemented, results shed light on the following aspects of the new hospital model:

- Both site-specific and modality-specific model are used in existing cancer centres
- Nurse-physician partnership model poses threats on nursing workload
- A variety of strategies can be considered to alleviate nursing workload during and outside of clinics—the introduction of patient education classes, assignment of clinic duties unrelated to nursing care to other care providers, establishment of infrastructure that enables nurses to focus on the provision of direct patient care.

Last but not least, findings from the present survey demonstrate that, despite growing demands from a burgeoning cancer population, little is found in the literature that addresses the common challenges in managing outpatient oncology care. Researchers and decision-makers should collaborate to develop theoretically sound initiatives in tackling these issues, as well as ensure that monitoring and evaluation efforts are frequent, adequately funded and objectively robust. Such efforts would help all stakeholders with understanding what works well (and vice versa) and, ultimately, facilitate their buy-in. In addition, scholars may use these evaluations to make informed decisions about changing an existing model or developing a new one. 

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