Oncology Nursing Society Year 2004 Research Priorities Survey

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Purpose/Objectives: To determine the Oncology Nursing Society (ONS) research priorities for 2005–2008 for oncology nursing across the entire scope of cancer care, including prevention, detection, treatment, survivorship, and palliative care.

Design: Descriptive, cross-sectional survey.

Sample: Stratified into two groups: random sample of general membership (N = 2,205; responses = 287, or 13%) and all ONS active members in the United States with doctoral degrees (N = 627, responses = 144, or 23%); overall response rate was 15%.

Methods: The 2000 survey was revised and updated. Postcards were mailed to the original sample (N = 1,605) prior to the launch of the online survey, inviting participation via an online or paper-and-pencil survey. An e-mail announcement of the survey was launched one week later, followed by reminders the following week. Because of low response rates, a second sample (N = 600) was selected and contacted.

Main Research Variables: 117 topic questions divided into seven categories. Several items were new or reworded.

Findings: The top 20 research priorities included 12 of the top 20 items found in the 2000 survey; 8 topics were new to the top 20. Priority topics were distributed across six of seven categories. When general membership results were compared to the doctoral sample, 10 topics were among the top 20 for both groups. Nine topics were top priorities in the 2000 (researcher) and 2004 (doctorally prepared) surveys.

Conclusions: Response rates to the electronic survey were lower than for previous paper-and-pencil surveys, but an adequate response was obtained. Rank order of mean importance ratings was determined by narrow differences in scores. The general membership and doctorally prepared samples showed similarities as well as differences in results.

Implications for Nursing: The 2004 survey results will inform the 2005 research agenda and assist the ONS Foundation and other funding organizations in distributing research funds.

Key Points . . .

- ➤ Online survey response rate (15%) was lower than for the 2000 mailed paper surveys, but the online method saved time and money.
- ➤ The top 20 research priorities identified by the general membership included six topics that moved up since 2000: participation in decision making about treatment, evidence-based practice, nurses as advocates, curative treatment/care, cognitive impairment/mental status changes, and late effects of treatment. Two topics were new to the 2004 survey: tobacco use and exposure and initial cancer diagnosis.
- ➤ The doctorally prepared sample's top 20 included 10 topics that were not included in the top 20 for the general membership.
- ➤ Despite constant flux, fundamental cancer care topics remain top priority items.

Care of people with cancer is in constant flux, with dramatic changes occurring in areas such as cancer health behaviors, decision making, delivery systems, and symptom management. In response to this dynamic situation, the Oncology Nursing Society (ONS) has established a strong track record of surveying its broad membership to assist in determining research priorities for the organization. Beginning in 1981 and conducted about every four years, the ONS Research Priorities Survey has sought opinions about research priorities from ONS members to gather a wide range of experiences with innovations and techniques from their respective roles related to the care of people with cancer (Funkhouser & Grant, 1989; Grant & Stromborg, 1981; McGuire, Frank-Stromborg, & Varricchio, 1985; Mooney, Ferrell, Nail, Benedict, & Haberman, 1991; Ropka et al., 2002; Stetz, Haberman, Holcombe, & Jones, 1995).

In 2003, ONS began using Internet survey methods as a strategy for gathering information from various groups of members. Using Internet survey methods to assess membershipwide research priorities is unique to ONS among nursing specialty organizations. Online surveying is a more cost-effective administration method

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than mailed paper questionnaires and generally is thought to provide at least equivalent results with samples from professional organizations (Vehovar, Batagelj, Manfreda, & Zaletel, 2002). Although Internet response rates typically have been lower than those for postage-paid, mailed paper surveys, investigators and organizations enthusiastically have embraced the benefits of saving time and money (Schonlau, Fricker, & Elliott, 2001).

Results of prior surveys have helped direct resources to areas of most importance at those particular times. The *ONS Research Agenda 2003–2005* (ONS, 2003) is one example of how the survey results are used. The ONS Foundation has used survey results to identify funding sources and develop strategic initiatives. The purpose of the 2004 survey was to determine the ONS research priorities for 2005–2008 for oncology nursing across the entire scope of cancer care, including prevention, detection, treatment, survivorship, and palliative care.

Methods

ONS Project Team

A 2004 ONS Research Priorities Survey Project Team was recruited through the ONS Advanced Nursing Research Special Interest Group and project team applications. The project team leader, Ann M. Berger, PhD, RN, AOCN®, worked with ONS Director of Research Gail Mallory, PhD, RN, CNAA, to select team members who represented a wide variety of backgrounds and expertise. The principal investigator of the ONS Research Agenda Conference, Donna L. Berry, PhD, RN, AOCN®, was invited to serve on the project team to provide continuity between the survey and the research agenda. A statistician was consulted to assist with data analysis. The project team conducted the work associated with constructing and analyzing the results via one team meeting and conference calls. Electronic communication was used to review and provide feedback throughout the process.

Survey

A descriptive, cross-sectional design guided this survey study. After reviewing the 2000 Research Priorities Survey (Ropka et al., 2002), the project team added new topics, deleted or combined others, and reorganized the survey format to make it more current, respondent friendly, visually attractive, and easy to read. The final survey consisted of 117 topic questions divided into seven categories. New topics were added or previous topics revised based on the project team's experience with oncology nursing research topics that have emerged or changed since the last survey. In particular, topics related to special populations, ethnicity, and tobacco use recently have gained importance in oncology nursing research. With the exception of the topic on tobacco use, all additions and modifications were made prior to the original distribution of the surveys. The tobacco question was added after feedback from several members at the 2004 ONS Congress who stated that tobacco use had not been addressed adequately in the survey. The tobacco use topic was added to the survey 14 days after it went online. This brought the total number of items to 117 on all surveys distributed from that date forward, resulting in 224 out of 431 surveys returned containing the tobacco topic.

A new feature of the 2004 survey was that questions regarding the importance of conducting new research in specific topics under each category were preceded by a general question asking respondents to rate their degree of familiarity with current research evidence about that category (e.g., "How familiar are you with current research evidence about health promotion/disease prevention topics?"). Using Likert-style answers, respondents rated their degree of familiarity in each of the seven categories as extremely familiar, very familiar, moderately familiar, somewhat familiar, and not familiar at all. These generic questions for each category were designed to elicit respondents' familiarity with the category as a contextual factor in which to interpret importance ratings.

Respondents next rated each of the 117 topic questions using Likert-style answers as extremely important, very important, moderately important, somewhat important, not important at all, or not sure. At the end of the survey, two open-ended questions were posed: (a) Identify the three most important topics in which to conduct new oncology nursing research and (b) identify other important areas for oncology nursing research, including those that are "cutting edge" or "visionary." Eleven additional questions dealt with the demographic and professional characteristics of the respondents. The entire survey included seven questions related to familiarity with the category, seven categories with a total of 117 items, 12 demographic questions, and 2 open-ended questions (total = 138) and took about 15 minutes to complete.

Study Sample

Participants in this survey were recruited from the membership of ONS, a national specialty organization for oncology nurses. ONS has more than 30,000 members who work in a variety of practice, academic, and research settings. The educational preparation of members ranges from associate's degree to doctorate. For this study, the membership was stratified into those who do not hold a doctorate and members who are doctorally prepared. All doctorally prepared members (n = 627) were invited to participate in the survey. Of members who were not doctorally prepared, 1,605 of the ONS general membership population were selected randomly to participate.

A variety of methods were used to promote response to the survey. After two e-mail reminders and two postcards to members without e-mail addresses, a total of 301 responses (297 electronic and 4 hard copies) were received. To increase the response rate to a minimum of 400 respondents and to obtain results with a confidence interval of about plus or minus 5%, an additional 600 randomly sampled members who did not hold doctorates and had e-mail addresses were invited to participate. The final sample size of completed surveys was 431. Of those members who accessed the survey Web site, 148 began taking the survey and submitted at least the first page of responses but did not complete the survey. No information is available regarding why they did not complete the survey. Only completed surveys (n = 431) are reported in this article.

Only 2% of the general ONS membership has earned a doctoral degree; therefore, the survey team decided to stratify based on doctorate versus no doctorate. The team hypothesized that those holding a doctorate would have advanced research training and would be more familiar with current research methods and findings. Also, doctorally prepared members often are involved actively in conducting oncology nursing research. Without oversampling, this small group might have been missed with random sampling. A representative sample of those who are not doctorally prepared was desired because clinicians routinely deal with problems needing research evidence and use research findings. Sustaining, associate, and international members of ONS were excluded from the sample. As an incentive to participate,

all respondents were eligible for a drawing to win one of three one-year ONS memberships.

Data Collection

To publicize the survey, a postcard that explained the study purpose was mailed to the entire sample one week prior to the survey launch. The postcard and invitation to participate were developed by the ONS Marketing Team in consultation with the project team to make the invitation interesting to all ONS members. Two options for completing the survey were explained. The postcard listed the Web site for the online survey and gave a toll-free phone number to call to request a paper-and-pencil survey. The postcard was followed one week later by an e-mail announcement that was sent to all sampled members who had an e-mail address listed with ONS (84%). The Web site with the survey could be accessed directly from the e-mail. After two weeks, a second reminder postcard was sent to those who did not have e-mail or who requested a paper-and-pencil survey. A second e-mail reminder was sent to the rest of the sample. When the second sample of 600 was selected, an e-mail announcement about the survey was sent. A follow-up e-mail was sent after two weeks to encourage participation in the survey. The entire sample was notified in the follow-up e-mail that the deadline for the survey was extended by about two weeks.

To capture the largest response that represents the breadth of the ONS membership, several response modes were offered. Respondents had an option to complete the survey via the Web site or through a mailed paper-and-pencil survey. Although many ONS members have access to the Internet, about 22% have not reported an e-mail address to ONS. In the current survey, 15.8% (n = 447) of the sample did not have a listed e-mail address and therefore received a total of two postcard mailings that gave them the option to request that a paper-and-pencil survey be mailed to them or to go directly to the Web site using an available computer. Additionally, those with an e-mail address had the option of requesting a paper-and-pencil survey.

The online survey was conducted using Zoomerang (MarketTools, Inc., Mill Valley, CA), a software program that facilitates designing and sending surveys and analyzing their results. An Internet portal was set up to access the survey online via the ONS Web site. A secure Web site was used for electronic responses. Confidentiality was ensured by assignment of an identification number to each survey so that no individual respondent was identifiable. Respondents were asked to provide their names and addresses if they wanted to be entered into a drawing to receive the incentive of a one-year membership to ONS. Three were selected randomly from the names to receive a free one-year ONS membership. Personal identifying information was not entered into the analysis and was not available to any team member. The survey was conducted over five weeks during April and May 2004.

The data from the Zoomerang survey were saved into a transferable data format and read into the SPSS® (SPSS Inc., Chicago, IL) statistical package for data analysis and interpretation. Any item nonresponse because an item was skipped was coded as missing data and excluded from the analysis. Any "not sure" responses to the Likert-type ranking questions also were coded as nonresponses. The majority of the questions had less than 1% nonresponse. The highest proportions of nonresponse were on the special cancer population questions. Of those, the greatest proportion of nonresponse was for the items on prisoners and people with gay, lesbian, or bisexual orientation (4.4% and 3.7% nonresponse rates, respectively). For the tobacco question that was added later in the survey process, the people who did not receive that question had it coded as missing. Overall, the level of item nonresponse was very low, particularly for what typically is found in self-administered surveys (Dillman, 2000).

Analyses were conducted on the full sample treating the missing and item nonresponses as missing data. Some analyses, such as the basic sample descriptions, were not adjusted for sampling proportions. The general analyses of response patterns and rank orderings were conducted using weighted data to correct for potential bias caused by the disproportionate sampling of doctorally prepared members. This was accomplished by calculating the weights as described and then applying them in SPSS using the program weighting procedure.

Results

Response Rates and Demographics

Of the 2,832 ONS members invited to participate, the overall response rate to the online survey was 431 (15%). Of the doctorally prepared nurses, the response rate was 144 of 627 members (23%). Among the general membership who were invited, the response rate was lower, with 287 of 2,205 members (13%) responding to the survey. Only four paper-and-pencil surveys were requested in response to the postcard mailings. The response rate to the 2004 survey was lower than the previous 2000 and 1994 surveys, with the prior response rates to mailed questionnaires being 39% and 36%, respectively (Ropka et al., 2002; Stetz et al., 1995). The majority of respondents to the 2004 survey were female (97%) and Caucasian (89%), which reflects the makeup of the ONS membership (see Table 1). However, the percentage

Table 1. Demographics of 2004 Survey Respondents[a] and Oncology Nursing Society (ONS) Membership[b]

	Survey Respondents[a]		ONS Membership[b] (as of April 1, 2004)	
Variable	**n**	**%**	**n**	**%**
Gender				
Female	418	97	26,693	97
Male	11	3	965	3
Age (years)				
< 30	7	2	1,993	7
30–39	67	16	5,830	20
40–49	161	37	10,101	34
50–59	163	38	7,026	24
60–69	26	6	1,187	4
> 70	5	1	382	1
Ethnicity				
African American	12	3	891	3
Asian	16	4	1,309	5
Caucasian	381	89	23,577	88
Hispanic/Latino	6	1	606	2
Other	16	4	249	1

Survey respondents: N = 431

[a] Categories will not total 431 as a result of nonresponse on selected items.

[b] The total N for each response category represents the number of ONS members who reported their status on ONS membership profiles.

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

of survey respondents who were 50 years and older (45%) was higher than the percentage of ONS general membership who are 50 years and older (29%). This is reflective of the oversampling procedure that included all of the doctorally prepared nurses. Among the doctorally prepared respondents, 61% indicated that they were 50 or older. In contrast, 37% of the nondoctorally prepared respondents were in the 50 or older age group.

Description of Survey Respondents

Professional characteristics, years in nursing and oncology nursing, primary functional area, practice setting, and employment status of the respondents as compared to the ONS general membership (as of April 1, 2004) are shown in Table 2. Survey respondents were more likely than the ONS general membership to have a master's degree (26% versus 18%) or a doctorate degree (26% versus 1%) as the highest degree in nursing. They also were more likely to have a greater number of years of experience in oncology nursing, with 47% of survey respondents compared to 26% of the ONS general membership having 16 or more years in oncology nursing. A greater proportion of survey respondents listed research (21% versus 8%) and education (21% versus 7%) as their primary functional areas as compared to the ONS general membership. Survey respondents also were slightly more likely to be working full-time than the ONS general membership (87% versus 79%). The differences between the survey respondents and the ONS general membership are explained by the intentional oversampling of doctorally prepared nurses.

Top 20 Research Priorities

Mean importance ratings were calculated for each topic and then adjusted to remove the effects of oversampling the doctorally prepared group. The adjustment was accomplished by assigning sampling weights that represented the inverse of the ratio of the proportion of nondoctoral respondents in the sample with the known proportion of nondoctoral members of the organization (determined by membership data). The use of this sampling weight ensures that responses of the oversampled doctoral group will be proportional to their actual representation in the organization. Topics were listed in rank order from most important to least important. Data were reviewed, and the team determined that no logical cut point existed in mean importance ratings. However, a decision was made to report the top 20 ratings because this was consistent with the 2000 Research Priorities Survey (Ropka et al., 2002) and would facilitate comparisons (see Table 3). All 20 mean importance ratings demonstrated high importance; rating scores ranges from 1.52–1.70 on a scale of 1 (extremely important) to 5 (not at all important). Some mean importance ratings were the same, yet the rank order was different. This is because the team reported the results rounded to within two decimal points of accuracy. The rank order for items that appeared to be tied was based on the ranking from the nonrounded means. Clearly, any distinction among items that are equivalent out to two decimal points is very minor and nonsignificant.

Table 2. Professional Characteristics of Survey Respondents and Oncology Nursing Society (ONS) Membership

	Survey Respondents[a]		ONS Membership[b] (as of April 1, 2004)	
Variable	**n**	**%**	**n**	**%**
Highest degree in nursing				
Diploma	38	9	3,892	14
Associate's	54	13	7,130	26
Bachelor's	113	27	10,909	40
Master's	108	26	4,884	18
Doctorate	110	26	405	1
None	–	–	195	1
Highest non-nursing degree				
Associate's	40	9	1,103	4
Bachelor's	57	13	3,191	10
Master's	32	8	1,380	4
Doctorate	43	10	249	1
None	252	59	3,602	81
Years in oncology nursing				
< 4	34	8	7,572	26
4–10	99	24	8,755	30
11–15	89	21	5,511	19
16–20	81	19	4,253	15
21+	115	28	3,237	11
Years in nursing				
< 4	6	1	4,323	15
4–10	39	9	5,601	19
11–15	51	12	3,824	13
16–20	59	14	4,281	15
21+	272	64	11,263	38
Primary functional area				
Patient care	191	45	19,435	71
Research	91	21	2,059	8
Education	88	21	1,932	7
Administration	34	8	2,495	9
Other	23	5	1,462	5
Practice setting				
Hospital	107	25	12,607	46
Outpatient and ambulatory care	102	24	4,203	15
Physician office	29	7	4,524	16
Other	182	43	6,137	22
Current employment status				
Full-time	358	87	22,465	79
Part-time	47	11	5,119	18
Not working	8	2	690	2

Survey respondents: N = 431

[a] Categories will not total 431 as a result of nonresponse on selected items.

[b] The total N for each response category represents the number of ONS members who reported their status on the ONS membership profiles.

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

Comparison Between the 2000 and 2004 Research Priorities

Table 3 also compares the rank order of the top 20 priority topics identified by the general membership sample in 2004 compared to the 2000 general membership sample (Ropka et al., 2002). When comparing the rank order of the 2004 total sample with the previous surveys, the team found fewer changes in priorities between 2000 and 2004 (12 items the same) than between the prior 1994 and 2000 surveys (9

Table 3. Top 20 Research Priorities Ranked by Mean Importance Ratings for the Total Membership Sample, Adjusted for Doctorate Group Oversampling[a], With Comparisons to the 2000 Survey

Topic	Rank Order	$\bar{X}$ Importance Rating[b] (SD)	2000 Survey Rank Order
Quality of life	1	1.52 (0.718)	2
Participation in decision making about treatment in advanced disease[c]	2	1.54 (0.701)	18
Patient/family education[c]	3	1.55 (0.742)	19
Participation in decision making about treatment[c]	4	1.58 (0.701)	43
Pain	5	1.59 (0.746)	1
Tobacco use and exposure[d]	6	1.60 (0.848)	–
Screening/early detection of cancer	7	1.60 (0.746)	3
Prevention of cancer/cancer risk reduction	8	1.61 (0.754)	4
Palliative care	9	1.62 (0.727)	17
Evidence-based practice	10	1.62 (0.810)	78
Nurses as advocates[d]	11	1.65 (0.773)	–
Fatigue/lack of energy	12	1.66 (0.773)	9
Cancer recurrence	13	1.67 (0.704)	20
Curative treatment/care[c]	14	1.67 (0.733)	37
Patient outcomes of cancer care[c]	15	1.67 (0.743)	8
Cognitive impairment/mental status changes[c]	16	1.67 (0.750)	70
Late effects of treatment[c]	17	1.68 (0.722)	24
Hospice/end of life	18	1.69 (0.790)	6
Initial cancer diagnosis[d]	19	1.69 (0.764)	–
Ethical issues	20	1.70 (0.752)	10

[a] Adjusted by weighting to correct for oversampling of doctorally prepared nurses

[b] Scores ranged from 1 (extremely important) to 5 (not at all important).

[c] Item wording was not identical to the 2000 survey.

[d] New question, not asked in the 2000 survey

items the same). Twelve topics were ranked among the top 20 priorities in both the 2004 and 2000 surveys: quality of life, participation in decision making about treatment in advanced disease, patient/family education, pain, screening/early detection of cancer, prevention of cancer/cancer risk reduction, palliative care, fatigue/lack of energy, cancer recurrence, patient outcomes of cancer care, hospice/end of life, and ethical issues. Although the 12 items remained in the top 20 priorities in both surveys, the rank order changed for each topic.

Six topics not ranked among the top 20 in 2000 were included among the top 20 priority topics in the 2004 total sample. These were evidence-based practice, nurses as advocates, curative treatment/care, patient outcomes of cancer care, cognitive impairment/mental status changes, and late effects of treatment. Two topics that were new to the 2004 survey also were ranked among the top 20: tobacco use and exposure and initial cancer diagnosis.

Nine topics that previously were among the top priorities in the 2000 survey (Ropka et al., 2002) no longer were ranked among the top 20 research priorities in the 2004 survey by the total sample. These topics were neutropenia/immunosuppression, oncologic emergencies, suffering, anorexia, access to cancer care, depression, coping/adaptation, nurse workforce issues, and hope. Mean importance ratings for these items fell below the cut point of 1.70 in 2004 (range = 1.70–1.98).

Rank Order of Mean Importance Ratings

Table 4 displays each category with its respective topics listed by mean importance rating and rank order among all topics as determined by the total sample and adjusted for doctoral group oversampling. All questionnaire categories demonstrated some variability in topic mean importance ratings; however, no topic had a mean rating higher than 2.94.

A bold-faced topic entry in Table 4 indicates a top 20 ranking. The top 20 priorities were distributed among six of the seven questionnaire categories. Only the special cancer populations category had no topic in the top 20. The number of top 20 topics varied among the six categories. Cancer symptom management had three priority topics: pain, fatigue/lack of energy, and cognitive impairment/mental status changes. Behavioral/psychosocial aspects of cancer had one priority topic: quality of life. Health services had two priority topics: evidence-based practice and patient outcomes of cancer care, a revised item in 2004 that was changed from "outcomes of cancer care" in the 2000 survey. Cancer continuum of care had eight of the top 20 topics: screening/early detection of cancer, prevention of cancer/cancer risk reduction, palliative care, cancer recurrence, curative treatment/care, late effects of treatment, hospice/end of life, and initial cancer diagnosis. Health promotion/disease prevention behaviors had one priority topic: tobacco use and exposure, a new item in 2004. This item was added to the survey 14 days after it went online: 207 of the total number of respondents had completed surveys before this question was included. Mean scores were tabulated for the 224 responses to that question, with the remaining portion of the total 431 responses treated as missing data. Communication and decision making had five of the top priority topics: participation in decision making about treatment in advanced disease, patient/family education, participation in decision making about treatment, nurses as advocates, and ethical issues.

Doctoral Sample Rankings Versus General Membership Rankings

Table 5 displays the 2004 top 20 research priority topics for the doctorally prepared sample compared to the top 20 priority topics for the adjusted general membership sample. Ten topics were among the 20 priorities for both groups: cognitive impairment/mental status changes, evidence-based practice, late effects of treatment, participation in decision making about treatment in advanced disease, patient outcomes of cancer care, cancer recurrence, palliative care, participation in decision making about treatment, hospice/end of life, and fatigue/lack of energy. Four of these topics were from the cancer continuum of care category: late effects of treatment, cancer recurrence, palliative care, and hospice/end of life. Three additional categories each had two topics: Cancer symptom management had late effects and fatigue/lack of energy, health services had evidence-based practice and patient outcomes of cancer care, and communication and decision

Table 4. Rank Order of Mean Importance Ratings Listed Within Questionnaire Categories, Adjusted for Doctorate Group Oversampling[a]

Rank in Category	Category and Topic	$\bar{X}$ Importance Rating[b] (SD)	Rank Order Among All Topics
Cancer symptom management			
1	**Pain**	**1.59 (0.746)**	**5**
2	**Fatigue/lack of energy**	**1.66 (0.773)**	**12**
3	**Cognitive impairment/mental status changes[c]**	**1.67 (0.750)**	**16**
4	Clustering of symptoms[d]	1.72 (0.829)	23
5	Anorexia	1.74 (0.768)	27
6	Neuropathies[c]	1.75 (0.792)	31
7	Oncologic emergencies	1.75 (0.835)	32
8	Functional status changes[d]	1.80 (0.802)	46
9	Dyspnea/shortness of breath	1.83 (0.813)	49
10	Appetite/taste changes[c]	1.86 (0.797)	51
11	Cardiac changes (e.g., rhythm, cardiac failure)[c]	1.87 (0.825)	55
12	Stomatitis/mucositis	1.87 (0.849)	56
13	Extravasations	1.91 (0.880)	63
14	Sleep disorders/insomnia	1.92 (0.838)	65
15	Fluid and electrolyte imbalance	1.92 (0.862)	66
16	Anemia[d]	1.93 (0.825)	67
17	Bleeding	1.94 (0.879)	69
18	Neutropenia/immunosuppression	1.98 (0.953)	75
19	Lymphedema[d]	2.00 (0.859)	78
20	Sexual dysfunction	2.02 (0.830)	84
21	Nausea/vomiting	2.02 (0.930)	85
22	Hormone disturbances[c]	2.03 (0.840)	86
23	Altered mobility	2.03 (0.798)	87
24	Osteopenia/osteoporosis[d]	2.06 (0.827)	90
25	Fever	2.06 (0.903)	91
26	Thrombocytopenia[d]	2.06 (0.926)	92
27	Diarrhea	2.12 (0.858)	98
28	Dry mouth	2.14 (0.820)	100
29	Wounds	2.20 (0.908)	102
30	Skin changes/cutaneous reactions/urticaria[c]	2.22 (0.831)	103
31	Weight changes (gain or loss)	2.28 (0.894)	106
32	Constipation	2.28 (0.911)	107
33	Urinary incontinence[d]	2.29 (0.917)	109
34	Cough	2.35 (0.894)	111
35	Alopecia	2.56 (0.908)	115
Behavioral/psychosocial aspects of cancer			
1	**Quality of life[e]**	**1.52 (0.718)**	**1**
2	Depression	1.70 (0.797)	21
3	Suffering	1.77 (0.842)	35
4	Coping/adaptation	1.77 (0.801)	36
5	Family functioning[c]	1.78 (0.808)	39
6	Hope	1.79 (0.852)	42
7	Spiritual well-being	1.79 (0.896)	43
8	Caregiver role	1.83 (0.866)	48
9	Self-management/self-efficacy[d]	1.89 (0.812)	61
10	Grief	1.89 (0.845)	62
11	Psychoneuroimmunology[d]	2.01 (0.841)	79
12	Anxiety	2.01 (0.896)	80
13	Counseling	2.02 (0.814)	83
14	Social support	2.04 (0.855)	89
15	Body image/sexuality	2.09 (0.904)	95
Health services			
1	**Evidence-based practice**	**1.62 (0.810)**	**10**
2	**Patient outcomes of cancer care[c]**	**1.67 (0.743)**	**15**
3	Health legislation policy[c]	1.71 (0.807)	22
4	Nurse workforce issues[c]	1.73 (0.828)	24
5	Safety/adverse events[d]	1.74 (0.802)	26
6	Standards of care	1.75 (0.822)	30
7	Access to cancer care	1.81 (0.866)	47
8	Occupational hazards for cancer nurses	1.87 (0.940)	54
9	Patient/family resource support[d]	1.88 (0.809)	58
10	Continuing education/professional development	1.94 (0.954)	68
11	Economic outcomes of cancer care[d]	1.96 (0.867)	71
12	Continuous quality improvement	1.99 (0.928)	76
13	Care delivery settings	2.00 (0.912)	77
14	Advanced practice nursing	2.02 (0.903)	82
15	Information systems in patient care	2.08 (0.964)	94
16	Case management/care management	2.14 (0.909)	99
17	Telehealth/remote assessment and intervention[d]	2.20 (0.926)	101
18	Acuity/patient classification systems	2.26 (1.034)	104

(Continued on next page)

[a] Adjusted by weighting to correct for oversampling of doctoral nurses

[b] Scores ranged from 1 (extremely important) to 5 (not at all important).

[c] Item wording was not identical to the 2000 survey.

[d] New question, not asked in the 2000 survey

Note. A bold topic entry indicates a top 20 ranking.

Table 4. Rank Order of Mean Importance Ratings Listed Within Questionnaire Categories, Adjusted for Doctorate Group Oversampling[a] *(Continued)*

Rank in Category	Category and Topic	$\bar{X}$ Importance Rating[b] (SD)	Rank Order Among All Topics
Cancer continuum of care			
1	**Screening/early detection of cancer**	**1.60 (0.746)**	**7**
2	**Prevention of cancer/ cancer risk reduction**	**1.61 (0.754)**	**8**
3	**Palliative care**	**1.62 (0.727)**	**9**
4	**Cancer recurrence**	**1.67 (0.704)**	**13**
5	**Curative treatment/ care[d]**	**1.67 (0.733)**	**14**
6	**Late effects of treatment[c]**	**1.68 (0.722)**	**17**
7	**Hospice/end of life**	**1.69 (0.790)**	**18**
8	**Initial cancer diagnosis[d]**	**1.69 (0.764)**	**19**
9	Genetic counseling/ testing/treatment	1.80 (0.762)	45
10	Survivorship[d]	1.87 (0.890)	53
11	Rehabilitation	1.98 (0.831)	74
12	Bereavement care	2.04 (0.866)	88
Health promotion/disease prevention behaviors			
1	**Tobacco use and exposure[d]**	**1.60 (0.848)**	**6**
2	Stress management	1.79 (0.863)	40
3	Diet/nutrition	1.84 (0.770)	50
4	Risk appraisal[d]	1.87 (0.837)	52
5	Exercise/physical activity	1.88 (0.788)	57
6	Substance abuse	2.02 (0.915)	81
7	Sleep/rest	2.12 (0.879)	96
Special cancer populations			
1	Children/adolescents	1.76 (0.780)	33
2	Older adults/elderly	1.78 (0.783)	37
3	Women	1.79 (0.813)	41
4	Children of parents with cancer	1.80 (0.796)	51
5	Socioeconomically disadvantaged	1.89 (0.880)	59
6	Low health literacy[c]	1.96 (0.922)	70
Special cancer populations *(continued)*			
7	Racial/ethnic/cultural groups[c]	1.98 (0.894)	72
8	AIDS/HIV	2.07 (0.879)	93
9	Men	2.12 (0.887)	97
10	Disabled	2.28 (0.909)	105
11	Rural/frontier	2.29 (0.975)	108
12	Mentally ill	2.33 (0.961)	110
13	Immigrant	2.36 (0.982)	112
14	International[d]	2.44 (0.970)	113
15	Migrant	2.47 (1.018)	114
16	Gay/lesbian/bisexual/ transgendered[d]	2.71 (1.094)	116
17	Prisoners[d]	2.94 (1.055)	117
Communication and decision making			
1	**Participation in decision making about treatment in advanced disease[c]**	**1.54 (0.701)**	**2**
2	**Patient/family education[c]**	**1.55 (0.742)**	**3**
3	**Participation in decision making about treatment[c]**	**1.58 (0.701)**	**4**
4	**Nurses as advocates[d]**	**1.65 (0.773)**	**11**
5	**Ethical issues**	**1.70 (0.752)**	**20**
6	Decisions to participate in prevention and/or screening[d]	1.74 (0.770)	25
7	Informed consent	1.75 (0.839)	28
8	Advance directives	1.75 (0.826)	29
9	Compliance/adherence	1.77 (0.786)	34
10	Decisions to participate in research studies[c]	1.78 (0.764)	38
11	Consumer education[d]	1.89 (0.795)	60
12	Comprehensive health assessment[d]	1.92 (0.832)	64
13	Complementary and alternative therapies	1.98 (0.870)	73

[a] Adjusted by weighting to correct for oversampling of doctoral nurses

[b] Scores ranged from 1 (extremely important) to 5 (not at all important).

[c] Item wording was not identical to the 2000 survey.

[d] New question, not asked in the 2000 survey

Note. A bold topic entry indicates a top 20 ranking.

making had participation in decision making about treatment in advanced disease and participation in decision making about treatment.

Doctorally prepared respondents ranked an additional 10 topics in the top 20 research priorities that the adjusted general membership sample did not rank. These topics were older adults/elderly, clustering of symptoms, socioeconomically disadvantaged, racial/ethnic/cultural groups, access to cancer care, exercise/physical activity, low health literacy, functional status changes, self-management/self-efficacy, and survivorship. These 10 priority topics were dispersed among six of the seven categories (all except communication and decision making). Special cancer populations had four topics: older adults/elderly, socioeconomically disadvantaged, low health literacy, and racial/ethnic/cultural groups. Cancer symptom management had two topics: clustering of symptoms and functional status changes. The remaining four categories each had one priority topic: Behavioral/psychosocial aspects of cancer had self-management/self-efficacy, health services had access to cancer care, cancer continuum of care had survivorship, and health promotion/disease prevention behaviors had exercise/physical activity.

Table 5. Top 20 Research Priorities Ranked by Mean Importance Ratings for the Doctorate Sample[a], With Comparisons to the 2004 Survey General Membership Sample Rankings and the 2000 Survey Researcher Top 20

Topic	$\bar{X}$ Importance Rating[b] (SD)	Rank Order: 2004 Survey Doctoral Sample Top 20	Rank Order: 2004 Survey General Membership Sample	Rank Order: 2000 Survey Researcher Sample Top 20[c]
Older adults/elderly	1.53 (0.675)	1	37	–
Cognitive impairment/mental status changes	1.56 (0.777)	2	16	11
Evidence-based practice	1.57 (0.831)	3	10	1
Late effects of treatment	1.58 (0.680)	4	17	19
Clustering of symptoms	1.58 (0.857)	5	23	–
Socioeconomically disadvantaged	1.58 (0.733)	6	59	14
Participation in decision making about treatment in advanced disease	1.64 (0.839)	7	2	–
Patient outcomes of cancer care	1.65 (0.775)	8	15	4
Cancer recurrence	1.67 (0.723)	9	13	–
Racial/ethnic/cultural groups	1.69 (0.835)	10	72	–
Palliative care	1.72 (0.826)	11	9	16
Access to cancer care	1.73 (0.696)	12	47	8
Participation in decision making about treatment	1.74 (0.847)	13	4	–
Exercise/physical activity	1.74 (0.857)	14	57	–
Low health literacy	1.74 (0.877)	15	70	–
Functional status changes	1.77 (0.842)	16	46	–
Hospice/end of life	1.78 (0.856)	17	18	18
Self-management/self-efficacy	1.78 (0.840)	18	61	–
Survivorship	1.80 (0.857)	19	53	–
Fatigue/lack of energy	1.81 (0.894)	20	12	7

[a] N = 144 for the doctorate sample

[b] Scores ranged from 1 (extremely important) to 5 (not at all important).

[c] Rankings for the 2000 researcher sample were available only for the top 20 responses.

Doctorally Prepared 2004 Rankings Versus Researcher 2000 Rankings

Table 5 also displays the top 20 research priority topics for the 2004 doctorally prepared nurses and compares them with the top 20 priorities of the researchers surveyed in 2000. Nine topics were in the top 20 priorities for both groups: cognitive impairment/mental status changes, evidence-based practice, late effects of treatment, socioeconomically disadvantaged, patient outcomes of cancer care, palliative care, access to cancer care, hospice/end of life, and fatigue/lack of energy. Although the nine items remained in the top 20 priorities in both surveys, the rank order changed for each topic.

Familiarity With Current Research Evidence

At the beginning of each section on the 2004 survey, respondents were asked to rate how familiar they were with current research evidence about each of the topic categories from 1 (extremely familiar) to 5 (not familiar at all). Results presented in rank order in Table 6 show that survey respondents were most familiar with current research evidence about cancer symptom management ($\bar{X}$ = 2.54), followed by behavioral/psychosocial aspects of cancer ($\bar{X}$ = 3.27), communication and decision making ($\bar{X}$ = 3.28), health services ($\bar{X}$ = 3.31), health promotion/disease prevention behaviors ($\bar{X}$ = 3.34), and cancer continuum of care ($\bar{X}$ = 3.36). The least familiar category was special cancer populations with a mean rating of 3.56, which also was the category that did not include any top 20 priority rankings.

Discussion

Findings from the 2004 Research Priorities Survey have provided important information for use by ONS. Determination of the research priorities by members will guide the allocation of resources to areas of highest priority at this time. Many priority topical areas of research are complex and require sustained focus. Other topics did not remain among the top priority areas for research, perhaps as a result of the dynamic cancer care delivery environment. Emerging priority areas for research have been identified.

The overall response rate to the 2004 survey was 15%. Although this rate is lower than rates for the 1994 and 2000 surveys, it is consistent with figures from electronic surveys (Dillman, 2000; Vehovar et al., 2002). Responses to electronic surveys conducted by ONS in 2003 ranged from 5%–60%, with higher rates experienced when the survey topics were aimed toward a particular group (ONS, 2004). This was evident in the current survey about research priorities, when the general membership response rate was 13%, whereas the doctorally prepared members' response rate was 23%. The 15% response rate was adequate to make scientifically sound conclusions from the findings, according to sample size methodology described by Dillman. Three free ONS membership renewals were offered as incentives to complete the survey. Additional incentive methods need to be identified to encourage survey responses by ONS members in the future.

The team was not surprised to learn that survey respondents were more likely to have a master's or doctoral degree as well as more years of experience in oncology nursing. Those who were invited to participate in the survey had varying levels of enthusiasm for completing it. As might be expected, those with higher levels of education and more experience in oncol-

Table 6. Rank Order of Mean Familiarity Ratings for Topic Categories, Percentage Within Category, Adjusted for Doctorate Oversampling[a]

Rank	Topic	1 Extremely Familiar (%)	2 Very Familiar (%)	3 Moderately Familiar (%)	4 Somewhat Familiar (%)	5 Not at All Familiar (%)	$\bar{X}$ Familiarity Rating[b]
1	Cancer symptom management	18	33	29	15	5	2.54
2	Behavioral/psychosocial aspects of cancer	6	16	35	33	11	3.27
3	Communication and decision making	4	17	41	26	13	3.28
4	Health services	3	18	35	32	12	3.31
5	Health promotion/disease prevention behaviors	3	15	40	32	11	3.34
6	Cancer continuum of care	2	18	37	28	15	3.36
7	Special cancer populations	1	11	36	35	17	3.56

[a] Adjusted by weighting to correct for oversampling of doctorally prepared nurses

[b] Scores ranged from 1 (extremely familiar) to 5 (not familiar at all).

ogy nursing chose to respond more frequently. Of note, the same individuals also may have been more likely to have the time to be able to complete the survey while at work on an office computer; they identified their primary functional roles as researchers and educators.

The rank order of mean importance ratings was determined by very narrow differences in scores, with no topic having a mean score higher than 2.94. This may reflect that the survey design or included items did not differentiate clearly among research priorities. However, when items were ranked by the mean score, a distinct change in ranking from the 2000 survey to the current one was found. This shift in rankings may be a better indication of priorities than the actual scores. Future surveys may want to reexamine the survey design and survey items to better differentiate among priorities.

Twelve items ranked in the top 20 priority topics of the total membership sample, adjusted for doctoral oversampling, in 2004 that also had appeared in the top 20 in the 2000 survey (Ropka et al., 2002). Rank order changed for these 12 items, with only quality of life, pain, screening/early detection of cancer, and prevention of cancer/cancer risk reduction ranking in the top 10 in both surveys. Similarly, the item labeled acute and chronic pain was ranked first in a nursing research priorities survey recently completed at a large comprehensive cancer center (Cohen, Harle, Woll, Despa, & Munsell, 2004). These findings point out that despite constant flux, fundamental cancer care topics remain top priority items, in part because their complexity has not permitted them to be resolved.

Topics that were new to the top 20 listing represent trends in healthcare practice settings, and the authors recommend that these topics be examined carefully and considered for integration when ONS develops its research agenda for 2005–2008 and strategic plan for 2005–2007. Rank order of items related to participation in decision making about treatment and evidence-based practice rose considerably in ranking compared to the 2000 survey results.

As multiple treatments have become available for various cancers that have equal or unproven superior survival benefit, those diagnosed with cancer have been faced with making decisions about their own treatment. With this has come the need to understand treatment decision making such that oncology nurses can better facilitate informed and shared decision making. The results provided several surprises, and the team is unsure why some of the eight topics dropped out of the top 20 priorities among general membership in 2004. Areas such as depression, access to cancer care, and nurse workforce issues, to name a few, have not been resolved. Mean importance ratings of these topics (1.70–1.98) were very close to the cut point (1.70). The best explanation for these findings is that very few points separated the items that were identified as top priority from those that were not ranked in the top 20. In contrast, workforce issues, specifically job satisfaction, nurse-patient ratios and staffing, and nurse retention, were ranked among the top five priorities in a Delphi survey of nursing research priorities conducted by Cohen et al. (2004).

The top 20 priorities for the general membership are distributed broadly among six of the seven categories of the questionnaire, with only special cancer populations having no items listed as priority topics. This may be because nurses caring for these populations were not represented adequately in the survey responses. These rankings provide direction to ONS, the ONS Foundation, and other funding organizations in regard to areas of research to support. Some topics might have ranked lower than others because of lack of awareness on the part of the survey respondents of the need for research in the particular area, rather than because of its lack of importance. Examples of items that received scores of lower priority are alopecia, body image/sexuality, acuity/patient classification systems, and several cancer populations.

In comparison, rank order of mean importance ratings by the doctoral sample demonstrated different findings than the general membership results. This is not unexpected, as doctorally prepared members may have a different awareness of topics than the general membership, such as research on older adults/elderly and socioeconomically disadvantaged people. However, 10 topics were included among the top 20 priorities for both groups, and these findings provide direction for focus areas in the next few years.

The display of the 2004 top 20 priority topics for the doctorally prepared members with the top 20 priority topics for the researchers surveyed in 2000 includes nine topics that were in both listings, with changes in rank order. These findings demonstrate that much research needs to be done in areas such as cognitive impairment/mental status changes and evidence-based practice. The findings also serve as a sign that a larger cohort of investigators are needed to demonstrate programs of research in high-priority areas to make rapid and sustained

progress in improving outcomes. Students in higher degree programs are urged to consider pursuing research on topics that are recognized as top priority areas in this survey. The 2000 survey of researchers only presented the top 20 research priorities. Therefore, the team could not evaluate to what extent the new 2004 items had advanced from any previous researchers' priority ranking in 2000. Examples of such items are older adults/elderly and the socioeconomically disadvantaged.

Ropka et al. (2002) concluded their report of the 2000 ONS research priorities by recommending that "Future surveys might include the opportunity for respondents to comment on the degree to which research has been applied successfully to clinical problems" (p. 490). The authors of the current article were concerned that the prevalence of certain clinical problems was influencing the ranking of these research topics instead of the respondents' understanding of practice evidence. Therefore, a new feature was added to the survey for 2004, a query for each category of topics regarding respondents' familiarity with current research evidence about that category. Not surprisingly, the clinician-dominated sample was most familiar with the category of cancer symptom management, and 3 of the top 20 topics belonged to this grouping. This information can be used to further examine the association between familiarity with practice evidence and perceived priority for conducting new research. Additional analysis of these data is planned.

Respondents frequently answered the two questions at the end of the survey that asked them to type in short answers to questions related to other important areas for oncology nursing research and, in particular, to list three of the most important research topics for oncology nursing to address in the next five years. The enthusiastic feedback from the general membership who responded is perhaps an outward sign of a thriving organization. Respondents were willing to take the time to identify areas for future research inquiry to ultimately meet the mission of ONS. Feedback regarding the content of these responses is beyond the scope of this article but will be used by ONS when describing cutting-edge research ideas and planning future research priorities surveys.

The 2004 Research Priorities Survey Project Team selected a design that invited responses from a wide range of members who identified themselves as clinicians, educators, and researchers. The ONS core value of inclusiveness was incorporated into the survey sampling methods. This sampling technique exemplifies the value that ONS places on members' needs and interests. Survey results that were generated from a broad sampling of the ONS membership provide the best representation of all members' interests and perceptions of research priorities. These broad-based survey results can promote research studies that are driven by issues in clinical practice. This design also emphasizes the importance of promoting clinician and researcher partnerships in all phases of the research process. The goals are to generate new knowledge that addresses clinical issues and problems, use research findings in practice, and develop and use evidence-based guidelines for care of patients with cancer.

Results from this survey will serve as the "voice of the membership" when ONS's 2005–2008 research agenda is developed. The results also will be useful to the ONS Foundation and other sources of funding for oncology nursing research as they distribute limited monies. All of these efforts ultimately can assist in meeting the mission of ONS: to promote excellence in oncology nursing and quality cancer care.

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