

Rapid Synthesis

Expanding Scopes of Practice in Cancer Care
to Provide High-quality Person-centred Care
and to Enhance Access to Care

11 May 2021



HEALTH FORUM

EVIDENCE >> INSIGHT >> ACTION

Rapid Synthesis:
Expanding Scopes of Practice in Cancer Care to Provide High-quality Person-centred Care and to
Enhance Access to Care
30-day response

11 May 2021

McMaster Health Forum

The McMaster Health Forum's goal is to generate action on the pressing health-system issues of our time, based on the best available research evidence and systematically elicited citizen values and stakeholder insights. We aim to strengthen health systems – locally, nationally, and internationally – and get the right programs, services and drugs to the people who need them.

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Timeline

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. This synthesis was prepared over a 30-business-day timeframe. An overview of what can be provided and what cannot be provided in each of the different timelines is provided on McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

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Conflict of interest

The authors declare that they have no professional or commercial interests relevant to the rapid synthesis. The funder played no role in the identification, selection, assessment, synthesis or presentation of the research evidence profiled in the rapid synthesis.

Merit review

The rapid synthesis was reviewed by a small number of policymakers, stakeholders and researchers in order to ensure its scientific rigour and system relevance.

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KEY MESSAGES

Question

- What are the features of models that include an expanded scope of practice for physicians (e.g., primary-care physicians and internists) and nurses (including nurse practitioners) within cancer programs or the community, and what are their impacts on achieving the quadruple aim of enhancing patient experiences and health outcomes with manageable costs and positive provider experiences?

Why the issue is important

- There has been a rise in cancer diagnoses with an estimated 225,800 new cancer cases in 2020, in addition to an increased five-year net survival rate of any type of cancer in Canada.
- Cancer treatment is increasingly being considered a chronic disease, and primary care is promoted as an ideal setting to provide integrated support during and after active cancer treatment to meet patient preferences at manageable costs.
- Shared-care models that include an expanded scope of practice for primary-care providers (including family physicians and nurses) and other specialists (e.g., internists) to engage them in cancer-care teams have been identified as a mechanism to enhance integrated cancer care.
- This rapid synthesis was requested to synthesize what is known from the available evidence about the approaches to expanding scope of practice for physicians and nurses and the impact on cancer care.

What we found

- We identified nine systematic reviews (of which six are of high methodological quality, one is medium quality, and two are low quality), as well as 18 primary studies that provide additional insight.
- Most of the systematic reviews focus on the expanded scope of practice of nurses in the active treatment of cancer patients, and only one high-quality systematic review considered the expanded scope of practice of general physicians.
- We identified five types of interventions provided by nurses or general physicians during the active treatment of cancer: 1) case management; 2) education, information provision, or counselling; 3) treatment and procedures; 4) surveillance; and 5) coordination of the team and administrative interventions.
- Three systematic reviews of medium to high quality found a positive effect on patient satisfaction with care provided by general physicians or nurses, and one of the reviews reported that patients perceive that their needs were attended, and that healthcare was easily accessible and reliably available.
- Regarding health outcomes, one high-quality review found no significant effect on quality of life of provision of cancer treatment by general physicians, while three high-quality systematic reviews reported that the healthcare provided by cancer specialist nurses could improve some components of quality of life, such as anxiety and early recognition of depressive symptoms.
- One high-quality systematic review assessing transitional care provided by specialist nurses after discharge following cancer surgery found that clinical nurse-specialist care was superior and reduced mortality in half two years following surgery, improved uncertainty in illness at six months, and reduced the number of primary-care visits.
- Two high-quality systematic reviews reported effects on costs with one showing no significant effects on use of secondary care when interventions were provided by a general physician, and the other finding that care provided by clinical nurse specialists was associated with reduced health-resource use and costs.
- One high-quality systematic review explored the perception of general physicians about their provision of treatment for patients with cancer, and did not find relevant effects on physician confidence in disease management and knowledge, or improvements in communication with specialists.
- The principal barriers identified in the systematic reviews and primary studies were focused on the need for additional training and certification of nurses and general physicians who could provide treatment for patients with cancer, and two primary studies reported that potential conflicts might emerge between specialist nurses and other members of the team caring for the same patients when roles are not well defined.

QUESTION

What are the features of models that include an expanded scope of practice for physicians (e.g., primary-care physicians and internists) and nurses (including nurse practitioners) within cancer programs or the community, and what are their impacts on achieving the quadruple aim of enhancing patient experiences and health outcomes with manageable costs and positive provider experiences?

WHY THE ISSUE IS IMPORTANT

The number of new cancer cases has continued to rise across Canada, with an estimated 225,800 new cancer cases and approximately 83,300 cancer deaths in 2020.(1) It is estimated that nearly one in two Canadians will develop some form of cancer over their lifetimes.(2) The burden that increased cancer prevalence has placed on health systems in Canada has been compounded by the growing aging population, and by improvements in cancer-treatment efficacy. Canada has experienced a demographic shift wherein there are now more persons aged 65 and older than children under 15, and projections estimate that the 65 years and older age group will more than double, from 4.2 million in 2003-2007, to 9.4 million in 2028-2032.(3) The incidence of cancer increases with age; the majority (90%) of cancer diagnoses in Canada occur among those who are over the age of 50.(2) Additionally, advances in cancer detection and treatment have significantly improved the likelihood of cancer survival. The average five-year net survival rate for people diagnosed with any type of cancer in Canada is 63%.(2) All of these factors suggest that the number of people living with cancer or transitioning out of the cancer system into survivorship care will continue to increase.

In supporting the growing number of individuals transitioning to survivorship care, there is a need to improve the coordination between primary-care and cancer-care teams. In many jurisdictions across Canada, the provision of cancer services operates using a parallel cancer sub-system, which has limited overlap or integration with primary and community care.(4) The fragmented nature of this care transition is not sustainable and creates numerous challenges for both patients and primary-care providers.(5)

Cancer treatment is increasingly being considered a chronic disease and, as a result, some stakeholders have proposed to focus on enhancing the provision of integrated patient-centred cancer care during and after treatment. In countries with gatekeeper healthcare systems, general physicians and nurses are commonly the coordinators of care, have a close relationship with patients, and provide healthcare services in environments that are familiar to patients. In this type of approach, primary care is promoted as the ideal setting to provide integrated support during and after active cancer treatment to enhance patient experiences, address their preferences and with manageable costs.(5) This approach is also a strategy that might be useful in addressing the disparities in health outcomes and access to cancer care that persist among specific populations in

Box 1: Background to the rapid synthesis

This rapid synthesis mobilizes both global and local research evidence about a question submitted to the McMaster Health Forum's Rapid Response program. Whenever possible, the rapid synthesis summarizes research evidence drawn from systematic reviews of the research literature and occasionally from single research studies. A systematic review is a summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select and appraise research studies, and to synthesize data from the included studies. The rapid synthesis does not contain recommendations, which would have required the authors to make judgments based on their personal values and preferences.

Rapid syntheses can be requested in a three-, 10-, 30-, 60- or 90-business-day timeframe. An overview of what can be provided and what cannot be provided in each of these timelines is provided on the McMaster Health Forum's Rapid Response program webpage (www.mcmasterforum.org/find-evidence/rapid-response).

This rapid synthesis was prepared over a 30-business-day timeframe and involved three steps:

- 1) submission of a question from a policymaker or stakeholder (in this case, the Canadian Partnership Against Cancer);
- 2) identifying, selecting, appraising and synthesizing relevant research evidence about the question; and
- 3) drafting the rapid synthesis in such a way as to present concisely and in accessible language the research evidence.

Canada, including those living under conditions of low income, those residing in rural or remote areas and new immigrants.(6)

Shared-care models have been identified as a promising approach for providing integrated cancer care.(7) Such models involve nurses, general or family physicians and other specialists (e.g., internists) in a formal, explicit manner to optimize accessibility to hospital care and community-based supportive care, and continuity of all the care-provided settings with the entire continuity of cancer care. Engaging such teams in shared-care models enables them to balance the biomedical aspects of cancer care with the psychosocial context and preferences of the individual patient to provide personalized, integrated care. Doing so may require enhancing scopes of practice and engaging them in the organization of care during cancer treatment. This rapid synthesis was requested to synthesize what is known from the available evidence about the approaches to expanding scope of practice for physicians and nurses and the impact on cancer care.

WHAT WE FOUND

We conducted a synthesis of the evidence that we identified from our searches in Box 2 to inform the question. In reviewing evidence in relation to the question, we sought to include documents that provide evidence with specific insights about models of care that include an expanded scope of practice for physicians (e.g., primary-care physicians and internists) and nurses (including nurse practitioners) within cancer programs or the community.

We identified nine systematic reviews, of which six are of high methodological quality, one is medium quality, and two are low quality. We also identified 18 primary studies that provide additional insight.

We summarize the key findings from these documents in three tables. Table 1 presents the features of models that include expanded scope of practice for physicians and nurses identified in the literature, including who is involved, their scope of practice, and activities performed by the physicians and nurses. In Table 2 the impacts of programs and services with expanded scope of practice are presented according to the quadruple-aim outcomes (patient experiences, health outcomes, costs and provider experiences). Finally, Table 3 describes barriers and facilitators that were identified in the included literature to implementing shared-care models with expanded scope of practice of nurses and general physicians.

Features of models with expanded scope of practice for physicians and nurses

We identified five types of interventions provided by nurses or general physicians during the active treatment of cancer, which we provide more detail about in Table 1. Those interventions are:

1. case management (provision of supportive care, psychosocial and/or psychosexual care, sex therapy, exercise, diet interventions and management of signs and symptoms);(8-14)
2. education, information provision, or counselling (e.g., providing additional, disease-specific educational and practical information concerning treatment and care);(5; 10-12; 14-18)

Box 2: Identification, selection and synthesis of research evidence

We identified research evidence (systematic reviews and primary studies) by searching (in April 2021) Health Systems Evidence (www.healthsystemsevidence.org) and PubMed. In Health Systems Evidence we searched for overviews of systematic reviews, systematic reviews of effects and systematic reviews addressing other types of questions using the filters for ‘Scope of practice’ under governance arrangements and ‘Skill-mix – Role expansion or extension’, ‘Skill-mix – Task shifting/substitution’ and ‘Skill-mix – Multidisciplinary teams’ under the filter for delivery arrangements. The results were limited to those included in the disease-related filter for cancer. In PubMed, we searched for primary studies published since 2015 using the following combination of terms: scope of practice AND (physician OR family physician OR internist OR nurs*) AND (cancer). We focused on studies from Canada, and other countries that are typical comparators to Canada (e.g., Australia, New Zealand, European countries, the U.K., and the U.S.)

The results from the searches were assessed by one reviewer for inclusion. A document was included if it fit within the scope of the questions posed for the rapid synthesis, and if the study focused on the treatment of cancer patients, excluding screening, diagnosis, palliative care, and follow-up of survivors.

3. treatment and procedures (e.g., technical activities such as wound care, specimen collection, resistive exercises, and medication prescriptions that are designed to prevent, decrease, or alleviate signs and symptoms);(5; 10; 19-21)
4. surveillance (e.g., activities such as detection, measurement, critical analysis, and monitoring intended to identify the individual/family/community's status in relation to a given condition or phenomenon);(10) and
5. coordination of the team and administrative interventions (e.g., administrative activities for coordinating the cancer team, coordinating the discharge of hospitalized patients, and for establishing the connection between the oncologist and the primary-care provider and/or oncology navigators).(15-23)

Most of the systematic reviews identified focused on the expanded scope of practice of nurses in the active treatment of cancer patients,(8-12; 15; 16) and only one high-quality systematic review considered the expanded scope of practice of general physicians.(5)

Impacts of programs and services with expanded scope of practice on achieving the quadruple-aim outcomes

Patient experiences

One high-quality systematic review explored the impact of general physicians instead of specialists providing some treatment interventions to cancer patients.(5) The review found positive effects on patient satisfaction with care, and one of the studies included in this review reported significantly higher levels of perceived general-physician support shortly after the first visit to the doctor, which declined to non-significant levels at six months after the process. A qualitative primary study found that patients with colorectal cancer highly valued the role that general practitioners played in clarifying medical issues post-operation, treating adverse effects of adjuvant therapies, and providing lifestyle advice and psychosocial support.(14)

Two qualitative systematic reviews, one high-quality and the other moderate-quality, reported that patients overall found nurse counselling to be beneficial in various ways, with their informational, psycho-emotional, practical and interpersonal needs being attended,(15; 22) and that this care was easily accessible and reliably available.(22)

Health outcomes

One high-quality review found that provision of cancer treatment by general practitioners has non-inferior outcomes as compared to specialists.(5) One of the primary studies included in this systematic review found that depression scores remained unchanged in the group treated by the general physicians, and scores significantly deteriorated in the group treated by the oncologist.

We identified four systematic reviews that focused on the provision of treatment by nurses. One high-quality systematic review assessing transitional care provided by specialist nurses after discharge following cancer surgery found that clinical nurse-specialist care was superior and reduced mortality in half two years following surgery, improved uncertainty in illness at six months and reduced primary-care visits. Three high-quality systematic reviews reported that the healthcare provided by cancer nurses could improve some components of quality of life, such as anxiety and early recognition of depressive symptoms.(8; 11; 23) Two systematic reviews (one low quality and the other high quality) explored nurse management of cancer-related fatigue with one finding significant positive effects in studies that focused on promoting exercise,(9) and the other reporting reduced cancer symptoms.(11)

Costs

Only two high-quality systematic reviews reported cost-related outcomes. One review showed no significant effect on secondary healthcare use when interventions were provided by a general physician instead of a

specialist.(5) The other high-quality systematic review found that care provided by clinical nurse specialists in the alternative provider role for patients with asthma, diabetes, cancer and rheumatoid arthritis was associated with some evidence of reduced health-resource use and costs. The review also found four non-inferiority randomized clinical trials assessing nurses as alternative providers, which indicated that they were predominantly equal in effectiveness and equal-to-lower in health-resource use and costs. This review also included seven superiority randomized clinical trials assessing nurses as complementary providers, which found that clinical nurse specialists were predominantly equal-to-more effective and equal-to-lower in resource use and charges.(12)

Provider experiences

Only one high-quality systematic review explored the perception of general physicians about their provision of treatment for patients with cancer and did not find relevant effects on physician confidence in disease management and knowledge, or improvements in the communication with specialists.(5) Four primary studies (three qualitative and one quantitative) found that the scope of practice of nurses might be extended to provide treatment to patients with cancer after establishing clear roles and functions to prevent conflicts between team **members.**(24-27)

Barriers and facilitators to implementing shared-care models with extended scope of practice

The principal barriers identified in the systematic reviews and primary studies were focused on the need for additional training and certification of nurses and general physicians who could provide treatment for patients with cancer.(15; 16; 18; 26; 29) In addition, the shortage of educational institutions offering programs for specialized oncology nurses was identified as a possible limitation for meeting such training and certification needs.(19) Two studies also reported that potential conflicts might emerge between specialist nurses and other members of the team caring for the same patients when roles are not well defined.(20; 28)

The principal facilitator for implementing programs and services where nurses and general physicians have an extended scope of practice in the provision of healthcare to patients with cancer, was the willingness of specialists to delegate tasks to general practitioners, and the possibility of establishing collaborations between academic institutions, professional organizations, and employers to reduce barriers to continued education for nurses and general physicians.(15; 19; 30)

Table 1: Overview of key features of models with expanded scope of practice for physicians and nurses in cancer care

Type of intervention	Key features of models with expanded scope of practice		
	How it is defined	Who is involved and their scope of practice	Activities included in models with expanded scope of practice for nurses, physicians or other providers
Case management	• Provision of supportive care, psychosocial and/or psychosexual care, sex therapy, exercise, and diet interventions • Other common components of these interventions are the management of signs and symptoms, and continuity of care	Nurses • Specialist cancer nurse • Advanced cancer nurse • Clinical nurse specialist	Nurses • Four systematic reviews assessed psychological or psychosocial support, sex therapy, exercise and diet intervention provided by nurses for diagnosis and early treatment (8-11) • In the systematic review of Charalambous et al., (38 studies, 57,193 participants), the number of contacts for delivering case-management interventions were clearly reported in 23 studies with up to 118 contacts (face-to-face and telephone); the length of interventions ranged widely from 1.5 to 260 weeks; the amount of time attributed to case-management interventions delivered by cancer nurses ranged from 120 to 1,377 minutes per participant (10) • Five systematic reviews assessed supportive-care interventions for the management of symptoms, two associated to the provision of radiotherapy,(8; 12) and three with the management of cancer-related fatigue (9-11) • In the systematic review about cancer-related fatigue, the following interventions were assessed: sleep promotion, instruction and education, exercise, and distraction and relaxation (9) • Primary studies also mentioned the role of oncology nurses and specialist nurses in the provision of psychosocial and supportive care (13; 14)
Education, information provision, or counselling	• Providing additional, disease-specific educational and practical information concerning treatment and care	Physicians • General physicians Nurses • Specialist cancer nurse • Advanced cancer nurse	Physicians • Interventions were either directed at enhancing communication between general physicians and another party (i.e., specialists or patients), or directed at improving patients' attitudes towards the healthcare system (i.e., in relation to healthcare in general or for the intervention), physical or psychological issues (5; 14) Nurses • Five systematic reviews assessed the provision of personalized patient education, process orientation and resource sharing (10-12; 15; 16)

			• In the systematic review of Kilpatrick et al., cancer-nurse specialists provided information on early symptom recognition, what to expect from treatment and how to manage existing problems (12) • Fertility-preservation counselling was also provided in a primary study (17) • In two primary studies nurses provided education or counselling (14; 18)
Treatment and procedures	• Technical activities such as wound care, specimen collection, resistive exercises, and medication prescriptions that are designed to prevent, decrease, or alleviate signs and symptoms	Physicians • General physicians Nurses • Specialist cancer Nurse • Advanced cancer nurse	Physicians • Tailored primary-care interventions aimed to support patients in managing their disease and treatment ○ In one randomized clinical trial included in a systematic review, the general physician was regularly informed by the specialist and educated on management of patients with cancer (5) ○ In another primary study included in a systematic review, a rehabilitation team interviewed all patients on different aspects of rehabilitation, and afterwards the general physician was informed on patient-specific rehabilitation needs and encouraged to proactively contact the patient to support the patient in his/her needs (5) • Another primary study described the provision of chemotherapy services in small rural towns by rural-based doctors and nurses under the supervision of specialist oncologists and nurses through videoconferencing,(19) while another described the prescription of opioids (20) Nurses • In the systematic review of Charalambous et al., 18 studies (3,390 participants) were included in the treatment and procedures OMAHA category ○ The main components of the interventions delivered in this category comprised screening procedures (e.g., endoscopy or colonoscopy), interventions targeting signs and symptoms in people affected by cancer using techniques such as massage, Hickman line insertions or decision algorithms ○ Other interventions focused on medication administration, and activities aimed at improving physical care including exercise and lymphatic drainage in women with breast cancer (10) ○ Most interventions were provided on an individual and face-to-face basis ○ Where reported, the interventions were provided primarily in the hospital setting and were delivered in single session, however, the amount of time attributed to the interventions varied widely across studies from a single

			brief 15-minute intervention to more time-intensive interventions of 21 sessions delivered over 72 weeks (10) • A primary study described that nurses also conduct physical examination and treat some medical conditions, providing prescriptions for pharmacologic and non-pharmacologic therapies (21)
Surveillance	• Activities such as detection, measurement, critical analysis, and monitoring intended to identify the individual/family/community's status in relation to a given condition or phenomenon	Nurses • Specialist nurse	Nurses • In the systematic review of Charalambous et al., 27 studies (4,892 participants) were included in the surveillance category, most studies in this category focused on women with breast cancer (n=8), and over half of the interventions (16/27 studies) were delivered in the treatment phase of the cancer trajectory; however, one-third of studies classed as surveillance interventions (9/27) took place in the survivorship phase (10) ○ All of the interventions were delivered on a one-on-one basis, and most studies included face-to-face and telephone contact ○ Four studies had additional e-health/computer-delivered components ○ Interventions were mainly delivered in an outpatient or home-based environment ○ The intervention regime varied across studies from one to 25 sessions, and the total amount of time attributed to the interventions ranged from 30 to 675 minutes, and delivery ranged from one week to 260 weeks (10)
Coordination of the team and administrative interventions	• Administrative activities for coordinating the cancer team, coordinating the discharge of hospitalized patients, and establishing the connection between the oncologist and primary-care provider	Nurses • Specialist nurses • Advanced-practice providers (i.e., nurse practitioners and physician assistants)	Nurses • Two primary studies reported that the nurse played an important role in the coordination or support of the patient's care team (18; 24) • Another two primary studies reported that advanced-practice providers participated in activities like inpatient and surgical care, including post-operative orders, hospital consults, and coordinating discharge care (28; 29) • Two primary studies presented activities named as "oncology navigators", which means that the nurse leads in two healthcare institutions with oncology units help patients and providers to coordinate healthcare delivery (17; 30)

Table 2: Overview of impacts of models of cancer care with expanded scope of practice for physicians, nurses and other providers on the quadruple-aim outcomes of enhancing patient experiences and health outcomes with manageable costs and positive provider experiences

Provider	Quadruple-aim outcomes			
	Patient experiences	Health outcomes	Costs	Provider experiences
Physicians	• Positive effects on patients' satisfaction with care were indicated by three studies included in a high-quality review (5) • Patients reported that “the general physician could help in the way a specialist could not” given that general physicians could solve general concerns and be easily accessible (5) • One study included in the same review found significantly higher levels of perceived general-physician support shortly after the intervention, which declined to non-significant levels at six months after start of intervention (5) • In a qualitative primary study, authors found that patients with colorectal cancer highly valued the role that general practitioners played in their care directly after surgery and during follow-up ○ Patient support that was identified as valuable included clarifying medical issues post-operation, treating adverse effects of adjuvant therapies, and providing lifestyle advice and psychosocial support (14)	• A high-quality review found that none of the included studies had a significant effect on quality of life (5) • One of the primary studies included in this systematic review showed a significant difference in change of depression scores ($p=0.04$) which was driven by depression scores remaining unchanged in the group treated by the general physicians and scores significantly deteriorating in the control group (5) • The same review found that using a patient-held record combined with routine visits to the general physician led to a significantly higher reduction of the number of clinically anxiousness patients compared with usual care (5)	• Five studies included in a high-quality systematic review evaluated the effect of interventions provided by a general physician instead of the specialist on hospital and/or primary-care resource use (5), and found no significant effect on secondary healthcare use, and only the subgroup of older patients (≥ 70 years of age) had a significantly lower use of secondary care when primary care was actively involved (5)	• Four out of five studies evaluating effects on general physician's' perceptions of care in a high-quality review did not find relevant effects on physician confidence in disease management and knowledge, nor in the communication with specialists (5) • In this same review, one study found significant positive effects on general-physician perception about intersectoral cooperation and satisfaction with information (5)

	• In the same qualitative study, patients also expressed a preference for follow-up care that is specialist-led, but liked the idea of general practitioner-led follow-up care because it would be cheaper and easier to access (14)			
Nurses	• A medium-quality qualitative systematic review found that patients overall found nurse counselling to be beneficial in various ways, with their informational, psycho-emotional, practical and interpersonal needs being attended ○ This review found that during nurse counselling, patients receive tailored information and patient education that enhance their overall coping ○ It was also evident that patients exhibited positive physical and psycho-emotional adaptation from such nurse-patient interactions (15) • In another high-quality qualitative systematic review, authors found that participants indicated that specialist nurses played a role in providing care that was tailored to their specific needs, easily accessible, and reliably available (22)	• In a high-quality systematic review, three studies assessing psychosocial nursing interventions around diagnosis and early treatment found that the breast cancer nurses could affect some components of quality of life, such as anxiety and early recognition of depressive symptoms; however, their impact on social and functional aspects of the disease trajectory was inconclusive (8) • Supportive-care interventions during radiotherapy was assessed by one study which showed that specific breast-cancer nurse interventions can alleviate perceived distress during radiotherapy treatment, but did not improve coping skills, mood or overall quality of life (8) • One high-quality systematic review assessing transitional care provided by specialist nurses after discharge following cancer surgery showed that clinical nurse-specialist care was superior in reducing mortality by half two years following surgery, improving uncertainty in illness at six months	• A high-quality systematic review found that care provided by clinical nurse specialists in the alternative provider role for patients with asthma, diabetes, cancer and rheumatoid arthritis was associated with some evidence of reduced health-resource use and costs (12) • In one of the studies assessing the cost-effectiveness of clinical nurse specialist in prostate or bladder cancer, the clinical nurse-specialist group had significantly lower outpatient appointments, total health service and total costs, and the intervention was associated with a 31% cost-savings (12)	• One qualitative study found that a misalignment exists between defined roles and oncology nurses' perceived roles and realities of daily practice, highlighted by a general lack of awareness of Canadian Association of Nurses in Oncology (CANO) standards of care among participants in the study (26) • One primary study found that 66% of nurses surveyed agreed that the scope of oncology nursing practice should include providing referrals for complementary medicine (31) • Two primary qualitative studies

		and reducing primary-care visits (23) • Usual care was superior in improving functional dependence, physical quality of life, depressive symptoms and symptom distress (low certainty) (23) • In a low-quality systematic review about the management of cancer-related fatigue, significant positive effects were found in studies promoting exercise, and positive but not significant effects for interventions on sleep promotion and on education and counselling (9) • In another high-quality systematic review, it was found that telephone interventions delivered by a nurse in an oncology-care setting reduced cancer symptoms with a moderate effect size (ES) (–0.33) and emotional distress with a small ES (–0.12), and improved self-care with a large ES (0.64) and health-related quality of life (HRQOL) with a small ES (0.3) (11)		exploring the multidisciplinary team members' experiences regarding the role of oncology nurse, identified disadvantages of having specialist nurses that included the development of dependencies on these nurses, the impact of large administrative workloads that can come with the tailored care that specialist nurses provide, and potential conflicts that can develop between specialist nurses and other team members caring for the same patients when roles are not defined (24; 25)
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Table 3: Barriers and facilitators to implementing models of cancer care with expanded scope of practice for physicians, nurses and other providers

Barriers to implementation	Facilitators to implementation
• Training/certification is required (17; 18; 20; 26; 32) • In some countries professions of cancer nurses/specialist nurses are in a developmental stage (18) • Lack of clinical placement sites and preceptors for trainees (21) • Shortage of educational institutions offering programs for specialized oncology nurses (21) • Healthcare professionals need skill development in providing psychosocial and coping support (13) • Providers mentioned challenges in cost, time and access to services when delivering supportive care (13) • Potential conflicts that can develop between specialist nurses and other members of the team caring for the same patients when roles are not defined (24; 25)	• Patients feel that the general physician and nurse are suitable providers of education and counselling (17) • Collaborations between academic institutions, professional organizations, and employers can help to reduce barriers to continued education (21) • Factors that influenced the development of extended roles were the willingness of physicians to delegate tasks (based on their trust in the competencies of individual practitioners) (33)

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APPENDICES

The following tables provide detailed information about the systematic reviews and primary studies identified in the rapid synthesis. The ensuing information was extracted from the following sources:

- systematic reviews - the focus of the review, key findings, last year the literature was searched, and the proportion of studies conducted in Canada; and
- primary studies - the focus of the study, methods used, study sample, jurisdiction studied, key features of the intervention and the study findings (based on the outcomes reported in the study).

For the appendix table providing details about the systematic reviews, the fourth column presents a rating of the overall quality of each review. The quality of each review has been assessed using AMSTAR (A MeaSurement Tool to Assess Reviews), which rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality. It is important to note that the AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to systematic reviews pertaining to delivery, financial or governance arrangements within health systems. Where the denominator is not 11, an aspect of the tool was considered not relevant by the raters. In comparing ratings, it is therefore important to keep both parts of the score (i.e., the numerator and denominator) in mind. For example, a review that scores 8/8 is generally of comparable quality to a review scoring 11/11; both ratings are considered “high scores.” A high score signals that readers of the review can have a high level of confidence in its findings. A low score, on the other hand, does not mean that the review should be discarded, merely that less confidence can be placed in its findings and that the review needs to be examined closely to identify its limitations. (Lewin S, Oxman AD, Lavis JN, Fretheim A. SUPPORT Tools for evidence-informed health Policymaking (STP): 8. Deciding how much confidence to place in a systematic review. *Health Research Policy and Systems* 2009; 7 (Suppl1):S8).

All of the information provided in the appendix tables was taken into account by the authors in describing the findings in the rapid synthesis.

Appendix 1: Summary of findings from systematic reviews about models of cancer care with expanded scope of practice for physicians, nurses and other providers

Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
Content and effect of interventions aiming to actively involve the general practitioner during cancer treatment (5)	This systematic review aims to map the content and effect of interventions aiming to actively involve the general practitioner (GP) during cancer treatment with a curative intent. This review included six studies, five randomized clinical trials and one controlled clinical trial. Results indicate a positive effect of increased GP involvement in cancer care on patient satisfaction with care, but not on quality of life. In sub-groups, it may lower healthcare use and anxiety. Even though active involvement of the GP during cancer treatment might have positive effects, implementation appears to be difficult to realize. This is seen for all interventions, irrespective of whether the GP contact is initiated by the patient or by the healthcare provider. This shows that finding a feasible intervention is challenging. Authors of this review contrast their findings with other studies. This review authors explain that one research study (Drury et al) suggested that a reason for the low uptake might be that GPs are not motivated to participate in the care of patients with curative disease as they do not feel closely involved in this stage. This may explain why no studies were found where the GP was the initiator of involvement in care during cancer treatment. Another research study (Dossett et al) showed that GPs desire involvement, but think that specialist and patient prefer specialist-based instead of shared-based cancer care. Authors describe heterogeneity among the interventions provided by the GPs. They divide those interventions into two groups: mainly information transfer to the GP (n=4) and tailored primary-care interventions (n=2). Interventions focusing on information transfer provided additional, disease-specific educational and practical information concerning treatment and care directly to the GP or via the patient. Interventions were either directed at enhancing communication between GP and another party (i.e., secondary care or patient), or directed at improving patients' attitudes towards the healthcare system (i.e., healthcare in general or intervention), physical or psychological complaints. One RCT supplied the GP with patient-specific discharge summaries by secondary care, aiming to enhance GP knowledge of chemotherapy treatment and expected adverse effects. The tailored primary-care interventions aimed to support patients in managing their disease and treatment. The interventions were too diverse to be merged and are therefore described separately. In Johansson et al, primary care was intensified by means of recruitment of a home-care nurse, psychologist, dietitian and training of the GP. The home-care nurse initiated contact. The GP was regularly informed by the specialist and educated on management of patients with cancer. In the one RCT from Hansen et al and Bergholdt et al, a	2018	10/11	0/6

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Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
	rehabilitation team interviewed all patients on different aspects of rehabilitation. Afterwards the GP was informed on patient-specific rehabilitation needs and encouraged to proactively contact the patient to support the patient in his/her needs. Five studies evaluated the effect of the intervention on hospital and/or primary-care resource use. These studies showed no significant effect on secondary healthcare use. Only the sub-group of older patients (≥ 70 years of age) had a significantly lower use of secondary care when primary care was actively involved. Positive effects on patients' satisfaction with care were indicated by three studies. Extended information by personal health record or discharge summary improved patient perceived intersectoral cooperation. GP consultations were evaluated as useful. Also, patients reported that 'the GP could help in the way a specialist could not'. Regardless of the uptake of the intervention, one study showed improved satisfaction with communication and participation with care. The significantly higher levels of perceived GP support shortly after the intervention described in Nielsen et al., declined to non-significant levels at six months after start of intervention. The authors did not present a mean difference over time. One study with a low uptake of intervention showed no significant effect on patients' satisfaction. No study found a significant effect on quality of life. Johnson et al, showed a significant difference in change of depression scores ($p 0.04$). In the intervention group, depression scores remained unchanged, whereas scores in the control group, deteriorated significantly. Also, using a PHR combined with routine visits to the GP led to a significantly higher reduction of the number of clinically anxiousness patients compared with usual care. Four out of five studies evaluating effects on GPs' perceptions of care did not find relevant effects on GPs' confidence in disease management and knowledge, nor in the communication with the specialist. Studies in which information was carried by the patient (a PHR or informational cards) showed little impact on GP satisfaction with care, mostly due to low uptake of intervention. Only Nielsen/Kousgaard et al found significant positive effects on GP perceived intersectoral cooperation and GP satisfaction with information. Overall, the intervention uptake was low, and the risk of bias was low to moderate.			
Counselling provided by nurses (15)	This qualitative systematic review aimed to establish the best available evidence on the experiences of adult cancer patients receiving counselling provided by nurses. This review has generated five aggregated findings from a total of 14 primary studies that explored the experiences of adult cancer patients receiving counselling from nurses in the institutional and home setting. Patients overall found nurse counselling to be beneficial in various ways, with their informational, psycho-emotional, practical and interpersonal	2017	7/9 (AMSTAR rating from McMaster Health Forum)	2/14

Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
	needs being attended to. This review found that during nurse counselling, patients receive tailored information and patient education that enhance their overall coping. Being diagnosed with cancer brings with it a chain of challenging and distressing experiences which will require ongoing information and clarification. In general, these studies acknowledged the important role of nurses in providing personalized patient education, process orientation and resource sharing. It was also evident that patients exhibited positive physical and psycho-emotional adaptation from such nurse-patient interactions.			
Effectiveness of interventions carried out by Breast Care Nurses (BCNs) (8)	Breast Care Nurses (BCNs) are established internationally, predominantly in well resourced healthcare systems. Interventions by BCNs aim to support women and help them cope with the impact of the disease on their quality of life. The aim of this review was to assess the effectiveness of individual interventions carried out by BCN's on quality-of-life outcomes for women with breast cancer. Authors included five studies, categorized into three groups. Three studies assessing psychosocial nursing interventions around diagnosis and early treatment found that the BCN could affect some components of quality of life, such as anxiety and early recognition of depressive symptoms. However, their impact on social and functional aspects of the disease trajectory was inconclusive. Supportive care interventions during radiotherapy were assessed by one study which showed that specific BCN interventions can alleviate perceived distress during radiotherapy treatment, but did not improve coping skills, mood or overall quality of life. One study assessed nurse-led follow-up interventions in which no statistically significant difference was identified for main demographic variables, satisfaction with care, access to medical care or anxiety and depression. Three months after mastectomy there was no difference between the counselled group (29, 39%) and control group (33, 43%) in anxiety state, depressive illness, sexual problems or a combination. Twelve to 18 months after mastectomy, 69 (92%) of women in the counselled group were anxiety free as compared to 54 (70%) in the control group. Depression was also less in the counselled group, absent in 71 (95%) compared to 54 (70%) in the control group. Consequently, 12-18 months after mastectomy there was much less psychiatric morbidity in the counselled group (12%), compared to 39% in the control group. The nursing intervention led to recognition of psychiatric morbidity and prompted referral of 76% of those who required help, as opposed to 15% in the control group. Recovery after surgery Significantly more counselled (54, 72%) than control group (42, 55%) were satisfied with scar versus neutral or dissatisfied (chi squared+4.97, $p>0.05$). More of the control group (23, 33%) were dissatisfied with their prosthesis than in the counselled group (11, 15%) (chi-squared = 6.66, $p>0.02$). More counselled (51, 68%) than control group (40, 52%) had adapted to breast loss (chi squared = 4.07, $p>0.05$), although women in both counselled (8, 11%) and control (7, 9%) groups were unable to accept the loss of a breast.	2007	10/10 (AMSTAR rating from McMaster Health Forum)	0/5

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Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
	Differences in housework, social adjustment and return to work were all improved in the counselled as opposed to control groups. No versus some problems with housework (chi-squared=2.95, $p>0.05$); for no versus some problems in social adjustment (chi-squared=5.01, $p>0.05$) and for return to work versus not (chi-squared=4.59, $p>0.05$). Counsellor and control groups both had a small but important minority (12%) who suffered from moderately severe or severe swelling in a limb 12 - 18 months after surgery. Supportive care interventions during radiotherapy One study (Wengstrom 1999) measured the effects of a nursing intervention on subjective distress, side-effects, coping, and quality of life of breast cancer patients receiving curative radiotherapy. In this study, 134 women from a total of 175 consecutive patients agreed to be randomized to the intervention group (standard nursing care plus intensive nurse-led intervention at weeks one, three and five, and at three months) or control group (standard nursing care). No significant differences were found between the two groups comparing baseline data, however a significant difference in quality of life ($p<0.05$) indicated that women in the experimental group had a poorer quality of life than in the control group. The intervention had a significant effect on perceived distress. The women in the intervention group rated fewer distress reactions than those in the control group ($p<0.05$). Results from this study suggest that specific BCN interventions can alleviate perceived distress during radiotherapy treatment, but may not improve coping skills, mood or overall quality of life. In this study, the wide age range and different life stages of the women may have had an impact on perceived effects of the intervention.			
Effectiveness and cost-effectiveness of clinical nurse specialist-led transitional care (23)	Clinical nurse specialists (CNSs) are major providers of transitional care. This paper describes a systematic review of randomized controlled trials (RCTs) evaluating the clinical effectiveness and cost-effectiveness of CNS transitional care. The review included 13 studies, but only two studies evaluated transitional care for patients discharged from hospital following surgery for cancer. In those studies, a CNS-led team provided care consisting of varied number of home visits, telephone calls and clinic visits over a six-month period. In summary, two studies evaluated CNS transitional care for 498 patients following cancer surgery with mixed, low- to moderate-quality findings. CNS care was superior in reducing mortality two years post-surgery by half, improving uncertainty in illness at six months, and reducing primary care visits. Usual care was superior in improving functional dependence, physical quality of life, depressive symptoms and symptom distress. Neither study included cost measures. Although the risk of bias for these studies was low, when it came to grading each outcome, they were rated down due to imprecision, indirectness (<10 CNSs) and inconsistency when results were pooled (e.g., for depressive symptoms).	2013	9/11 (AMSTAR rating from McMaster Health Forum)	0/13
Interventions used by nurses to reduce fatigue during cancer treatment (9)	Cancer-related fatigue (CRF) is a common symptom in patients treated for cancer. For patients receiving chemotherapy, the prevalence is 75% to 90%; in those receiving radiation, 65%. The purpose of the review was to identify interventions that can be used by nurses successfully to reduce fatigue during cancer treatment.	2005	3/9 (AMSTAR rating from McMaster)	0/18

Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
	Of the 18 studies included, two-thirds had populations of breast cancer patients. The studies included dealt with sleep promotion, instruction and education, exercise, and distraction and relaxation. Significant effects were found in studies promoting exercise. For interventions on sleep promotion and on education and counselling, a positive result was found, but this was not significant. For distraction and relaxation, only an effect until a few hours after the intervention was found. Authors concluded that given the multidimensional nature of CRF, a combination of interventions is most likely to be effective. Thus far, such an approach by nurses during cancer treatment has not been tested.		Health Forum)	
Oncology nurses in the provision of information to cancer patients (16)	This study reviewed evidence on the role of oncology nurses in the provision of information to cancer patients to delineate evidence-based implications for clinical practice and research. With 48 studies included and synthesized in a narrative way, authors concluded that: 1) nurses' role as information providers for cancer patients is prominent, especially after the initiation of treatment; 2) specialist nurses are very effective in providing information; 3) no clear evidence exists on how nurses compare with other healthcare professionals as information providers; and 4) some evidence exists that patients may prefer nurses as information providers at specific times in their treatment and especially in regards to symptom management.	2008	2/9 (AMSTAR rating from McMaster Health Forum)	8/48
Effects of nurse-led telephone-based supportive interventions for patients with cancer (11)	This study evaluated the effects of nurse-led telephone-based supportive interventions (NTSIs) for patients with cancer. The authors performed a meta-analysis of 16 trials that met eligibility criteria. Thirteen randomized, controlled trials (RCTs) and three non-RCTs examined a total of 2,912 patients with cancer. Patients who received NTSIs were compared with those who received attentional control or usual care (no intervention). The purposes of the trials were follow-up, symptom management, informational support, psychological or psychosocial support, sex therapy, exercise and diet intervention, and coaching about self-care adherence. The interventions varied greatly in terms of the number and timing of the sessions. In particular, the number of sessions varied from one to 27, with a mean of 6.2, and the sessions varied from two weeks to 18 months in duration. The spacing of the interventions was regular, during the treatment phase, or mirrored the frequency of scheduled hospital visits for the control arm. The duration of each session was not reported in nine studies, and had no limitation or varied from 15–35 minutes in the other studies. The controls received attentional control, peer- or psychologist-led intervention, no intervention, or usual care. Thirteen of the 16 studies used more than two follow-up assessments. Overall, authors found that telephone interventions delivered by a nurse in an oncology-care setting reduced cancer symptoms with a moderate effect size (ES) (–0.33) and emotional distress with a small ES (–0.12), and improved self-care with a large ES (0.64) and health-related quality of life (HRQOL) with a small ES (0.3). Sub-group analyses indicated that the significant effects of NTSIs on cancer symptoms, emotional distress, and HRQOL were larger for studies that combined an application of a theoretical framework, had a control group given usual care, and used an RTC design.	2016	9/11 (AMSTAR rating from McMaster Health Forum)	1/16

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Focus of systematic review	Key findings	Year of last search/ publication date	AMSTAR (quality) rating	Proportion of studies that were conducted in Canada
Effectiveness and cost-effectiveness of clinical nurse specialists (CNSs) delivering outpatient care (12)	Increasing numbers of clinical nurse specialists (CNSs) are working in outpatient settings. The objective of this paper is to describe a systematic review of randomized controlled trials (RCTs) evaluating the cost-effectiveness of CNSs delivering outpatient care in alternative or complementary provider roles. Authors included 11 RCTs, four evaluating alternative provider (n = 683 participants), with only one study evaluating the role of nurses in healthcare delivery for cancer patients. Specifically, Faithfull et al., randomized 115 men with prostate or bladder cancer receiving radical radiotherapy in one cancer clinic to CNS or doctor care. Guided by a medication and symptom-management protocol, the CNS provided information on early symptom recognition, what to expect from treatment and how to manage existing problems. At 12 weeks, most patient outcomes did not differ significantly between groups except for one symptom (less constipation), and greater satisfaction with care in the CNS group. The CNS group had significantly lower outpatient appointment, microbiology, total health service and total costs. The intervention was associated with a 31% cost-savings.	2012	8/10 (AMSTAR rating from McMaster Health Forum)	0/18
Experiences of gynecological cancer patients receiving care from specialist nurses: a qualitative systematic review (22)	This systematic review aims to evaluate the experiences of gynecological cancer patients with specialist nursing care in order to better define the role and scope of specialist oncology nurses. A total of seven qualitative studies were included and the 76 participants in these studies were at different points of care for gynecological cancer. Participants indicated that specialist nurses played a role in providing care that was tailored to their specific needs, easily accessible, and reliably available. Individualized care was identified in the study as a key feature of the specialist nurse role that requires the nurse to assess and anticipate the needs of the patient so that care can be tailored to meet those needs. This review was limited by the differences in when the participants experienced specialist nurse services and what specific roles were performed for the patient. Additionally, all studies were conducted in westernized countries and most studies lacked data on the nationality of participants.	2017	11/11	0/7

Appendix 2: Summary of findings from primary studies about models of cancer care with expanded scope of practice for physicians, nurses and other providers

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
Examining the role of perceptions, current practices, and barriers to providing fertility-preservation counselling for cancer patients of reproductive age among registered nurses (17)	<i>Publication date:</i> 2017 <i>Jurisdiction studied:</i> United States <i>Methods used:</i> Cross-sectional descriptive survey study	Oncology nurses (n=52), including nurse coordinators (n=17) or staff nurses (n=35) practising in inpatient (n= 19) or outpatient (n=33) settings	A descriptive survey was administered to nurses working in a National Cancer Institute designated outpatient cancer centre and a quaternary inpatient setting, to determine their perceptions of best practices and barriers to discussing fertility preservation with cancer patients of reproductive age, the role of nurses in fertility preservation, and the care needs of providers and patients.	Of the total respondents, 88.5% indicated they required more information about fertility-preservation operations; 73.1% agreed they rarely or never discuss the impact of cancer treatments on future fertility with patients; 76% of respondents rarely or never provide educational resources surrounding fertility risks associated with cancer treatment to their patients; and 76.7% agreed that physicians or nurse practitioners are responsible for discussing fertility preservation with patients over oncology nurses. The open-ended response sections of the survey were analyzed and found that participants' lack of knowledge around fertility preservation presented as a significant barrier in having discussions with their patients. Responses also indicated that participants viewed fertility preservation counselling as the responsibility of physicians and nurses. The authors' recommendations include: 1) incorporate fertility-preservation education into chemotherapy certification standards in tandem with ongoing continuing education for nurses specializing in oncology; 2) increase communication between the patient's interdisciplinary care team (including physicians, registered nurses, and nurse practitioners) to delineate desired roles; and 3) institute a designated onco-fertility navigator to increase patient access to fertility preservation. The results of this research indicate a larger study is needed to determine if the recommendations made by the author have an effect on increasing access to fertility-preservation treatment. Limitations of the study include a lack of generalizability due to the survey only being conducted at one academic care setting, in addition to a risk of response bias.
To understand specialist nurses' experiences of providing care for women with gynecological cancer including what their current and aspired roles entail (18)	<i>Publication date:</i> Accepted article, date of draft May 2017 <i>Jurisdiction studied:</i> Switzerland <i>Methods used:</i>	Specialist nurses caring for women with gynecological cancer (n=12) between the ages of 28 and 55 with five to 10 (n=3) and over 10 (n=9) years of experience	Three focus groups (n=12) were conducted with specialist nurses to determine their experiences of their current and aspired role in the care of women with gynecological cancer	Women with gynecological cancer have complex needs, in which an integrative approach is necessary to support patients. Specialist nurses, also known as Advanced Practice Nurses (APNs), have emerged within the healthcare system and can provide integrative and quality-assured care. Despite evidence that APNs can improve patients' quality of life and satisfaction with care in countries such as Canada and Australia where they are well-established, the role of specialist nurses remains largely

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
	Qualitative descriptive design using focus groups			undefined in countries where the profession is in a developmental stage. The study aimed to determine specialist nurses' experiences of providing care for women with gynecological cancer in an acute-care setting to support increased uptake and implementation of specialist nurses in clinical practice. The authors recruited specialist nurses who participated in a prior randomized controlled trial and through snowball sampling. Three focus groups were conducted and responses were analyzed. Current responsibilities of specialist nurses emerged, including counselling, guidance, acting as a key contact person for the patient, and support to the other members of the patient's care team. The aspired roles of participants were related to resources such as time, equipment, and funding from their institution, as well as extended knowledge through additional training, education, and experience working in gynecological oncology. Based on the study findings, the authors recommend instituting legal requirements for specialized care to support the implementation of specialist nurses in countries where their prevalence remains low, developing detailed role and process descriptions in tandem with resources and support from the institution. and increasing services for cancer survivors where specialist nurses can play a critical supporting role.
To determine the effects of a pharmacy technician process navigator on improving efficiencies in the average time spent completing an oral anti-cancer agent prescription process and on the success rates of obtaining prescriptions for patients (34)	<i>Publication date:</i> 2019 <i>Jurisdiction studied:</i> United States <i>Methods used:</i> Unclear	Pharmacy technician selected from the Seattle Cancer Care Alliance, an ambulatory care centre	A pharmacy technician process navigator was trained and implemented in an ambulatory cancer centre to determine if their average time spent completing an oral anti-cancer agent prescription process and their success rate in obtaining a prescription was different than the standard process of nurses and pharmacists completing the prescription process	Oral anti-cancer agents are used to treat oncology malignancies and have been found to be an effective treatment in improving patients' quality of life. Prior to this study, both nurses and pharmacists at the Seattle Cancer Care Alliance were responsible for the entire prescription process, including obtaining physician signatures, insurance authorizations, patient education, and sending the prescription to the pharmacy to be filled. To avoid duplication of efforts and a lack of communication between nurses and pharmacists which have resulted in inefficiencies, the study aimed to determine what the effects of instituting a pharmacy technician process navigator are on the average time spent for each oral anti-cancer prescription process for patients in the melanoma and renal cell carcinoma clinic. The average time spent on oral anti-cancer prescription processes by nurses and pharmacists (n=29) prior to the study was 45.8 minutes by the clinical nurse, 21.8 minutes by the clinical pharmacists, and 46.8 minutes by the pharmacy billing

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
				technicians for a total of 114 minutes with a rate of 89.7% successful prescriptions. The pharmacy technician process navigator spent 59.5 minutes completing the same steps of obtaining prescriptions, with a 93.1% success rate, indicating increased efficiencies as a result of expanding the scope of pharmacy technician practice to manage the entire drug acquisition process. Limitations of the study include a lack of stratification by medication or manufacturer during comparisons of the pre and post average times of completing the prescription process. The study methods used were also unclear.
To determine registered nurses' perceptions of their roles and responsibilities in providing care for oncology patients (26)	<i>Publication date:</i> 2015 <i>Jurisdiction studied:</i> Canada <i>Methods used:</i> Qualitative descriptive study using semi-structured open-ended interviews	Registered nurses (n=21) with an average of 16 years of nursing experience and nine years of average oncology nursing experience	Semi-structured open-ended interviews were conducted through six focus groups with registered nurses using the Canadian Association of Nurses in Oncology (CANO) as a guiding framework. Participants were asked about their perceptions of their roles and responsibilities in relation to the nine standards of care for oncology nurses in CANO: 1) individualized/ holistic care; 2) family-centred care; 3) self-determination; 4) navigating the system; 5) coordinated continuous care; 6) supportive therapeutic relationship; 7) evidence-based care; 8) professional care; and 9) leadership	This study compared oncology nurses' perceptions of their roles and responsibilities to the CANO standards of care, which outlines roles and competencies of oncology nurses in Canada. The authors aimed to identify gaps between the perceived role of oncology nurses and their actual role and identify factors which affect their scope of practice. Participants were recruited from a community hospital with the inclusion criteria of two years of experience in an oncology setting. Semi-structured open-ended interviews were conducted, and data was coded and analyzed. The primary findings indicate that: 1) a misalignment exists between defined roles and oncology nurses' perceived roles and realities of daily practice, highlighted by a general lack of awareness of CANO standards of care among participants; 2) there is a need for sustained professional development and leadership roles for oncology nurses to ensure a supportive environment in providing effective care; and 3) oncology nurses can play a pivotal role in improving continuity and coordination of care as a reference point in the healthcare team. To improve oncology nurses' experiences of providing care, a supportive environment with leadership positions, professional development and educational resources, and nurse navigator role opportunities within the healthcare system should be implemented.
To determine the challenges that have an impact on the education and practice patterns of oncology nursing	<i>Publication date:</i> 2018 <i>Jurisdiction studied:</i> United States	n/a	Members of the Oncology Nursing Society's Nurse Practitioner Summit examined challenges facing ONPs in relation to	Oncology nursing practitioners have an extended scope of practice making them a critical contributor to interprofessional care teams. Scope of practice duties include compiling health histories, conducting physical examinations, ordering and interpreting diagnostic tests, diagnosing and treating medical

Focus of study	Study characteristics	Sample description	Key features of the intervention(s)	Key findings
practitioners (ONPs,) and identify solutions (21)	<i>Methods used:</i> Descriptive study		education, training, practice, and professional development. Recommendations were made for how ONPs can practise to the fullest extent of their licence and take on leadership roles within an interprofessional care team through advocacy.	conditions, managing symptoms after cancer treatments, and providing prescriptions for pharmacologic and nonpharmacologic therapies. The authors highlight key challenges and recommendations for improving the practice of oncology nursing and promoting greater recognition of the role of oncology nursing practitioners within the healthcare system. Challenges exist in relation to education including a national nursing faculty shortage, a lack of clinical placement sites and preceptors for trainees, and a lack of sub-speciality nursing programs for oncology. These challenges can be overcome by utilizing technologies and online programs to train new ONPs, ongoing oncology education and training within healthcare facilities after comprehensive orientations, and maintaining education through continuing education credits, practice portfolios, and micro-credentialling. Time and costs can limit opportunities for professional development and growth for ONPs. Collaborations between academic institutions, professional organizations and employers can help to reduce barriers to continued education. There is a need for increased advocacy to the public and policymakers for the important role of ONPs in providing affordable and quality cancer care within the healthcare system.
'To determine cancer care coordinators' (CCC) perceptions of their role, scope of practice, and role potential (32)	<i>Publication date:</i> 2019 <i>Jurisdiction studied:</i> Australia <i>Methods used:</i> Mixed methods design	Cancer care coordinators (n=16) with a median of six years of work experience, working at two tertiary teaching hospitals. Participants were responsible for the coordination of a range of cancer types, including head and neck (n=3), breast (n=3), lung (n=3), gastric (n=2), urology (n=1), brain (n=1), melanoma and skin (n= 1), pediatrics (n=1), and sarcoma (n=1)	CCCs from two public hospital settings participated in focus groups and semi-structured interviews. Participants were asked questions in relation to their perceptions of their current role, current practices not considered as part of their role, and their perceptions of the ideal role and responsibilities of CCCs. Quantitative data was also collected through the use of a diary to determine the relative amount of time spent on tasks throughout a week-long period.	In the Australian context there is variability in the role and scope of practice of CCCs due to a lack of organizational support and recognition of their role within the healthcare system. This study used a mixed methods design to conduct qualitative focus groups and semi-structured interviews with 16 CCCs to determine their perceptions of their roles and responsibilities, in combination with quantitative data collection on the relative amount of time spent on common daily clinical and administrative tasks associated with participants' role. Findings from the thematic analysis indicate variability in the amount of patient contact and administrative responsibilities between CCCs, with participants with less employment time (three days per week or less) spending up to 50% of their days on administrative tasks. Thematic analysis found that in regard to participants' perceptions of their role, most described being an integral member of the team and feeling valued. Conversely, many viewed their role as isolating with limited patient contact. There was also variability in how participants believed others viewed their role, with some participants indicating that their skills and contributions go unrecognized. The study identified

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				focus areas that determine the scope of CCCs' practice, including collegiate support through peer relationships and structural support through funding. Increased need for structured professional development, collaboration, formal mentoring, and clinical supervision were cited to maintain longevity in CCC roles. Limitations cited in the study include the small sample size of participants consisting of only females in two public hospital settings, limiting generalizability.
To identify barriers in implementing supportive care for men with prostate cancer (13)	<i>Publication date:</i> 2019 <i>Jurisdiction studied:</i> Australia <i>Methods used:</i> Quasi-structured interviews	Australian healthcare professionals working in prostate cancer (n=21) including registered nurses (n=7), radiation oncologists (n= 4), urologists (n=3), general practitioners (n=3), medical oncologist (n=1), psychologist (n=1), physiotherapist (n=1), and exercise physiologist (n=1) Additional sample characteristics included male (n=12) and female (n=9) practitioners with 15.81 mean years of advanced prostate cancer experience	Quasi-structured interviews were conducted, asking participants to describe their experiences in implementing supportive care interventions, any associated barriers and facilitators to implementation, and their perceptions of supportive care interventions.	Using the Theoretical Domains Framework, the authors coded interview data into 14 domains: knowledge, skills, social and professional role and identity, beliefs about capabilities, optimism, beliefs about consequences, reinforcement, intentions, goals, memory, attentions and decision processes, environmental context and resources, social influences, emotion, and behaviour regulation. Within these domains, key challenges in the implementation of supportive care interventions for men with prostate cancer emerged. In relation to knowledge, maintaining currency of prostate cancer knowledge was challenging for healthcare professionals with rapidly progressive treatment options. Healthcare professionals were unclear about what type of men may benefit from supportive care and were unsure of the effectiveness of survivorship interventions. In relation to skills, healthcare professionals indicated a need for skill development in providing psychosocial and coping support for men, as well as support for care coordination. Participants also cited challenges in cost, time and access to services when delivering supportive care. As this study only included healthcare professionals from Australia, the generalizability was limited.
To describe the educational backgrounds, skills, importance, and potential revenue generation of Advanced Practice Providers (APPs) in the delivery of gynecologic oncology care (28)	<i>Publication date:</i> 2018 <i>Jurisdiction studied:</i> United States <i>Methods used:</i> Review of the literature	n/a	A review of the literature focused on understanding the role and value of APPs in the delivery of gynecologic oncology care	APPs, which include nurse practitioners and physician assistants, have been integrated into collaborative practices to provide gynecological oncology speciality care. From the review, the authors found that APPs possess specialized knowledge and skills to meaningfully contribute to the care team. APPs commonly take on roles in: 1) outpatient care including taking medical histories, performing physical examinations, developing treatment plans, and supervising survivorship care; 2) inpatient and surgical care including post-op orders, hospital consults,

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				and coordinating discharge care; and 3) other care related to care coordination, research, administrative work, fundraising, and billing and coding. When determining the value of APPs, the authors argue that APPs improve patient experiences, improve patient outcomes, generate revenue, and contribute to the entire medical practice. When APPs function as a first assist in gynecologic oncology practices, they are eligible for 85% reimbursement of the assisting fee schedule. APPs have also been reimbursed under a shared-visit model, where both physician and APP see the patient concurrently and bill under the physician. APPs also reimburse at 85% of the Medicare physician fee schedule for Medicare patients.
To define the role definition and competencies of an Advanced Practice Radiation Therapist (APRT) and conduct a feasibility assessment of its implementation in the Ontario context (35)	<i>Publication date:</i> 2019 <i>Jurisdiction studied:</i> Ontario, Canada <i>Methods used:</i> Literature search and field-testing	During the role testing phase, seven pilot APRT investigators were selected from proposals submitted to Ontario's radiation therapy department	A literature search was conducted to determine a conceptual role definition for APRTs and develop a competency profile. Seven pilot APRT investigators were implemented in four cancer centres over a two-year period.	The role definition and competency profile developed found that APRTs should possess domains of clinical, technical and professional competencies. Clinical competencies include: 1) ensure all relevant patient information is available for decision-making; 2) assess the patient's physical condition; 3) assess the patient's cognitive condition; 4) obtain informed consent for required diagnostic procedures, therapeutic interventions or radiation therapy treatments; 5) formulate and implement an appropriate overall approach for patient management and care; 6) communicate results that will have an impact on patients' course of treatment; and 7) prescribe and dispense pharmaceuticals. Technical competencies include providing technical consultation and advice through the radiation therapy planning and treatment process, and implementing decisions regarding technical treatment accuracy and precision. Professional competencies include research and evidence-based practice and leadership. The results of the study demonstrated that APRT can be well integrated into the cancer centre setting and can support multidisciplinary care teams through the clinical, technical, and professional competencies they bring. Based on the role testing at the cancer centres, the study found key areas of opportunity where APRTs contributed, including: 1) performing delegated tasks through task-shifting; 2) adding new services such as rapid-response programs and community-based follow-up and outreach; 3) program efficiencies through the redistribution and streamlining of activities; and 4) improving recruitment and work satisfaction for radiation therapists.

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				Examples of program efficiencies include: average time a patient waited from initial consult to start of treatment improved from 51.12 days in 2000 to 25.75 days in 2005. Time savings for the nurse were 13.53 minutes per patient review and 17.38 minutes per new consultation, resulting in an average time savings of 3.22 hours per patients. At one centre, inappropriate referrals declined from 13.7% to 3%.
Complementary medicine (CM) and the role of oncology nurses in an acute-care hospital: the gap between attitudes and practices (31)	<i>Publication date:</i> 5 September 2017 <i>Jurisdiction studied:</i> Israel <i>Methods used:</i> Cross-sectional survey study	Nurse managers (n=100) and staff nurses (n=334) of a tertiary education hospital in Israel; most participants worked in medical-surgical or oncology units, and 29% had oncology post-graduate training and a mean of 16 years of work experience. Nurse managers were significantly more likely to be female, Jewish, experienced in nursing and CM caregiving, and have more CM training.	The study survey was comprised of 26 questions that focused on demographic and professional characteristics and participants' knowledge, attitudes and practice of CM as well as attitudes about CM training.	In this study, the knowledge, attitudes, and practices of oncology nursing staff at a large hospital in Israel around complementary medicine (CM) was explored. Interest in CM training was also evaluated. It was found that hospital nurses lacked knowledge of evidence-based research about CM and were unaware of the risks associated with practising CM. More than half (51%) of the nurses in the study expressed interest in complementary medicine training, and significantly more nurse managers than staff nurses believed that CM could improve the quality of life of cancer patients. The topics of greatest interest were pain relief, alleviation of anxiety/insomnia, and gastrointestinal disorders, while fatigue and neuropathy were topics of least importance to nurses. About 66% of nurses surveyed agreed that the scope of oncology nursing practice should include providing referrals for CM. Whereas staff nurses had mixed feelings about integrating CM into their oncology practice, nurse managers had more positive attitudes towards the idea. The study concluded that more effort needs to be made through legislation and policymaking to improve nurses' evidence-based knowledge about CM so that they can be more informed when assessing patient needs and communicating safe treatment options.
Reconfiguring health workforce: a case-based comparative study explaining the increasingly diverse professional roles in Europe (33)	<i>Publication date:</i> 2016 <i>Jurisdiction studied:</i> Eight European countries (Scotland, the Netherlands, the Czech Republic, Germany, Italy, Norway, Poland, and Turkey)	Sixteen case studies (six studies for heart disease, six for breast cancer, four for Type 2 diabetes) were conducted in a sample of eight European countries that were in	A case-based comparison of extended professional roles on breast cancer, heart disease, and Type 2 diabetes healthcare teams was performed in eight European countries. Data collection consisted of 160	This comparative study aimed to explore what extended professional roles are emerging in healthcare, how these roles are created, and what the main drivers of observed differences in extended roles are in and between countries. Specialised roles for physicians, nurses and technicians, and more independent roles for nurse practitioners and physician associates were identified. There were significantly more diverse

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	<i>Methods used:</i> Comparative case study	different stages of healthcare-delivery system reform	interviews of physicians, nurses and other health professionals in new roles, and over 617 hours of observation in healthcare clinics was conducted.	roles amongst heart disease healthcare teams than breast cancer and Type 2 diabetes care teams. Approximately the same number of new roles were identified in countries that had less innovative delivery systems as in countries at the forefront of innovative delivery systems. In total, 48 extended professional roles were identified. Factors that influenced the development of extended roles were the willingness of physicians to delegate tasks (based on their trust in the competencies of individual practitioners), the needs of the healthcare team at any given time, developments in medical technology, and the design or redesign of services. Extended roles had specialized focus on technical or clinical skills, whereas roles that are generic focus on organizing and integrating nursing care and medical care.
The role of advanced practice providers in interdisciplinary oncology care in the United States (29)	<i>Publication date:</i> 2016 <i>Jurisdiction studied:</i> United States <i>Methods used:</i> Rapid review	Not specified	This review explores several studies on the contributions of advanced practice nurses and physician assistants to the delivery of oncology care and services.	In this article, the roles and contributions of Advanced Practice Providers (APPs), including advanced practice registered nurses and physician assistants, in providing oncology care are described in the context of the increasing demand for oncology services in the United States. Identified services and responsibilities of APPs included conducting medical assessments, ordering and interpreting diagnostic tests, developing treatment plans, prescribing medications, assisting physicians and other health professionals in surgeries, and counselling patients and family members on disease prevention and health promotion. Reports of high satisfaction with the collaboration of APPs and physicians in oncology practices were found amongst APPs, physicians, and the patients they cared for. The wide range of contributions that APPs provide to the oncology health team allows for more high-quality care to be delivered so that supply of oncology care can meet demand and helps to improve clinical outcomes.
Patients' views on general practitioners' role during treatment and follow-up of colorectal cancer: a qualitative study (14)	<i>Publication date:</i> 30 November 2016 <i>Jurisdiction studied:</i> The Netherlands <i>Methods used:</i> Qualitative study	A sample of 22 patients were selected for interviews based on their age, gender, primary-healthcare use, and time since diagnosis	Semi-structured, face-to-face interviews were conducted in the homes of patients diagnosed with colorectal cancer.	This study evaluated the experiences and preferences of colorectal cancer (CRC) patients in the Netherlands on the current and future roles of general practitioners (GPs) during their treatment and follow-up care. Patients highly valued the role that GPs played in their care directly after surgery and during follow-up. Patient support that was identified as valuable included clarifying medical issues

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				post-operation, treating adverse effects of adjuvant therapies, and providing lifestyle advice and psychosocial support. Regarding the role patients envisioned GPs playing during CRC treatment, respondents valued the provision of routine care and consultations on managing medical and lifestyle issues. Patients also expressed a preference for follow-up care that is specialist-led, but liked the idea of GP-led follow-up care because it would be cheaper and easier to access.
Evaluating oncology nurse navigator clarity, educational preparation, and scope of work within two healthcare systems (30)	<i>Publication date:</i> February 2019 <i>Jurisdiction studied:</i> United States <i>Methods used:</i> Mixed methods study	Healthcare organization 1: nurse navigator surveys (n=28); provider surveys sent to physicians, nurse practitioners, and physician assistants (n=19); interprofessional focus group led by nurse lead Healthcare organization 2: nurse navigator surveys (n=10); physician focus group (n=7)	Nurse leads at two healthcare institutions used surveys, focus groups, and interviews conducted with nurse navigators and providers to assess navigator roles.	The focus of this study was the standardization of the oncology nurse navigator (ONN) role, education, and scope of work. Nurse leads in two healthcare institutions in the United States with oncology units lead the assessment of data for this study and found ONN role variation in both of their organizations. Navigators at both institutions identified barriers to effective and sustainable delivery of oncology services by ONNs, which included insufficient resources to do the job and time tracking patient services. Both institutions have implemented, or plan to implement, the same strategies to overcome barriers, including recommending the development of a standardized job description and orientation package, a process for standardizing the verification of ONN competencies through professional certification, and standardizing outcome metrics, documentation and patient tracking.
Multidisciplinary team members' experiences and perceptions of the gynecological oncology specialist nurse role (24)	<i>Publication date:</i> 2019 <i>Jurisdiction studied:</i> Australia, New Zealand <i>Methods used:</i> Qualitative survey	Multidisciplinary oncology team members (n=66) participated in an online survey; 47 had a specialist nurse working in their team	An online survey was administered that asked members of gynecological oncology care teams open-ended questions about what they understood the specialist nurse role to be, its importance, and the benefits and disadvantages of having a specialist nurse in the healthcare team.	The purpose of this study was to evaluate how members of gynecological oncology multidisciplinary teams experience and perceive the role of specialist nurses. Key features of the specialist nurse role identified by study participants are care coordination and communication, patient advocacy support, knowledge and expertise, and assessment and referral support. Team members also identified disadvantages of having specialist nurses that included the development of dependencies on these nurses, the impact of large administrative workloads that can come with the tailored care that specialist nurses provide, and potential conflicts that can develop between specialist nurses and other nurses caring for the same patients when roles are not defined.

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				Team members also identified that women in the care of multidisciplinary oncology health teams without specialist nurses were at a disadvantage if there was not another nurse on the team to fill the void.
The evolving challenges of specialist gynecological cancer nurse roles – a qualitative study (25)	<i>Publication date:</i> 2021 <i>Jurisdiction studied:</i> Australia, New Zealand <i>Methods used:</i> Qualitative survey	Specialist nurses participated through a focus group interview (n=6), a dyadic interview (n=2), and individual interviews (n=13); all participants were female	Semi-structured interview methods were used: the focus group and dyadic interviews were both conducted at health conferences for approximately 90 minutes, and individual interviews were conducted either in person or over the phone.	This study aimed to identify how specialist gynecological cancer nurses experience and perceive their roles. Specialist nurses identified with being an easily accessible source of support and expertise for women experiencing gynecological cancers and for multidisciplinary oncology care teams. Some of the identified challenges of their role were its evolving and expanding nature that at times created conflicts with other team members, and the dependence of both patients and team members on specialist nurses as individuals. Recommendations for addressing the challenges identified include defining specialist nurse roles more clearly, providing professional support, and providing guidance for practice and succession planning.
Remote chemotherapy supervision model for rural cancer care: perspectives of health professionals (19)	<i>Publication date:</i> 2015 <i>Jurisdiction studied:</i> Australia <i>Methods used:</i> Qualitative survey	A total of 19 health professionals were interviewed: nurses (n=9), doctors (n=8), one pharmacist, and one administration officer	Semi-structured interviews were conducted in person, over videoconference, and over the phone; interviews took between 15 and 35 minutes, and were digitally recorded and analyzed.	In this study, the perspectives of health professionals providing chemotherapy services to small rural towns using the Queensland Remote Supervision model (QReCS) were explored. The QReCS allows for selected chemotherapy regimens to be administered in rural hospitals by rural-based doctors and nurses under the supervision of specialist oncologists and nurses through videoconferencing. Benefits of the model identified by the health professionals interviewed included convenience to patients in rural towns, interprofessional communication across health-district borders, continuity of care, expanded scope of practice, and the maintenance of patient safety when providing chemotherapy services. The authors believe that for the model to be implemented widely in Australia, it needs to be integrated into the core business of cancer centres rather than be facilitated through clinical champions.
Contribution of general practitioners of the public and private sectors in the management of cancer patients during and after the treatment (20)	<i>Publication date:</i> 2015 <i>Jurisdiction studied:</i> Tunisia <i>Methods used:</i> Cross sectional	A total of 215 primary care physicians in the public and private sectors were surveyed	A survey about knowledge, attitudes and practices was conducted from 1 September 2010 to 28 February 2011 in the central region of Tunisia.	Nearly 80% of physicians who participated in the survey were involved in the management of their patients, primarily by ensuring adherence to their treatment (42.9%), in the follow-up care after treatment (42.3%) and in palliative care (29%). However the majority has never prescribed opioid drugs (66.5%). Only 46.6% of the physicians announced the diagnosis of cancer to their patients.

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				The questioned doctors deplored the lack of training in oncology (22.8%) and the feeling of being excluded from the management of their patients once they have addressed them to their specialist peers (48.8%). The interviewed physicians expressed their wish to have further medical training in oncology (79.5%) and to join a structured cancer network (55.8%). Physicians considered important: going able to explain the disease and the different treatments to patients and their close relatives; always being aware of new methods of care ensuring continuity in the care by consolidating the cooperation between the different health levels. -Be able to help patients adhere to their treatments; being able to reduce as much as possible the movement of patients to university hospitals and improve their following between appointments for specialized services that are far away; being able to always be near cancer patients, relieve and reduce their physical and mental suffering; and knowing how to provide palliative care at home.



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