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Practical innovation: Advanced practice nurses in cancer care

by Colleen Campbell, Allyson Nowell, Karen Karagheusian, Janet Giroux, Catherine Kiteley, Lorraine Martelli, Maureen McQuestion, Maureen Quinn, Yvonne P. Rowe Samadhin, Melissa Touw, and Lesley Moody

ABSTRACT

Objectives: The objectives of this study were to gather emerging practice evidence, through consultation with Advance Practice Nurses (APN), to fill the evidence gaps in the published guidelines, *Effective Use of Advanced Practice Nurses in the Delivery of Adult Cancer Services in Ontario*, and to provide a set of expert panel recommendations to build a research agenda to promote the collection and publication of Level 1 and 2 evidence.

Method: A three-step RAND/UCLA Appropriateness Methodology (RAM) modified Delphi process was used to solicit expert opinion on the use of APNs in adult cancer care in Ontario.

Results: Thirty-four (34) case examples of APN use were gathered. The modified Delphi process concluded with the endorsement of 30 APN role statements that were used to develop nine (9) additional recommendations regarding the use of APNs in the delivery of adult cancer care.

Conclusion: The recommendations from this study provide direction for future research to close the current evidence gap regarding the role of APNs in cancer care delivery in Canada.

AUTHOR NOTES

Colleen Campbell, PHC-NP, MN, CON(C), Nurse Practitioner, Stronach Regional Cancer Centre, 596 Davis Dr., Newmarket, ON L3Y 2P9
C2Campbell@southlakeregional.org

Allyson Nowell, RN, BSc, MSc, CON(C), Advanced Practice Nurse, Palliative Care Consult Service, Sunnybrook Health Sciences Centre, 2075 Bayview Avenue, H337, Toronto, ON, M4N 3M5
allyson.nowell@sunnybrook.ca

Karen Karagheusian, BSW, MPH, Senior Specialist, Cancer Care Ontario, 620 University Ave., Toronto, ON M5G 2L7
karen.karagheusian@cancercare.on.ca

Janet Giroux, RN(EC), MScN, CCN(C), CON(C), de Souza APN, Nurse Practitioner-Adult, Gynecology Oncology, Oncology Sexual Health Clinic-NP, Kingston Health Sciences Centre, Kingston General Hospital, Cancer Centre of Southeastern Ontario
janet.giroux@kingstonhsc.ca

Catherine Kiteley, RN, BScN, MSc, Advance Practice Nurse Consultant
ckiteley@aol.com

Lorraine Martelli, MN, RN-EC, CON(C), Provincial Head of Cancer-Nursing, Ontario, Cancer Care Ontario, 620 University Ave., Toronto, ON M5G 2L7
lorraine.martelli@cancercare.on.ca

Maureen McQuestion, RN, BS, BScN, MSc, CON(C), Clinical Nurse Specialist/Advanced Practice Nurse, Radiation Medicine Program, Princess Margaret Cancer Centre, University Health Network
maureen.mcquestion@rmp.uhn.ca

Maureen Quinn, MScN, CON(C), Nurse Practitioner-Adult, London Health Sciences Centre, 800 Commissioners Road East, PO Box 5010, Stn B,
maureen.quinn@lhsc.on.ca

Yvonne P. Rowe Samadhin, BScN, MN, RN(EC), NP-Adult, CHPCN(C), Nurse Practitioner-Hospice Palliative Care Team, Waterloo Wellington Local Health Integration Network, 73 Water Street North, Cambridge, ON N1R 7L6
yvonne.rowsamadhin@lhins.on.ca

Melissa Touw, RN, BScN, MSc, CHPCN(C), Clinical Nurse Specialist – Palliative Care, Kingston Health Sciences Centre – KGH site
Melissa.Touw@Kingstonhsc.ca

Lesley Moody, HBS, MBA, PhD(c), Director, Person-Centred Care, 620 University Ave., Toronto, ON M5G 2L7
lesley.moody@cancercare.on.ca

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INTRODUCTION

Cancer is the leading cause of death in Canada. Driven by an aging population, the projected number of cancers diagnosed in Canada by 2030 will have increased more than 80% since 2005 (Canadian Cancer Society, 2017). This rising cancer incidence is increasing the demands on the public healthcare system. Evidence from systematic reviews demonstrates that Advanced Practice Nurses (APN) can improve patient health and quality of care across various patient populations while decreasing healthcare utilization and cost (Bryant-Lukosius et al., 2015; Donald et al., 2015; Martin-Misener et al., 2015; Newhouse et al., 2011).

Clinical practice guidelines are designed to provide the best available guidance to healthcare decision makers in making evidence-based decisions for patient care. Informed by a systematic evidence review, a clinical guideline includes recommendations that package the evidence in a way to help healthcare decision makers make informed decisions in accordance with the evidence (Kredo et al., 2016). Evidence-based care improves patient outcomes and is an important tool to reduce healthcare delivery variation and cost, while maximizing efficiencies (Melnyk, 2007; Melnyk, 2015).

In 2015, Cancer Care Ontario (CCO), in collaboration with McMaster University's Program in Evidence-Based Care (PEBC), released a clinical practice guideline entitled: *Effective Use of Advanced Practice Nurses in the Delivery of Adult Cancer Services in Ontario*. The guideline provides 13 evidence-informed recommendations on the role and use of APNs for optimizing patient, provider, and health system outcomes across the cancer journey and for improving access to timely, high-quality, patient-centred care (Bryant-Lukosius et al., 2015) (see Table 1 for final recommendation).

Although the guideline provided recommendations on the use of APNs in an oncology setting, it also identified significant gaps in the literature regarding APN roles. In addition

to the gap in level-one evidence supporting the role of APNs across the cancer continuum, administrators, leadership and other clinicians expressed a lack of clarity on the roles and scope of practice for APNs in oncology in Ontario despite knowledge-translation efforts related to the guideline release. A need to define the roles more clearly was apparent.

In Canada, APNs include both Clinical Nurse Specialists (CNS) and Nurse Practitioners (NP) (Bryant-Lukosius et al., 2015). While CNSs and NPs have overlapping and

complementary skill sets, the two roles differ in scope and focus of practice. Both roles are involved in the delivery of direct clinical care and indirect clinical care such as providing organizational leadership, leading or participating in research and evidence-based practice activities, and educating patients, nurses and other health providers (Bryant-Lukosius et al., 2015). CNSs are registered nurses with a graduate education who tend to provide clinical care to specific populations with expanded expertise and responsibility for

Table 1. Original Guideline Recommendations: Effective Use of APNs in the Delivery of Adult Cancer Services in Ontario

Recommendation Number	Description
Recommendation 1	No recommendations can be made about the utilization of APN roles for cancer prevention owing to a lack of data at this time. Future research should: i) examine the broader international literature about the effectiveness of primary prevention strategies delivered by advanced practice nurses in the non-cancer literature that may be relevant to cancer; and ii) assess the need to optimize APN role involvement in primary and secondary cancer prevention services.
Recommendation 2	In primary care and community-based settings, NPs working in alternate provider roles can be utilized to improve access to breast and cervical cancer screening.
Recommendation 3	As alternate providers to physicians, NPs can provide safe and effective care in performing esophagoscopy, flexible sigmoidoscopy, and colonoscopy for cancer screening.
Recommendation 4	For women with cervical dysplasia, NPs are an appropriate alternate provider to physicians in performing colposcopy-guided biopsies to diagnose cervical cancer.
Recommendation 5	CNS-led outpatient supportive care is an appropriate alternative model to the provision of such care by physicians, particularly for newly diagnosed patients undergoing surgery or radiation therapy.
Recommendation 6	The addition of complementary CNS care to usual care may improve psychological and mental well-being and survival for patients with a new diagnosis of cancer who are post cancer surgery or receiving chemotherapy or radiation treatment.
Recommendation 7	For patients with breast and colorectal cancer, CNS- or NP-delivered telephone follow-up may provide a safe and acceptable alternate model to outpatient clinic follow-up care provided mostly by physicians.
Recommendation 8	The addition of a complementary and comprehensive assessment and intervention program provided by a NP may be effective for reducing menopausal symptoms in women following treatment for breast cancer.
Recommendation 9	The complementary addition of CNS care to cancer services may improve health-related quality of life and mental and social well-being for patients with advanced cancer or cancer-related pain while providing similar or improved outcomes related to healthcare utilization.
Recommendation 10	No evidence-based recommendations can be made about the utilization of APN roles for end-of-life care owing to a lack of data at this time.
Recommendation 11	For those involved in planning, implementing, and evaluating CNS and NP roles (e.g., healthcare administrators, researchers, and advanced practice nurses), careful selection of outcomes that are the target of specific CNS and NP interventions is required.
Recommendation 12	No recommendations can be made about the effectiveness of CNS or NP roles for improving healthcare provider outcomes owing to a lack of data at this time.
Recommendation 13	No recommendations can be made about the cost-effectiveness of CNS or NP roles in cancer control.

leading organizational change, education, and evidence-based research and practice (Bryant-Lukosius et al., 2015). NPs are registered nurses with graduate education with an expanded scope of practice (i.e., RN-Extended Class) that includes the legislated authority to diagnose, prescribe, treat, refer patients to other providers, admit and discharge patients from hospital (Canadian Nurses Association [CAN], 2009; College of Nurses of Ontario [CNO], 2011; Bryant-Lukosius et al., 2015). NPs provide a greater depth of clinical practice to specific populations with less engagement in leadership, education and research compared to CNS colleagues (Bryant-Lukosius et al., 2015).

When assessing the impact of APNs, role variability and lack of role clarity undermine high-quality research on the ability to measure the impact of APNs in an oncology setting (Bryant-Lukosius et al., 2016). In part, inconsistent support for APN roles has contributed to role variability. Frequently, oncology nurses and APNs themselves advocate for and establish roles, after identifying gaps in oncology patient care. The roles that are developed may be specific to an organization, practice setting or an individual practitioner's attributes, leading to difficulties with role clarification and cost evaluation (Lopatina et al., 2017). Roles are created differently across organizations depending on need, and these roles often lack long-term funding and support for research. In turn, this may contribute to the challenges in establishing a high-quality research agenda.

The APN Community of Practice (CoP) brings together APNs with a clinical focus in cancer care from across the province of Ontario to share information, expertise and experience about the APN roles in oncology settings. Members work in a variety of clinical or research-based roles within Ontario regional cancer programs. They meet by teleconference on a monthly or bi-monthly basis, led by co-chairs that represent both the NP and CNS roles.

To address the evidence gaps in addressing the role of APNs, CCO and the APN CoP conducted this study through a clinical engagement process. The process included a modified Delphi approach to gather experiential examples of APN use and generate consensus on the delivery of care in regional cancer programs (RCP) across Ontario. The consensus was based on the collective expertise of APNs practising in oncology.

The study objectives were to (a) present expert panel recommendations on the use of APNs in the delivery of cancer services in Ontario, (b) provide emerging practice evidence to fill in the gaps in the published PEBC APN Guideline (Bryant-Lukosius et al., 2015), and (c) provide a set of expert panel recommendations to build a research agenda to promote the collection and publication of Levels 1 and 2 evidence (randomized and non-randomized controlled studies) in this domain.

METHODS

A three-step RAND/UCLA Appropriateness Methodology (RAM) modified Delphi process was used to solicit expert opinion on the use of APNs in adult cancer care in Ontario. The process involved a series of anonymous online questionnaires from experts and structured feedback, followed by an in-person consensus meeting (Fitch et al., 2001; Hsu and Sandford,

2007). The technique is widely used and is an accepted method for gathering data from respondents within their domain of expertise in the absence of published evidence. Standardized cutoff scores and ranking criteria are developed and agreed to *a priori*, and experts are surveyed using ranking and structured feedback until there is a convergence of opinion among the experts on a subject (Fitch et al., 2001; Hsu and Sandford, 2007). Cancer Care Ontario's APN CoP acted as the expert body and participated in the modified Delphi. Members gathered observational evidence of practice led by NPs and CNSs in regional cancer programs across Ontario that demonstrated positive impacts on health outcomes and/or healthcare system performance in adult cancer care.

Step one: Literature search

Literature Search. The systematic review conducted by the PEBC in the guideline the *Effective Use of Advanced Practice Nurses in the Delivery of Adult Cancer Services in Ontario* (Bryant-Lukosius et al., 2015) was re-run by PEBC researchers at the start of this Delphi process and was used as the foundational research in this study. In total, there were 31 papers included that met the inclusion criteria for the clinical guideline representing 29 unique studies (Hsu and Sandford, 2007).

Step two: Experts rate role statements in two rounds

Expert selection process. An expert leadership group was formed to provide content and methodology expertise, and to co-create the Delphi clinical practice template, survey and final recommendations in partnership with Cancer Care Ontario. The leadership group consisted of the APN CoP co-chairs, seven APN CoP members with equal representation of NPs/CNSs from centres across the province, as well as Cancer Care Ontario's Director of Person-Centred Care.

Round 1. The first step was to create a detailed clinical practice template to gather current clinical practice scenarios by APNs delivering cancer care to adults within regional cancer care programs across Ontario. The template was created by the expert leadership group and was designed to help respondents systematically gather clinical practice scenarios they or their colleagues performed as an NP or CNS. The scenarios were to be within the continuum of care, including diagnosis, treatment, survivorship, post-treatment follow-up or palliative care (which includes end-of-life care). The template was designed to gather information on the APN model of care, APN role description, APN impact in that role, and whether the model of care had been evaluated.

The template was distributed to a select subgroup of APN CoP members. This selected group was contacted by a researcher at CCO to confirm their participation and engagement in the study. The subgroup consisted of 55 CNSs and NPs from across Ontario who were working in RCPs in varying types of clinical care. Every effort was made to include APNs that worked in one or more of the categories of care from diagnosis to palliative care. Members of the expert leadership group reached out to additional APNs, based on a convenience sampling method, to participate in the process to ensure diverse backgrounds, settings, and geography.

The select group of CoP members submitted 35 template responses, of which 33 were complete. The 33 completed templates were reviewed and summarized by the leadership group. Each template was reviewed by groups of two or three members of the leadership group. Non-essential or irrelevant material was removed and responses were collated and summarized into NP or CNS role statements (3-4 short sentences). Role statements were formatted to ensure consistent language and to create the second round of Delphi consensus surveys. The process resulted in the creation of 34 role statements from the 33 completed template submissions.

Round 2. An anonymous online survey containing the 34 role statements was distributed among the entire APN CoP membership ($n = 69$ APNs). Snowball sampling was encouraged, as the survey was sent to members. Survey participants were given three weeks to complete the survey. Respondents were asked to score each clinical practice role statement against the criteria of *impact* and *acceptability*, which were defined as follows:

Impact – The use of an APN in the role provided in the statement was worth doing, regardless of cost, due to the improvement in patient outcomes.

Acceptability – Key decision makers (Cancer Centre Regional Directors, Regional Vice Presidents, etc.) would consider the role statement to be persuasive.

Impact and acceptability ratings were scored along a scale from 1 to 9 (1 being highly non-impactful/unacceptable and 9 being highly impactful/acceptable). The respondents submitted the scoring for the scenarios, and the data were analyzed for areas of agreement and disagreement.

Step 3: Establishing consensus of role endorsement within expert panel Round 3—Consensus meeting. Select members who completed the second-round survey were invited to participate in an in-person consensus meeting. Twenty-two APNs (equally representing NPs and CNSs) from across Ontario, who participated in Rounds 1 and 2 of the process, were invited to be the expert panel of APNs. They met in Toronto, Ontario on June 11, 2017, for a discussion of the role statements and the scoring from Round 2. Twenty APNs attended.

All role statements and their scores were reviewed at the meeting. The mean, median, and range scores for each ranking criteria were calculated, and role statements were defined as included or rejected using the score range criteria, as

illustrated in Figure 1. Based on discussion and recommendations from the expert panel of APN in attendance, some scenarios were rewritten for clarification independent of their score. Seventeen (17) role statements met the inclusion criteria, 14 statements had at least one of the two criteria score falling below the inclusion threshold, and three statements were fully rejected. The bulk of the consensus meeting was spent discussing the 14 role statements with an average or median score between seven and eight. The discussion focused on areas of disagreement.

RESULTS

The expert panel reached endorsement consensus on 27 of the total 34 role statements surveyed. Seven (7) statements did not meet the inclusion criteria because they were incomplete, duplicates, or the roles described were already included in the PEBC APN guideline recommendations (Bryant-Lukosius et al., 2015). Three additional statements were introduced at the meeting, and each was subjected to the full Delphi process before formal inclusion. The process concluded with the endorsement of 30 NP/CNS role statements (see Figure 2 for process follow chart and Table 1 for statements). The endorsed role statements of APN clinical practice were reviewed to produce nine recommendations for the effective use of APNs in the delivery of adult cancer care. (See Table 2 for final recommendations).

DISCUSSION

The experiential evidence gathered in the study resulted in recommendations that supplement the level one evidence in the clinical practice guideline (Bryant-Lukosius et al., 2015) yet provided examples of the important role APNs play in cancer care in Ontario. The results of this study emphasize the need to conduct effectiveness studies regarding APNs provision of specialized, timely care to a complex or potentially high-risk population, which results in better care and outcomes for patients, as well as studies that evaluate whether CNS- and NP-led clinics improve access to care.

The statements endorsed by the panel based on the experiential evidence illustrate how CNSs and NPs can provide alternate and complementary outpatient and inpatient symptom management and supportive care, particularly for newly diagnosed patients undergoing surgery, chemotherapy, radiation therapy or complex combined therapy. They also supported

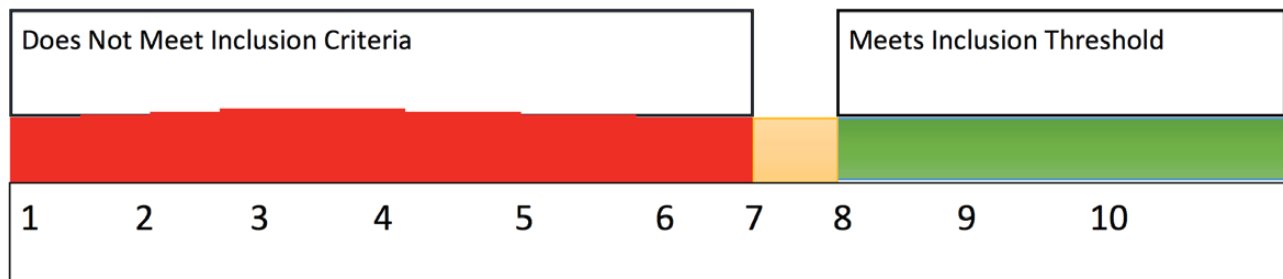


Figure 1.

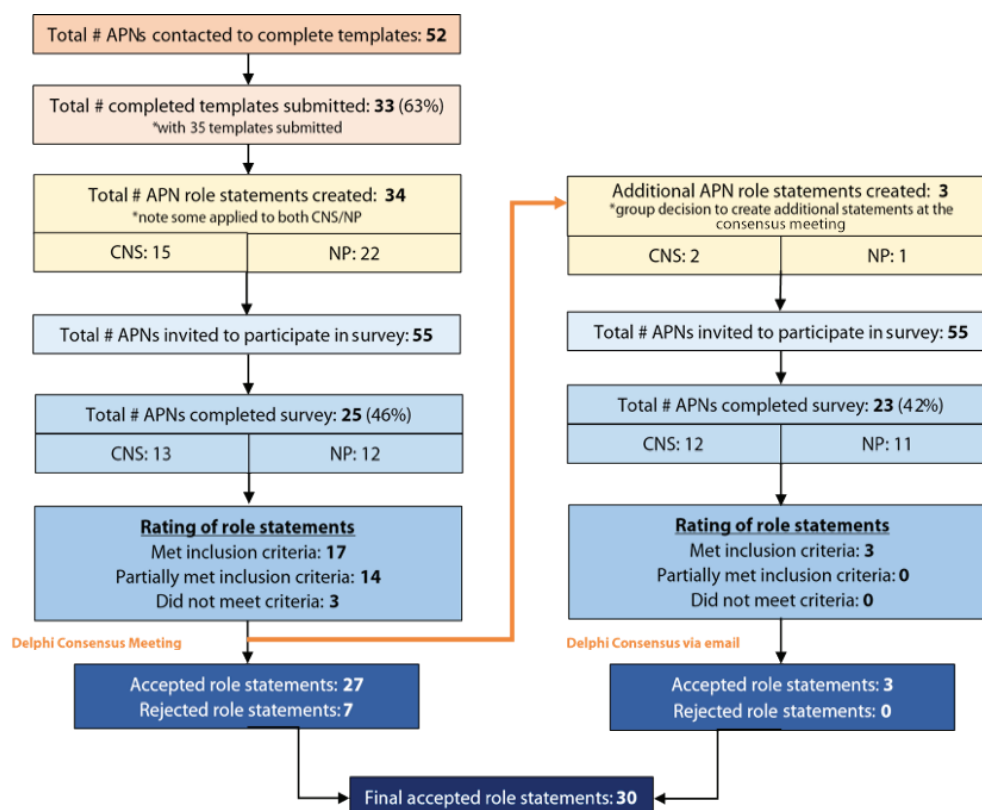


Figure 2: Results from the APN Delphi Process

Recommendation Number	Description
Recommendation 1	NP- or CNS-led clinics can provide complex diagnostic work-ups improving access to care and care coordination between teams and community, particularly for patients with diagnostic urgency such as suspicion of lymphoma or pancreatic cancer.
Recommendation 2	CNSs can identify, develop and support complex clinical roles, practice and procedures to support programs and teams around specialty practice in oncology.
Recommendation 3	CNSs can provide mental health services to patients with cancer, which may improve psychological and social well-being related to their mental health needs. This may be in the form of counselling, psychotherapy, support, education and referrals.
Recommendation 4	CNSs can provide complementary supportive care to the Adolescent and Young Adult (AYA) population. This includes unique needs of this group related to fertility counselling, sexual health and complex psychosocial needs.
Recommendation 5	NPs can provide alternate and complementary outpatient symptom management and supportive care, particularly for newly diagnosed patients undergoing surgery, chemotherapy, radiation therapy or complex combined therapy.
Recommendation 6	NPs can provide alternate and complementary inpatient symptom management and supportive care, particularly for newly diagnosed patients undergoing surgery, chemotherapy, radiation therapy or complex combined therapy.
Recommendation 7	NPs can provide alternate care during treatment and transition phases, including prescribing systemic therapy once an initial plan has been determined.
Recommendation 8	NPs can provide alternate and complementary complex symptom management and palliative care. The role provides supportive care across the outpatient setting particularly for patients with advanced disease.
Recommendation 9	NPs can provide alternate care for hematological cancers during treatment, and solid tumor cancers following adjuvant treatment. Both models provide specialized, timely care to a complex or potentially high-risk population.

the important role NPs play in providing care for patients with complex symptom management, patients who require palliative care and, in particular, for patients with advanced disease.

There were also several clinical practice statements that led to the recommendation that NPs can provide alternate care for hematological cancers during treatment, and solid tumour cancers following adjuvant treatment. Both CNSs and NPs can provide complex diagnostic work ups and care coordination between teams and community, particularly for patients with diagnostic urgency such as suspicion of lymphoma or pancreatic cancer.

APN clinical practice includes non-clinical activities such as guideline development, research, and other leadership roles that facilitate wider healthcare system impact at hospitals or cancer centres. However, template responses from APNs tended to emphasize clinical activities in the delivery of cancer care, neglecting additional work carried out by APNs that has impact on the care of patients. Despite the template including a section to capture indirect aspects of their role, the participants had difficulty capturing non-clinical activities that support the delivery of care.

APNs can use these recommendations to identify areas where continued research should occur. What this study demonstrates is that, in the absence of published evidence, an expert body can provide the experiential evidence required to make clinical practice recommendations. Further research should be led by the community of practitioners to grow the body and level of published evidence to support effectiveness and outcomes.

Study Limitations

Limitations in this study include the imprecise estimation of response rates due to the organizational approach and the use of snowball sampling to encourage APNs to participate in the surveys. This resulted in an unknown percentage of emails received and opened, as well as potential survey respondent bias. Additionally, it may have positively affected participation rates by encouraging some who may not have known about the survey while limiting the reach to those who knew each

other in the sector. Although the community of expert APNs who participated in the survey were from across the province and from various clinical departments and experience levels, the CoP did not have access to a full registry list of APNs in the Ontario oncology sector. Therefore, participation in the process was by word of mouth and may have had an effect on the results of the study. Lastly, this study used an opinion-based approach to collect data. Since the sample of APNs may not have been a true representative sample of the population of APN in Ontario, it is possible that the results of the survey and the case examples of APN uses, gathered for the Delphi process, did not fully cover the breadth and depth of APN use in adult cancer care across Ontario.

CONCLUSION

Consensus was achieved by the APN expert panel on the clinical practice impact CNSs and NPs have on the delivery of adult cancer care in Ontario within the roles identified through the Delphi process. The clinical practice recommendations identify areas where patient outcomes are positively impacted by advanced nursing care and can be used to support and develop effective models to deliver patient care in oncology. This research enabled the development of recommendations that reflect suitable roles for APNs in cancer care that will assist leaders in understanding the positive impact of APN roles.

The recommendations from this study provide a waypoint for the direction of further research that could close the current evidence gap on the role of APNs in cancer care delivery in Canada. Where the 2015 clinical practice guideline on the effective use of APNs in the delivery of adult cancer services in Ontario identified the lack of published evidence on the key areas where APNs are currently effectively being deployed in Ontario, this study surfaced experiential evidence of particular areas that could form the basis of more focused research platforms. In particular, each of the recommendations could generate a research question that explores the evidence for the skills and value brought to the table by APNs in the delivery of cancer care services.

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