

Priorities for Oncology Nursing Research: The 2013 National Survey

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The cancer death rate in the United States has dropped 18% since the early 1990s, following decades of increase (Roth et al., 2013). Advances in understanding cancer biology, research, and implementation of new therapeutic options, such as targeted agents, have led to increased survival. Research on targeted agents for difficult-to-manage cancers and expanding their use to multiple cancers that share the same genetic alteration has had a noted impact on cancer care and treatment (Roth et al., 2013). As treatments change and increase in complexity, a need exists to identify the effects on patients and their families. In addition to specific therapy outcomes, disparities in care, prevention and screening, care of older adults with cancer, and yet undiscovered genetics contribute to the quality and quantity of survival.

Significant progress has been made in research to guide the care of patients with cancer and their families. However, reflecting on how the past growth of knowledge can inform and define the dynamic nature of nursing's future contribution to cancer care research and practice is important. The Oncology Nursing Society (ONS) has been a leader in quality cancer care, which is reflected in its mission: "To promote excellence in oncology nursing and quality cancer care" (ONS, n.d., p. 1). To advance the goals of evidence-based care delivery and prioritize the generation of new knowledge that addresses contemporary challenges in oncology nursing, ONS has conducted research priority surveys of its membership approximately every four years since 1980 (Berger et al., 2005; Doorenbos et al., 2008; Funkhouser & Grant, 1989; Grant & Stromberg, 1981; McGuire, Frank-Stromburg, & Varricchio, 1985; Mooney, Ferrell, Nail, Benedict, & Haberman, 1991; Ropka et al., 2002; Stetz, Haberman, Holcombe, & Jones, 1995). Survey results are used by oncology nursing leaders and ONS members,

Purpose/Objectives: To advance the goals of evidence-based care and prioritize the knowledge generation that addresses contemporary challenges in oncology nursing. Results are used to inform the development of the Oncology Nursing Society (ONS) Research Agenda and by the ONS Foundation to develop strategic research initiatives.

Design: Descriptive, cross-sectional survey.

Setting: Web-based survey.

Sample: 8,554 ONS members from all levels of education. All doctorally prepared members were invited to participate. A random stratified sample was obtained from the remainder of the membership.

Methods: The ONS Research Priorities Survey project team created the survey and analyzed and interpreted the results. Members received an email invitation and follow-up reminders for survey completion.

Main Research Variables: Oncology nursing research and evidence-based practice topic questions.

Findings: The response rate was 11%, which is comparable to previous surveys. Topics ranked included descriptive research on patient adherence; intervention studies to optimize adherence, achieve concordance with cancer screening guidelines in minority populations, manage neurologic and cardiovascular late effects, and manage symptoms and symptom clusters; and studies to identify optimal delivery models for survivorship care. These findings have direct implications for translating existing evidence into practice and underscore the need for intervention research focused on improving patient-centered outcomes.

Conclusions: Results provide a broad assessment of member views regarding oncology research priorities. Given the response rate, additional strategies to encourage member participation will be considered.

Implications for Nursing: The results, together with the updates of the ONS Research Agenda, can guide ONS and ONS Foundation research and evidence-based practice initiatives.

Key Words: evidence-based practice, clinical practice

as they develop grant applications and programs of research, to inform the development of the ONS Research Agenda and for the ONS Foundation to develop strategic initiatives related to research.

ONS has a diverse membership whose scope of practice is represented in all areas and settings of cancer care. Historically, ONS has sought the voice of the membership in all aspects of cancer care and cancer nursing. The ONS Research Priorities Survey has been a key mechanism for gathering data to assist the organization in defining a research agenda. The purpose of the 2013 survey, as in the past, was to provide information on priorities from the ONS membership for research- and evidence-based practice initiatives.

Methods

Oncology Nursing Society Project Team

The 2013 ONS Research Priorities Survey project team was recruited through a self-nominated call for project team applications. The project team leader, Geri LoBiondo-Wood, PhD, RN, FAAN, worked with Gail Mallory, PhD, RN, NEA-BC, the director of Research at ONS, to select team members that represented a diversity of research backgrounds. In addition, the newly appointed ONS Research Agenda leader, M. Tish Knobf, PhD, RN, AOCN®, FAAN, also was invited to the team to provide input and a linkage between the Research Priorities Survey project team and the Research Agenda team. A statistician provided statistical analysis. The work of the project team was accomplished with several phone conferences, electronic communication, and one in-person team meeting. Members of the project team were tasked with development and dissemination of the 2013 survey, analysis and interpretation of survey data, and dissemination of the survey findings.

Survey Development

Prior to the in-person meeting, the team reviewed and discussed the 2008 survey. After review and lengthy discussion of changes in research and practice in the past four years, it was decided to revise the survey. The team used the 2009–2013 Research Agenda as an additional resource to develop and tailor survey items. Each member reviewed a section of the agenda's topic areas—health promotion, cancer symptoms and side effects, late effects of cancer treatment and long-term survivorship, end of life, psychosocial and family, nursing-sensitive patient outcomes, and translation science—and drafted questions reflecting these areas for the survey. The team refined the proposed questions and submitted them to individuals from the various institutions represented by the project team for wording clarity, content validity, and amount of time for survey completion.

Several noteworthy changes from the 2008 survey to the revised 2013 survey included the manner in which the survey assessed symptoms and the focus from general health promotion to risk reduction. A question in 2008 asked the importance of conducting research on a list of symptoms. The 2013 survey was revised, and asked participants to identify the top three symptoms that were the most difficult to manage and the top three that were most distressful for patients. The health promotion questions were revised to reflect a heightened interest (Kushi et al., 2012; Umar, Dunn, & Greenwald, 2012) in the development of intervention research for risk reduction in undiagnosed individuals and in patients and survivors (Wolin & Colditz, 2013). During the in-person meeting, the bank of questions was refined based on feedback and a final survey developed by the team for distribution.

Sample

Survey participants were recruited from the full ONS membership ($N = 37,165$). The number represents diverse backgrounds in academic and practice settings. From this group, 8,554 members (23%) were invited to participate in the survey. Representation from all levels of education was sought. All PhD/DNSc and DNP prepared members ($N = 570$) were invited to participate. The PhD/DNSc and DNP groups were oversampled to provide representation of this educational demographic. A random sample of the remaining membership was obtained from those with master's, bachelor's, associate, and nursing diplomas. Stratified sampling methods were used to improve the representativeness of the sample and reduce sampling error.

Data Collection and Analysis

The 2013 survey was distributed via Zarca® Interactive through the ONS website. The initial invitation for participation was followed by two additional requests via email about 1–2 weeks apart. As an incentive, respondents who completed the survey and were interested in being entered were included in a confidential random drawing for an iPad®. Those interested in being included in the random drawing were offered the opportunity to click on a link to a separate survey to enter their contact information. The survey remained open for five weeks. Data from the Zarca survey were imported into an analytic file and data analysis was performed using STATA, version 12. Each item in the survey was ranked from 1 (high) to 4 (not at all), and summarized using frequencies and percentages. Mean ratings for importance of questions were calculated by averaging overall responses. Weighted responses were used to adjust for unequal sampling of PhD/DNSc and DNP respondents. Sample weights were calculated by the total number of each

degree group sampled and divided by the number of respondents in each degree category.

Results

Of the 8,554 ONS members invited to take the survey, 895 members responded for an overall response rate of 11%. The overall response rate of 11% was slightly lower than the 2008 survey of 12%. In addition, for a population of 37,165 and a sample size of 895, this provided a 95% confidence and a sampling error of 3.2% (Dillman, 2007). Therefore, the sample size achieved is considered an adequate response rate and is suitable for generalizing to the whole population.

Sample Characteristics

Demographic and professional characteristics of the respondents are detailed in Table 1. The average years worked in oncology nursing was 18.3 (range = 0–50). The majority of nurses reported working in ambulatory care and having a bachelor's or master's degree. In addition, respondent demographics were compared to the general membership for age, gender, and education. Employment variables of number of years worked in oncology nursing, primary work setting and if certified in oncology nursing also were gathered.

Rank Order of Mean Importance Ratings

The top 20 ranked research priorities are listed in Table 2. Eleven of the 20 identified priorities were new topics introduced with the 2013 survey. For example, the development and evaluation of interventions to promote adherence was the top-ranked research priority in the 2013 survey. In addition, more focus was placed on interventions for risk reduction for patients with cancer and their families regarding diet, stress management, and tobacco use, as well as patient safety and prevention management of medication errors and infection. However, some common items also were noted between this and prior surveys. For example, the 2008 survey identified screening and early detection as priorities (Doorenbos et al., 2008), whereas respondents of the current survey focused specifically on screening and early detection in minority populations. Similarly, the 2008 survey identified late effects as the number two ranked research priority. The 2013 survey separated late effects by specific organ systems, and respondents identified neurologic, cardiac, and pulmonary late effects as priorities. Overall, the 2013 survey results suggest both new areas of importance as well as more specific areas of concentrated concern.

Respondents also were asked to rank the symptoms that were the most difficult to manage. The top five were fatigue, neuropathy, psychological distress, cognitive impairment, and depression. However, when

Table 1. Characteristics of 2013 Survey Respondents and Oncology Nursing Society (ONS) Membership

Characteristic	Survey (N = 895)		ONS (N = 37,165)	
	\bar{X}	SD	\bar{X}	SD
Years worked in oncology nursing	18.3	11	16.5	19
Characteristic	n	%	n	%
Primary work setting				
Ambulatory care	346	39	17,619	47
Both inpatient and ambulatory care	145	16	4,387	12
Hospice or home care	13	2	504	1
Industry	13	2	992	3
Inpatient	197	22	11,933	32
School of nursing	108	12	668	2
Other	66	7	136	1
No response	7	1	926	3
Certified in oncology				
No	276	31	11,611	31
Yes	609	68	25,554	69
No response	10	1	–	–
Highest nursing degree				
Associate	116	13	8,796	24
Bachelor's	280	31	16,176	44
DNP	19	2	137	1
Diploma	44	5	3,001	8
Master's	260	29	6,794	18
PhD/DNSc	151	17	537	1
No response	25	3	1,724	5
Highest non-nursing degree				
Associate	91	10	1,756	5
Bachelor's	161	18	5,549	15
Diploma	14	2	–	–
Doctorate	18	2	252	1
Master's	97	11	1,992	5
None	483	54	–	–
No response	31	3	27,616	74
Age (years)				
20–29	48	5	3,337	9
30–39	103	12	6,150	17
40–49	187	21	8,677	23
50–59	374	42	11,585	31
60–69	158	18	4,070	11
Older than 69	14	2	418	1
No response	11	1	2,928	8
Gender				
Female	854	95	33,360	90
Male	28	3	1,380	4
No response	13	1	2,425	7

Note. Because of rounding, not all percentages total 100.

asked what symptoms were the most distressing to patients, the top five were fatigue, pain, nausea, psychological distress, and neuropathy.

Additional comparisons between the surveys are limited because of the revision and reconceptualization of priorities. Past surveys asked about discrete topics, such as individual symptoms and individual and family

psychosocial and behavioral topics. The current survey treated the research priorities more specifically and framed topics around aspects of nursing practice (e.g., interventions), concepts such as symptom clusters, and special populations such as the older adult and underserved and underinsured individuals. This shift reflects the growth of knowledge in the field and the current state of the evidence, together with an awareness that it is timely to move from predominantly descriptive approaches of problems and symptoms to interventions and outcomes.

Symptom management remains an important research priority for oncology nurses, with the emphasis shifting toward self-management of symptoms, interventions to address multiple concurrent symptoms, and the potential uses of technology to improve screening, evaluation, and management of symptoms. Compared with 2008, research to improve the delivery of guideline-concordant cancer screening and early detection services specifically to minorities and those who are underserved or underinsured moved up the priority ranking. In 2013, screening and early detection activities were identified as among the top five research priorities. Similarly, research to develop effective interventions for those at risk for cancer and

for patients with cancer and their families was ranked within the top 15 research priorities in 2013, whereas it was considerably lower in priority ranking, relative to other priorities, in 2008. New items were introduced in the 2013 survey, addressing research related to patient safety and two topics (prevention of central line infections and prevention of medication errors) were ranked within the top 20 research priorities.

Educational Comparison

In the past, the responses of the PhD/DNSc members were compared to those of members with master's, BSN, diploma, and associate degrees. To determine whether respondents would select different priorities based on education level, and perhaps how they would use the results, those nurses with PhD/DNSc, DNP, and master's degrees were compared to respondents in the bachelor's, associate, and diploma group.

Table 3 displays the top 20 priorities for each group. PhD/DNSc, DNP, and master's prepared respondents ranked six topics in the top 20 that were not represented in the overall rankings: functional impairment of older adults, intervention research on family and caregivers, physical activity for survivors, symptom experience of older adults, cost effectiveness of interventions, and

biobehavioral mechanisms of symptoms. The response with the largest difference was biobehavioral mechanisms of symptoms, which was ranked seventh by the PhD/DNSc, DNP, and master's prepared respondents, but was ranked 62nd overall. Four of the top 20 priorities were exclusive to the bachelor's, associate degree, and diploma respondents: medication errors, central line infections, pulmonary and cardiac effects of treatment, and tobacco control for both patients and survivors.

Symptom Management

Respondents were asked to select the top three symptoms most difficult to manage and the top three most distressing for patients from a list of 27 cancer and cancer treatment-related symptoms (see Table 4). Across all respondents, fatigue was rated as the most difficult to manage and the most distressing to the patient. Similarly, fatigue was ranked among the top three priority symptoms in both the 2004 and 2008 ONS Research Priorities Surveys (Berger et al., 2005; Doorenbos et al., 2008).

Across respondents, the top three symptoms that were identified as most difficult to manage were fatigue, neuropathy, and psychological distress, in that order. The

Table 2. Rank Order of Symptom Management Difficulty and Distress to Patients Across All Respondents (N = 895)^a

Rank	Topic	\bar{x}	SD
1	Develop and evaluate intervention: Adherence ^a	2.81	0.42
2	Persistent and late effects: Neurocognitive ^a	2.8	0.42
3	Screening research minorities	2.77	0.5
4	Symptom management: Self-management symptom control	2.77	0.48
5	Screening early detection: Underserved or underinsured	2.76	0.5
6	Survivorship: Survivorship care plan	2.75	0.51
7	Persistent and late effects: Cardiovascular	2.74	0.49
8	Descriptive research factors: Adherence	2.73	0.49
9	Interventions symptom clusters ^a	2.72	0.49
10	Interventions risk reductions patients and survivors: Diet ^a	2.72	0.52
11	Survivorship: Psychological adjustment ^a	2.71	0.51
12	Persistent and late effects: Pulmonary	2.71	0.51
13	Intervention research to improve adherence to risk reduction for cancer patients and families: Tobacco ^a	2.7	0.55
14	Intervention research to improve adherence to risk reduction for populations at risk: Tobacco ^a	2.7	0.54
15	Medication errors: Prevention	2.7	0.54
16	Risk reduction cancer patients and survivors: Stress management ^a	2.7	0.53
17	CLABSI prevention	2.69	0.57
18	Use of technology: Symptoms	2.68	0.53
19	Symptom management interventions ^a	2.68	0.55
20	Risk reductions patients and survivors: Physical activity and exercise	2.68	0.53

^a Asked in Doorenbos et al. (2008)

CLABSI—central line-associated bloodstream infections

Table 3. Top 20 Research Priorities Ranked by Mean Importance by Degree^a

Rank	PhD/DNSc, DNP, or Master's	Bachelor's, Associate Degree, or Diploma
1	Self-management interventions to improve symptom control	Adherence improvement interventions
2	Symptom management interventions	Neurologic effects of cancer treatment
3	Management interventions of symptoms clusters	Screening and early detection for minorities and those at risk for poor outcomes
4	Screening and early detection for underserved and/or underinsured individuals	Self-management interventions to improve symptom control
5	Screening and early detection for minorities and those at risk for poor outcomes	Screening and early detection for underserved and/or underinsured individuals
6	Interventions that use technology to address symptoms	Survivor care plans
7	Symptoms biobehavioral mechanisms	Cardiovascular effects of cancer treatment
8	Intervention cost effectiveness	Descriptive research on factors that influence treatment adherence
9	Survivors physical activity and exercise	Management interventions of symptoms clusters
10	Establish evidence on best strategies for improved care delivery	Diet and nutrition interventions to reduce cancer risk
11	Interventions to improve adherence	Survivorship issues
12	Neurologic effects of cancer treatment	Pulmonary effects of cancer treatment
13	Symptom experience of older adults	Risk-reduction interventions for tobacco control for patients and survivors
14	Psychological adjustment	Risk-reduction interventions for tobacco control for overall population
15	Stress management for patients and survivors	Reduction of medication errors
16	Family and caregivers intervention research	Stress management for patients and survivors
17	Diet and nutrition interventions to reduce cancer risk	Reduction of central line-associated bloodstream infections
18	Functional impairment of older adults with cancer	Test interventions that use technology to address symptoms
19	Physical activity and exercise in cancer prevention	Symptom management interventions
20	Survivor care plans	Physical activity and exercise in cancer prevention

^aAdjusted for oversampling of specific degrees

top three symptoms ranked as most distressing to patients, in order, were fatigue, pain, and nausea and vomiting. Similar to the 2008 ONS Research Priorities Survey, pain, neuropathy, and fatigue were identified as the top three priority symptoms. However, nausea and vomiting were ranked only 10th in level of importance, and psychological distress was not identified in the top 23 symptoms listed at that time. Interestingly, in the 2013 survey, eight symptoms were rated among the top 10 symptoms in both the categories of difficult to manage and distressing to patients. These included fatigue, neuropathy, psychological distress, cognitive impairment, depression, anxiety, pain, and sleep-wake disturbances.

Responses regarding symptom management also were examined based on education level of the respondents: doctoral (PhD/DNSc, DNP) and master's versus bachelor's, associate degree, or diploma. No major differences were noted related to educational preparation. Nurses with a doctoral degree did rank cognitive impairment as one of the top three most difficult symptoms to manage. In addition, nurses with doctoral or master's degrees ranked cognitive impairment as one of the top three most distressing symptoms to patients.

Evidence-Based Practice

ONS has been a leader in evidence-based practice resources for oncology nurses primarily through more

Table 4. Rank Order of Symptom Management^a (N = 895)

Characteristic	Difficult to Manage			Distress to Patients		
	n	%	Rank	n	%	Rank
Fatigue	418	46	1	429	48	1
Neuropathy	277	32	2	161	18	5
Psychological distress	256	29	3	184	19	4
Cognitive impairment	268	27	4	184	17	6
Depression	153	20	5	124	14	10
Anorexia or appetite changes	119	16	6	89	12	11
Anxiety	124	15	7	129	15	7
Pain	141	15	8	299	35	2
Sleep-wake disturbances	118	12	9	130	14	9
Cachexia	76	9	10	18	1	25
Lymphedema	74	9	11	39	3	19
Functional status	77	9	11	126	14	8
Sexual function	80	8	13	90	10	12
Mucositis	66	8	14	70	9	14
Infection	55	7	15	15	2	23
Delirium	68	7	16	16	2	24
Nausea and vomiting	54	6	17	200	25	3
Skin changes or cutaneous symptoms	37	4	18	38	5	18
Weight loss or gain	43	4	19	47	5	17
Hot flashes	36	4	20	30	3	20
Xerostomia	35	3	21	31	3	22
Dyspnea	40	3	22	64	6	16
Incontinence	26	3	23	76	9	13
Diarrhea	10	1	24	51	7	15
Bleeding	10	1	25	6	1	26
Constipation	7	1	26	25	3	20
Musculoskeletal	7	1	26	2	–	27

^a Adjusted for oversampling of specific degrees

than a decade of development and ongoing updating of the Putting Evidence Into Practice (PEP) resources (Eaton & Tipton, 2009; Eaton, Tipton, & Irwin, 2011; Irwin, Brant, & Eaton, 2012; Irwin, Erb, Williams, Wilson, & Zitella, 2013; Irwin, Lee, Rodgers, Starr, & Ralph Webber, 2012). Despite these easily accessible and comprehensive resources, only 37% of the ONS survey respondents reported using PEP, whereas 55% used National Comprehensive Cancer Network (NCCN) guidelines. Respondents also identified using other resources, including 12% using the Multinational Association for Supportive Care in Cancer (MASCC) resources and 44% using the American Society of Clinical Oncology (ASCO) Clinical Practice Guidelines. Master's prepared respondents reported that they more frequently used the PEP resources from ONS (41%), NCCN (68%), MASCC (13%), and ASCO (47%) when compared to the doctorally prepared or bachelor's, associate, and diploma-prepared participants. Thirty-three percent of doctorally prepared respondents reported using PEP guidelines, 56% reported using NCCN, 15% reported using MASCC, and 34% reported using ASCO guidelines. Thirty-six percent of bachelor's, associate, and diploma-prepared participants reported using PEP guidelines, 51% reported

using NCCN, 11% reported using MASCC, and 44% reported using ASCO guidelines. The use of guidelines other than PEP may be related to accessibility and institution choice.

When participants were asked to rank their opinion of the level of importance for strategies to improve clinician capacity for delivering evidence-based care, 87% ranked it as medium or high. Eighty-five percent of participants ranked the level of importance to the cost-effectiveness of the interventions at the high or medium level.

Two questions queried respondents on interest in specific new topics for evidence-based resources. Respondent overall mean scores identified the need for evidence to address the prevention of medication errors ($\bar{X} = 2.7$), central line-associated bloodstream infections ($\bar{X} = 2.69$), and readmission ($\bar{X} = 2.68$) as the most important areas. But, of note, the means of the remainder of the categories queried did not vary greatly: other infections ($\bar{X} = 2.58$), falls ($\bar{X} = 2.55$), catheter-associated urinary tract infections ($\bar{X} = 2.51$), and hospital-acquired pressure sores ($\bar{X} = 2.45$).

Open-Ended Questions

The survey contained one open-ended question. Respondents were asked about what problem in oncology nursing is most in need of research to support evidence-based practice. The responses were categorized into thematic groups (see Figure 1). If respondents gave multiple responses, only the first response was included in the analysis. The highest frequency of responses (N = 50) was in the broadly defined symptom management category. Specific symptoms also were endorsed by multiple respondents, including fatigue, neuropathy, mucositis, pain, cognitive function, and sleep. Palliative care and psychosocial issues also were frequently identified by respondents. Other major categories identified by many respondents were evidence-based practice and evaluation methods associated with nursing interventions. Adherence strategies, in particular, were noted as a priority. Healthcare delivery system variables were noted, including access to care, care delivery models, and issues related to staff nurses and caregivers. Cancer site-specific research and population-specific (gerontologic) research were noted by multiple respondents. Sexual health, nutrition, infections, genetics, exercise, falls, and self-management received several responses.

Discussion and Implications for Future Research

The results of the 2013 ONS Research Priorities Survey offers ONS members and leadership a view of member perspectives toward a fundamental aspect of the ONS mission. The assessment of the organization's constituents at regular intervals provides the ONS leadership with information for the accomplishment of the ONS Strategic Plan core work, which includes identifying research and evidence-based practice priorities (ONS, 2011). In addition, the results from this survey will provide important guidance for the ONS Strategic Plan Quality Pillar objectives (ONS, 2011). Similar to the past three surveys (Berger et al., 2005; Doorenbos et al., 2008; Ropka et al., 2002), this survey required members to not only identify knowledge development, but also the application of knowledge into clinical practice.

As the structure of the survey changed for 2013, some direct comparisons to past surveys could not be made, but interesting findings arose. A continued challenge to survey administration remains obtaining a representative sample. Although roughly 800 members are doctorally prepared, and those members were specifically targeted, fewer than 200 of those members responded to the survey. The respondents reported significant experience in nursing, reporting a mean of 18 years of oncology nursing practice, whereas the mean years of oncology nursing experience for the overall membership at the time of the survey was 16.5 years. The finding that the average years of oncology nursing in the respondents is greater than the average years of oncology experience of the membership demonstrates the commitment and ongoing involvement of ONS members in research priority settings. As in the 2008 survey, the majority of respondents were bachelor's and master's prepared, and the number was equal to the previous survey respondents for PhD/DNSc- and DNP-educated members. The number of years worked and age also were consistent with the overall membership.

The top-ranked research priority identified was to develop and evaluate interventions to promote adherence. In the past decade, with the advances in the biologic understanding of cancer and the emergence of targeted agents, a dramatic increase has occurred in the indication for oral chemotherapy across many cancers (Barton, 2011). Adherence is multifactorial, and is influenced by patient, condition, therapy, and social and healthcare system factors (Schneider, Hess, & Gosselin, 2011). Regimens can be complex, and the symptom profiles can lead to discontinuation of therapy (Murphy, Bartholomew, Carpentier, Bluethmann, & Vernon, 2012). Older adults, a growing population in oncology, are at high risk for nonadherence because of comorbid illness, polypharmacy, and age-related physical and

psychosocial issues (Bond, Davis, & McEvoy, 2012; Maloney & Kagan, 2011). A significant concern related to adherence is response to therapy and survival. As an example, aromatase inhibitors, as adjuvant therapy for breast cancer, are frequently associated with symptoms of arthralgias and myalgias, and nonadherence or discontinuation can result in increased mortality (Hershman et al., 2011). Strategies to promote adherence have been identified (Schneider et al., 2011), but research is needed to evaluate the effectiveness of interventions for adherence across varied populations of patients with cancer.

Late effects and survivorship reflect 8 of the top 20 ranked research priorities. Late effects, specifically neurologic/cognitive, cardiac, and pulmonary were ranked 2, 7, and 12. Neuropathy was ranked seventh in the 2008 survey (Doorenbos et al., 2008), and ranked second in the 2013 survey when respondents were asked to identify and rank their top three symptoms that were most difficult to manage and most distressful for patients. Persistent neuropathy can interfere with everyday function and can be associated with significant discomfort for which pharmacologic interventions have not been universally effective and, in addition, are associated with a unique and often unacceptable side effect profile (Bakitas, 2007; Paice, 2009). New approaches and research to test these are warranted (Argyriou, Koltzenburg, Polychronopoulos, Papapetropoulos, & Kalofonos, 2008). Similarly, changes in cognitive function have a major impact on everyday life (Myers, 2012; Von Ah, Habermann, Carpenter, & Schneider, 2013), are common during and after therapy, and evidence exists that changes in cognitive ability may persist in survivors for many years (Deprez et al., 2012; Kopplemans et al., 2012).

1. Symptom management
2. Symptoms, including psychosocial issues and distress, fatigue, pain, neuropathy, mucositis, cognitive impairment, infection, sleep, nutritional concerns, sexual health issues, and gastrointestinal
3. Carry delivery models, staff involvement, and evidence-based practice
4. Survivorship
5. Adherence
6. Access to care, including issues of uninsured and underinsured
7. Communication, decision making, and education
8. Caregiver issues and burden
9. Clinical trials
10. Gerontologic issues
11. Cancer site-specific research
12. Genetics and genomics
13. Exercise
14. Falls

Figure 1. Themes From Open-Ended Questions

Knowledge Translation

Strong support exists for future research on interventions and outcomes.

Fatigue, neuropathy, and psychological distress remain important areas for research and practice.

The focus of nursing research has moved from descriptive studies to studies on intervention and outcomes.

A limited number of intervention studies have been conducted, and research is needed with multidisciplinary approaches for management (Ahles, Root, & Ryan, 2012; Von Ah, Jansen, Allen, Schiavone, & Wulff, 2011).

Five survivorship research priorities were listed in the top 20 ranked items in the current survey, including survivorship care plans, psychological adjustment, risk-reduction interventions for stress management, diet and nutrition, and physical activity. Those five research priorities were similar to ranked topics from the 2008 survey, some of which were categorized under health promotion versus risk reduction (Doorenbos et al., 2008). Agreement was noted with the Institute of Medicine's recommendations for survivorship care (McCabe et al., 2013), but system barriers to implementation exist, as does a gap in research about the effectiveness of the recommendations on survivor outcomes (Salz, Oeffinger, McCabe, Layne, & Bach, 2012; Stricker et al., 2011). However, patients have clearly identified key elements that they desire in survivorship care beyond surveillance guidelines, specifically, preparation for and management of physical and psychological effects of cancer and its therapy and risk reduction lifestyle interventions (Smith, Singh-Carlson, Downie, Payeur, & Wai, 2011).

In the 2013 survey, symptom intervention research, specifically the development of self-management interventions; the use of technology to improve screening, evaluation, and management of symptoms; and interventions to address symptom clusters, all were ranked as high priorities. This finding is consistent with prior surveys but, at the same time, reflects movement in the field toward greater sophistication in regard to symptom conceptualization (Kirkova, Aktas, Walsh, & Davis, 2011) and an emphasis on testing and refining interventions and on understanding how symptom management interventions, such as education and coaching, produce reductions in symptom burden (Porter, Keefe, Garst, McBride, & Baucom, 2008).

Of note, the open-ended question identified themes mostly addressed in the survey. This convergence of the results is important because it confirms the importance of the identified priorities. Symptoms and

symptom management remains a key focal point for research and quality care initiatives. In addition, addressing both tobacco use and tobacco cessation is of increasing importance to members. Oncology nurses, as well as other disciplines, are now emphasizing its importance both to reduce the risk of cancer and as a strategy to reduce toxicity and other unfavorable outcomes in patients being treated for cancer (Petros, Younis, Ford, & Weed, 2012; Toll et al., 2013). Oncology nursing science can make important contributions to an interdisciplinary approach to this problem, and survey results suggest oncology nurses consider developing an interdisciplinary program of research addressing tobacco use cessation.

The 2013 survey was the first to specifically assess the priority ranking given to knowledge development to address safety issues in oncology nursing, such as central line infection and medication errors. The current emphasis on safety and quality, and a greater recognition that central line-associated infections acquired in treatment settings are a significant cause of morbidity and mortality, and are preventable, suggests that these topics will assume greater importance in oncology in the near future (Luckenbill et al., 2013), and this is an area of quality improvement and translational research where nurse researcher and APN collaboration may be particularly fruitful (Rinke et al., 2012). Also noteworthy is that readmissions were identified as an important priority area for oncology nursing research. Those findings need to be considered in light of the newly developed questions and format. This survey is the first to ask specifically about hospital-acquired problems; particularly important because a meta-analysis of cost and financial impact on the U.S. healthcare system (Zimlichman et al., 2013) found that, although quality improvement initiatives have decreased hospital-acquired infection, incidence and cost remain around \$9 billion a year.

The findings for all the survey questions limit the ability to generalize and arrive at specific conclusions because the rankings for all questions were very close and the standard deviations very narrow. In the future, it may be useful to use a modified Delphi technique to augment the results. Many of the topics queried have considerable research and guidelines available for practice. It was interesting to note that the NCCN guidelines were used more frequently than ONS's PEP resources. It may be that the linkage between knowledge and application needs to be further translated into useable practice. ONS's PEP resources, which are updated on a regular basis, offer a vehicle for dissemination of synthesized research evidence for practice. It would be interesting to assess the reasons why other guidelines are used more frequently and how to increase the use of ONS's PEP resources.

Conclusions

The 2013 ONS Research Priorities Survey obtained input from a wide range of ONS members. It provides a snapshot of responses from various clinical and academic perspectives. The survey results offered respondents the opportunity to identify priorities from a varied range of topics. These results, together with the updates of the ONS Research Agenda, can guide ONS and ONS Foundation research and evidence-based practice initiatives—all with the goal of providing the highest levels of care and quality for patients with cancer and their caregivers.

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Digital Object Identifier: 10.1188/14.ONF.67-76

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