Oncology Nursing Symptom Science: Overview of the NINR, ONS, and NCI Symptom Science Colloquium

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This article provides an overview of the process, development, and evaluation of the Symptom Science Colloquium sponsored by the National Institute of Nursing Research, Oncology Nursing Society (ONS), and National Cancer Institute. This colloquium was the first of its kind to leverage the common goals of these institutes to advance oncology symptom science. Specifically, this article will identify the goals of the agencies involved and synergy in forming this collaboration, review the ONS Research Agenda that provided the blueprint for the colloquium, and offer insights and lessons learned to be used for future planning. The colloquium engaged roughly 500 participants from all levels of clinical (RNs, advanced practice nurses), educational (undergraduate, master's, doctorate), and research (students, faculty, scientists) expertise. Six featured expert speakers and 115 poster presentations focused on the latest research in symptom science, cancer survivorship, palliative and end-of-life care, and hot topics (COVID-19, health disparities). Fourteen networking sessions fostered opportunities to engage with international experts. Special awards emphasized mentee–mentor relationships and exemplary midcareer faculty. Based on this emphasis, the authors provide themes from the successful award applications as exemplars. A summary of participant satisfaction and recommendations for future collaborations to enhance and advance oncology symptom science are provided.

KEYWORDS symptom science; cancer survivorship; palliative and end-of-life care; health disparities

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In 2020, an estimated 1.8 million new cases of cancer were diagnosed in the United States, and about 600,000 patients with cancer died (National Cancer Institute [NCI], 2020). Improvements in cancer screening and treatment have led to a growing number of cancer survivors. About 17 million cancer survivors are living in the United States alone, and this number is expected to continue to increase during the next several decades (American Cancer Society, 2019). Many of these cancer survivors incur a myriad of symptoms, including acute toxicities and late and long-term effects of cancer and its treatment. Research is needed to address these often prevalent, bothersome, and potentially debilitating effects that have ramifications on functional ability, work outcomes, and quality of life (National Academies of Sciences, Engineering, and Medicine, 2021).

Oncology nurses and nurse scientists are in a unique position to bridge the gap between science and quality of life. Nurse scientists are working to identify at-risk phenotypes and risk profiles, underlying molecular mechanisms, and novel approaches to treatment and management to address adverse effects and manage symptoms. To advance symptom science, nurses need a forum in which to communicate the latest findings, network with other scientists, and promote the development of future nurse scientists in their field.

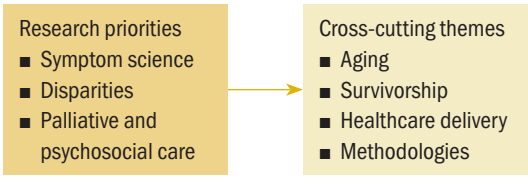
On February 4 and 5, 2021, a Symptom Science Colloquium was held to highlight symptom science advances in oncology nursing and provide an opportunity for networking and research mentorship to support the next generation of nurse scientists. The colloquium was sponsored by the National Institute of Nursing Research (NINR), the Oncology Nursing Society (ONS), and NCI. Of note, this colloquium was

the first of its kind to leverage the common goals of these major institutes to advance oncology symptom science. Therefore, the purpose of this article is to provide an overview of the process involved in putting together the colloquium and highlight the results of the evaluation distributed to colloquium attendees. Specifically, this article will identify the underlying goals of the agencies involved and synergy in forming this collaboration, review the ONS Research Agenda that provided the blueprint for the colloquium, and offer insights and lessons learned with this process that can be used for future planning.

Collaboration Among NINR, ONS, and NCI

Historically, NINR, ONS, and NCI are three major institutes that have focused their efforts on advancing symptom science in oncology. NINR (2021) launched the Symptom Science Center in 2019 with the mission to promote the understanding of the biologic and behavioral mechanisms of symptoms to improve patient outcomes. Similarly, ONS has been centrally focused on promoting excellence in oncology nursing care. For more than 20 years, ONS (2021) has focused efforts on the assessment and implementation of evidence-based interventions for symptoms related to cancer and its treatment. ONS also provides many avenues to support training of clinicians and scientists, including conferences, grants, and awards. Similarly, NCI (2018) is centrally focused on supporting research that will advance scientific knowledge to help people live longer, healthier lives. NCI (2021) provides funds for training and development, grants, and expert clinical guidelines (e.g., PDQ Supportive and Palliative Care) to advance the science and improve care. Taken together, each of these agencies has a common mission to advance the science in oncology care. In addition, each of these agencies has used multiple methods, including conferences, meetings, and colloquiums, to engage experts, communicate advancements, and train the next generation of scientists. This common focus and spirit of collaboration among agencies was essential for the successful vision, development, and nationwide implementation of the Symptom Science Colloquium.

FIGURE 1. 2019–2022 Research Agenda Priorities and Cross-Cutting Themes



Note. From "Research Agenda of the Oncology Nursing Society: 2019–2022," by D. Von Ah et al., 2019, *Oncology Nursing Forum, 46*(6), p. 656 (https://doi.org/10.1188/19.ONF.654-669). Copyright 2019 by Oncology Nursing Society. Reprinted with permission.

Methods

Resources

Building on the commitment and engagement by leaders of the three institutes, the need for a forum to network and engage leaders in oncology nursing care was formulated. During the course of one year (from 2020 to 2021), ONS leaders met with NINR leadership and leading nurse scientists to discuss the alignment of interests of ONS and NINR. In subsequent meetings, NCI leaders joined this team to identify joint interests and opportunities to collaborate. Leaders from each of these agencies and the initial planning committee participated in multiple brainstorming sessions and defined meeting objectives, with the goal to provide opportunities for current investigators and foster interest in research among oncology nursing students and practicing professionals. Team membership expanded as roles were identified (e.g., abstract reviewers). Technological experts were also added to support moving the colloquium from an in-person meeting to a virtual event because of the COVID-19 pandemic.

Framework

ONS's 2019–2022 Research Agenda served as the framework for colloquium sessions (Von Ah et al., 2019). ONS, with the support of leading experts in oncology nursing, prepares and disseminates a national research agenda on a regular basis. The purpose of the ONS Research Agenda is the development and dissemination of contemporary research priorities needed to advance cancer care. The research agenda identified the following three overarching priority areas: symptom science, disparities, and palliative and psychosocial care. In addition, four cross-cutting themes to provide context for these priorities emerged as follows: aging, survivorship, healthcare delivery, and methodologies (see Figure 1) (Von Ah et al., 2019). The ONS Research Agenda served as the blueprint for the colloquium, which represented the research priorities identified by the very stakeholders in which the colloquium would serve.

Importance of a Conference as a Vehicle for Dissemination of Research and Practice

The planning committee agreed that a colloquium would be the best way to move the science of oncology care forward. As documented in the literature, conference attendance is commonly understood to be a highly effective way to be exposed to the latest research in a field (O'Connor, 2004). In addition, conference attendance has been identified as important to networking and advancing careers (Oester et al., 2017). A dedicated research conference/colloquium also was something that the ONS membership had been requesting. Therefore, the planning committee agreed that the most conducive approach to reach the ONS membership would be to plan, develop, and implement a Symptom Science Colloquium.

The colloquium was designed to incorporate the following three main features: plenary sessions, poster sessions, and dedicated networking sessions. The featured expert plenary sessions were designed to allow leaders in the field to present cutting-edge research and provide provocative questions and time for discussion to challenge norms and expand boundaries. The poster sessions were organized using the pillars of the ONS Research Agenda framework—including symptom science, symptom management, palliative and psychosocial care, and health disparities—and hot topics (COVID-19). Each session had at least one moderator who supported the presentations and flow of information. Poster sessions are known as an important avenue to disseminate research findings and clinical innovations, as well as provide evidence for advancement on national and international levels (Halligan, 2008). To accommodate the online format, all posters were available for preview on the colloquium website one week beforehand. Top-scoring posters were then selected for live, online, one-minute presentations on the day of the event. Audience members had the opportunity to ask questions in the question-and-answer box.

Immediately following the poster session were networking sessions, which were also organized in accordance with the ONS Research Agenda. In addition, the planning committee solicited ideas for additional topics by asking ONS membership in which areas they could use more support. As a result, networking sessions included meetings with National Institutes of Health program officers and information on grant writing, career advancement, transitioning to academia, negotiating an academic position, publishing, health informatics, international efforts to advance symptom science, and the roles of PhDs and doctors of nursing practice in symptom science. Each session had two volunteer content experts to engage their constituents with thought-provoking sessions. Interactive features, like polling and word clouds, were used to engage participants in conversations, and content experts had the ability to use breakout rooms to foster rich discussions in a smaller setting.

To facilitate these interactions in a virtual setting, the planning committee used several strategies and held preparatory teleconferences separately for speakers, moderators, and poster presenters. The committee enlisted the assistance of a lead technological manager and a liaison who were responsible for overseeing all logistics related to the virtual platform and for coordinating volunteers who served as information technology hosts for the virtual sessions. The committee also harmonized talks among speakers to orient each to the other's topics and hosted technical sessions to preemptively troubleshoot potential issues related to the platform. The committee provided a framework for moderators in the form of scripts, ideas for engagement tools, and technological support. This allowed moderators to focus on the content and not format. Finally, the committee hosted open houses for poster presenters to master the use of the technology to present their posters online.

Dedicated Focus to Midcareer Faculty and Mentee–Mentor Teams

Organizations often provide new investigator and distinguished research awards. Although they are essential acknowledgments, the planning committee developed two new awards: one for midcareer faculty (usually designated as associate professors) and the other for the combined efforts of a mentee–mentor team. Mentoring has been identified as an important resource for new faculty (McBride et al., 2017; Nies & Troutman-Jordan, 2012), but midcareer faculty often need sustained development and identify continued mentoring support as crucial to their advancement and professional success (Hershberger et al., 2019). These awards were meant to highlight the importance of scholarly work of an individual and a dyad that had advanced cancer nursing science. The evaluation criteria for both award categories were established by the planning committee. Applicant materials were reviewed and scored by a panel of nurse scholars using those criteria for each category.

Results

Measuring the Colloquium's Success

The Symptom Science Colloquium was advertised on the NINR website. In addition, ONS and

NCI promoted the two-day event. The colloquium was delivered virtually because of the COVID-19 pandemic. Plenary sessions were prerecorded and delivered at designated times, with synchronous opportunities for question-and-answer periods. Three top-scoring abstracts in each focal area (symptom science, disparities, and palliative and psychosocial care) were selected for oral presentation. Participants selected for poster presentations were asked to develop one overarching slide and provide a three-minute summary of their work that was available for preview online by all registrants. On the day of the posters, presenters provided a one-minute succinct summary at their assigned session. All participants registered in advance for this free colloquium. Registrants could select the network session of their choice; however, because many registrants selected more than one concurrent session, the committee had to limit the numbers and assign them to a specific networking session.

The sessions were well attended during both days. The plenary sessions had nearly 500 people joining the livestream on the first day and more than 300 people on the second day. It encompassed participants from across the United States and internationally from 12 countries. About 300 people joined the poster session on day 1 and more than 200 joined on day 2. Attendance across the 27 separate poster and networking sessions throughout the colloquium ranged from 15 to 117 attendees in any given session. The most popular sessions included hot topics/COVID-19 (n = 117), palliative/psychosocial care (n = 104), and symptom management (n = 104). The attendance for the networking sessions dropped slightly, with about 170 people joining on each day. The top sessions were career advancement, symptom management, palliative care, early-career scientists, and grant writing. The format and size of the networking sessions allowed for more in-depth discussions. The awards presentation, which closed the event, was attended by more than 100 people. The online format democratized attendance, allowing for participants who may not have been able to otherwise attend an in-person event to join. Since the live event, about an additional 170 individuals have reviewed the materials, increasing the colloquium's reach to 17 countries.

Satisfaction metrics included a one-time anonymous survey that was part of the routine evaluation process and was sent to all registered participants about two weeks after the event. Participants were asked to rate their satisfaction with the colloquium on a five-point Likert-type scale ranging from very satisfied to very dissatisfied, and each participant was provided an opportunity to write in comments.

Of the roughly 500 surveys administered, 75 (about 15%) were completed. Overall, 95% (n = 71) of these survey respondents rated the program as satisfactory to highly satisfactory. The highest ratings included the plenary session content, the quality of content presented, and the opportunity to connect, even virtually. Write-in comment examples are as follows:

- "This was perhaps one of the best symposia I have attended in my oncology nursing career—very useful, informative, professional but also approachable (and virtual, which was impressive!)."
- "Excellent opportunity to learn about research that I did not know about since it is presented at specialty meetings that I may not attend. So wonderful to see oncology nurse science in one place!"
- "The speakers were excellent."
- "I was so impressed with the quality of the presentations."

In addition, many expressed their appreciation for the collaboration among NINR, ONS, and NCI and indicated that they would like to see this continue, particularly to provide a forum for oncology nursing researchers to collaborate. Supporting excerpts included the following:

- "I felt this was a wonderful collaboration that I hope continues every year. The ability to pull the NCI, NINR and ONS together had to be difficult, but the end product was excellent."
- "I was thrilled that the conference was held! We need to keep the energy going for this area of research. Future conferences need to consider this format."

This is not to say that there were not some expressed concerns and opportunities to address for the future. Participants expressed some concerns with the instructions and level of work necessary to record and upload the poster presentations, as well as to juggle between the poster presentation sessions. It was noted that some of the sessions were not presented during the time allotted on the agenda, and this resulted in confusion; therefore, participants missed some sessions. Some examples of these comments are as follows:

- "The presentations within the smaller groups did not always follow the exact time schedule, so it was difficult to attend the exact short presentation of interest."
- "Somehow, the dissemination about how/when to sign on and the sessions was less clear than other

virtual conferences I have attended. Therefore, I missed a lot of the scientific programming."

Session satisfaction: The three types of sessions—plenary, posters, and networking—were rated on a four-point Likert-type scale ranging from no value to high value. The plenary sessions received the top rating, with 100% of participants rating the sessions as having moderate to high value. The poster sessions were rated highly, despite concerns related to satisfaction of the timing and delivery of presentations. Ninety-six percent of the participants rated the sessions as having moderate to high value. The networking sessions were ranked third, with 84% of participants rating the sessions as having moderate to high value. Unlike the other two sessions, three participants (4%) rated the networking sessions as having no value. Although the authors could not directly link these low ratings to specific participants, the following two major issues may explain the lower ratings:

- Not all participants obtained access to the desired networking session because of limited space (e.g., session with the NINR director).
- Participants expressed concerns that networking sessions included all levels (new graduate students to experienced researchers) and that needs of these groups were vastly different.

Program and program delivery: The program received high ratings for program length (95% of participants were satisfied to very satisfied) and communication of the event (89% of participants were satisfied to very satisfied).

Usefulness of the colloquium: The goal of the Symptom Science Colloquium was to disseminate research for the advancement of the science and to mentor the next generation of oncology nursing scientists. With this in mind, participants were asked questions regarding incorporating what they had learned in their work.

Learning: On a dichotomous scale ("yes" or "no"), participants were asked, "Will you be able to use what you have learned in your research and/or practice?" The majority (n = 73, 97%) said unequivocally that they would be able to incorporate this learning in their work.

Confidence in material: Another set of individual questions targeted the subject areas and asked participants how confident they were in their ability after attending each session regarding the major subject areas (symptom science, disparities, palliative and psychosocial care) of the colloquium. On a five-point scale ranging from strongly disagree to strongly agree, 73% of participants rated their confidence as agree to strongly agree.

Confidence in networking: A major goal of this colloquium was to provide a networking opportunity for stakeholders. The planning team had envisioned having a fireside-type chat when the colloquium was going to be in person; however, the pandemic and moving to virtual delivery made creating small groups more difficult. The authors asked participants to rate the following statement: "After attending the workshop, I feel more confident in my knowledge of strategies to build partnerships and collaborations among clinicians and scientists." Overall, the majority of participants (79%) rated this area positively, with agree to strongly agree. This rating indicates that the overall goal of networking was met. Although some participants expressed that the virtual nature of the colloquium may have hindered this goal, narrative reports were mixed. One participant summed it up best by stating that "although networking was better than most, virtual conferences cannot replace in-person."

Focus on Midcareer and Mentee–Mentor Excellence

Lisa Carter-Harris, PhD, APRN, ANP-C, FAAN, of Memorial Sloan Kettering Cancer Center in New York, New York, was the recipient of the midcareer award for her research that has provided a foundational understanding of the patient perspective on the decision to screen, or not, for lung cancer. Susan Rawl, PhD, RN, FAAHB, FAAN (nominator) commended her on her "unique commitment" to fostering the development of the next generation of nurse scientists. Overall, the midcareer faculty award was designed to recognize an expert oncology nurse researcher who has established their own independent program of research, while beginning to juggle higher-level responsibilities in mentoring junior faculty and students.

Two mentee–mentor awards were given to Deborah Watkins Bruner, RN, PhD, FAAN (mentor), and Jinbing Bai, PhD, RN (mentee), of Emory University in Atlanta, Georgia, and Christine Miaskowski, RN, PhD, FAAN (mentor), and Kord Kober, PhD (mentee), of the University of California, San Francisco. This award was designed to recognize an outstanding mentee–mentor dyad for significant contributions to a program of research in oncology nursing. This award acknowledged mentors who have served as exemplary role models and provided resources to their mentees. The mentee must have demonstrated extraordinary curiosity and commitment to learning and applied their knowledge in developing an innovative and clinically relevant program of research.

The consistent themes noted among these successful mentee–mentor applications included the following: (a) an "alignment" and "passion" for the area of designated research; (b) a reciprocal relationship, including statements that reflected that the relationship was a "true partnership" and one in which both the mentor and mentee benefited; and (c) a passion by the mentor in promoting the next generation of scientists, with the mentee acknowledging the commitment, dedication, and generosity of the mentor to their success. Overall, the mentee–mentor award highlighted the passion and commitment to not only sustain an area of oncology nursing research but also to move it beyond current boundaries.

Discussion

The historic inaugural Symptom Science Colloquium, sponsored by NINR, ONS, and NCI, is a model for addressing large-scale challenges in health care. The Symptom Science Colloquium established a platform for moving symptom science research forward with precision and efficiency. Of note, the Symptom Science Colloquium also provided a unique networking space to foster collaboration among attendees.

Based on the 2019–2022 ONS Research Agenda, this colloquium predominantly focused on the three major priority areas of symptom science, disparities, and palliative and psychosocial care, identified by oncology research stakeholders. Similarly, NCI's Symptom Management and Health-Related Quality of Life Steering Committee underscores this critical area of research and scholarship. The content delivered throughout the colloquium addressed these priorities, highlighting current state-of-the-science approaches to measuring and managing symptoms, as well as large gaps in research that still exist. Of note, to emphasize the tremendous work in this area, the midcareer and mentee–mentor awards showcased exemplars in symptom science research. Rounding out the meeting were the many networking sessions that generated exciting discussions and provocative thoughts for future collaborative work. Overall, the Symptom Science Colloquium, supported by NINR, ONS, and NCI, provided a unique space for researchers to congregate, converse, and collaborate to move symptom science forward.

Lessons Learned

Overwhelmingly, the Symptom Science Colloquium was well received, with positive evaluations and comments from participants. Although the authors are uncertain about all the factors that prompted such a highly positive response rate, based on the responses themselves, they can speculate that there is an overwhelming need for this type of program. However, the authors would be remiss to not address common concerns and lessons learned. Originally, the colloquium was scheduled to be an in-person event but was realigned to an online format because of the COVID-19 pandemic. Although online conferences have known advantages, particularly making science available to a broader audience (Arslan et al., 2011; Estien et al., 2021; Stefanoudis et al., 2021), the change midway through the planning phase resulted in a more intense workload for the committee members. Routine planning sessions among agencies were critical to coordinating all events. Identifying resources among agencies to support the program was critical (e.g., National Institutes of Health information technology support, ONS experience with abstract review program). In addition, it was essential in the preparation for the event that expert moderators were recruited and trained for their role and use of the technology. Moderators were also critical to facilitate discussion during the live portions of the event. Therefore, it should be noted that there was extensive preconference engagement and training for the virtual programming to move forward successfully. Based on this experience, future programs should be prepared for this level of planning so that they may pivot to hybrid or virtual options, particularly as the current health crisis remains unclear.

Although most of the feedback was positive, it was clear that the networking sessions being in an online format was the most challenging and merits future improvement. Suggested improvements for the future include notifying participants in advance that they may not be able to attend their first choice in breakout sessions, limiting enrollment in each breakout session to promote discussion and/or provide breakout sessions to allow for more discussion, and having more focused and homogeneous career trajectory groups (e.g., students, new investigators) to meet needs for all participants. For in-person events, the model of the fireside chat may be optimal to promote a more intimate dialogue. Future events also need to include a more comprehensive evaluation plan to gauge the colloquium's success and to ensure a greater understanding of how the information provided can be used in research and practice.

Overall, the Symptom Science Colloquium, supported by NINR, ONS, and NCI, provided an opportunity for engaging dialogue and the advancement of oncology nursing research. ONS has been a leader in focusing its efforts on the assessment and

implementation of evidence-based interventions for symptoms related to cancer and its treatment. ONS and the Oncology Nursing Foundation have supported and will continue to support oncology nurses in their efforts to improve the lives of individuals with cancer, those at risk for cancer, and cancer survivors and their families.

Addressing the Needs of International Attendees

A specific session entitled, "International Efforts to Advance Symptom Science in Oncology Nursing" was offered during the colloquium and was attended by 29 participants from around the globe. After the meeting, the list of attendees from this specific session with their contact information, with their consents as verbalized during the session, was distributed to the session attendees so they can start networking and sharing notes to address common interests and research challenges.

In addition, to support international attendees' engagement and to encourage broader international participation, many meeting organizers are considering holding events on a virtual platform. This practice promotes equity and inclusion and removes potential travel barriers for clinician–scientists from lower-resourced countries (Wu et al., 2022).

Next Steps

The colloquium was an exemplar of bringing together stakeholders dedicated to improving the lives of those living with a cancer diagnosis. Many opportunities for continued advancement remain. ONS is committed to continuing the efforts to improve symptom science. In moving forward, oncology researchers need to do the following:

- Strategize approaches to advance symptom science in the changing landscape of nursing science.
- Remain current with understanding of the biology underlying cancer risk, biologic targets of therapy, and biologic underpinnings of both disease and treatment.
- Seek out continuing education and incorporate social determinants of health with symptom science research studies.
- Build on mentoring programs that provide a supportive structure for oncology nurse scientists at all levels and encourage symptom science research.
- Engage in transdisciplinary collaborative open forums and colloquiums, sharing ideas, building common databases, and conducting multisite research that will have a positive impact on cancer survivors and their families.

KNOWLEDGE TRANSLATION

- Conferences provide networking opportunities to connect colleagues with the same research interests and to connect with potential mentors.
- The colloquium provided critical information to assist early- and midcareer nurse scientists to select and negotiate academic positions.
- Poster sessions provided a view of the landscape of symptom science research that can be used to create, innovate, and practice.

Conclusion

Creating opportunities for dissemination of nursing research is critical to the advancement of science and the next generation of scientists. Programs such as the Symptom Science Colloquium allow for scholarly discourse between and among experts and novice clinicians and scientists. Opportunities to network provide the engagement that will enhance team science. Based on the attendance of more than 500 participants and the positive feedback, this colloquium in symptom science was deemed a success.

Taken together, it is anticipated that this colloquium could become an ongoing periodic event that will foster new scientific discoveries that will translate into effective tailored symptom management for all individuals with or at risk for a high cancer-related symptom burden. This model must meet the needs of all individuals—wherever they live and in whatever sociocultural milieu they live—with the highest degree of sensitivity and respect. Colloquiums such as this event lay a foundation for dissemination and discourse to move the science forward.

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