Evaluating the Effectiveness of the National Oncology Navigation Acuity Tool: Insights From a Multisite Quality Initiative

ORIGINAL RESEARCH

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This study aimed to address the critical gap in the availability of a standardized and validated evidence- based acuity tool for patient navigation in oncology. The objective was to validate the webbased navigation acuity tool across various clinical settings, navigation models, and roles, ensuring its effectiveness in characterizing patient navigation workload, aiding in resource allocation, and measuring the impact on patient outcomes. In addition, the study sought to identify and understand challenges and barriers associated with the tool's implementation while ensuring its consistency, integrity, reliability, and validity. The quality initiative employed a mixed-methods approach, combining quantitative and qualitative data from pre- and poststudy interviews and bimonthly conference calls across 5 diverse oncology program sites. Each site was required to complete a minimum of 40 acuity tools within the designated time frame. The navigators completed 576 digital acuity tools, exceeding the initial target of 200. Feedback from navigators and site coordinators was predominantly positive, noting successful onboarding, enthusiasm for the tool, ease of use, and accuracy of the acuity score, although some sites planned adjustments to their distress screening workflows. The initiative, completed on July 15, 2024, revealed common themes, including missed barriers, misunderstandings of instructions and definitions, and challenges related to coordination of care, lodging, translation support, health literacy, insurance, and care for others. Future steps involve securing a trademark, establishing utilization agreements with interested cancer programs, and implementing an aggregate data agreement for comprehensive analysis and reporting. Enhancements to the tool and support for its adoption will include educational webinars, Facebook Live sessions, and an implementation toolkit, alongside exploring partnerships with electronic medical record providers to further integrate the tool into clinical practice.

A gap exists in the availability of a standardized and validated evidence-based acuity tool in patient navigation, which is crucial for the optimal allocation of navigation services and resources. Acuity tools, which help characterize patient acuity, have been used successfully in healthcare for decades to determine staffing needs, improve patient care, and control costs. Despite the existence of various acuity tools for different purposes, nursing research on the validity and reliability of these tools is

limited. One inherent issue in studying acuity is its inconsistent definition and application, as it often lacks specific meaning or reference to the particular attribute of acuity being examined.[1] In other words, the definition of an acuity attribute must align with its intended use or what it aims to quantify.

Commission on Cancer, the National Accreditation Program for Breast Centers, and the Oncology Care Model are some governing bodies that mandate navigation processes for accreditation or reimbursement.

Today's healthcare is driven by the delivery of value, quality, and outcomes. Cancer programs must demonstrate that patients receive high-value, high-quality care and show improved outcomes to receive full reimbursement from payers. This task is challenging, further complicated by healthcare workforce shortages diminishing financial resources, and an aging patient population. The literature shows that navigation services are essential to quality oncology care, addressing many challenges of providing patient-centered, value-based healthcare.[2,3] The Commission on Cancer, the National Accreditation Program for Breast Centers, and the Oncology Care Model are some governing bodies that mandate navigation processes for accreditation or reimbursement.[4,5]

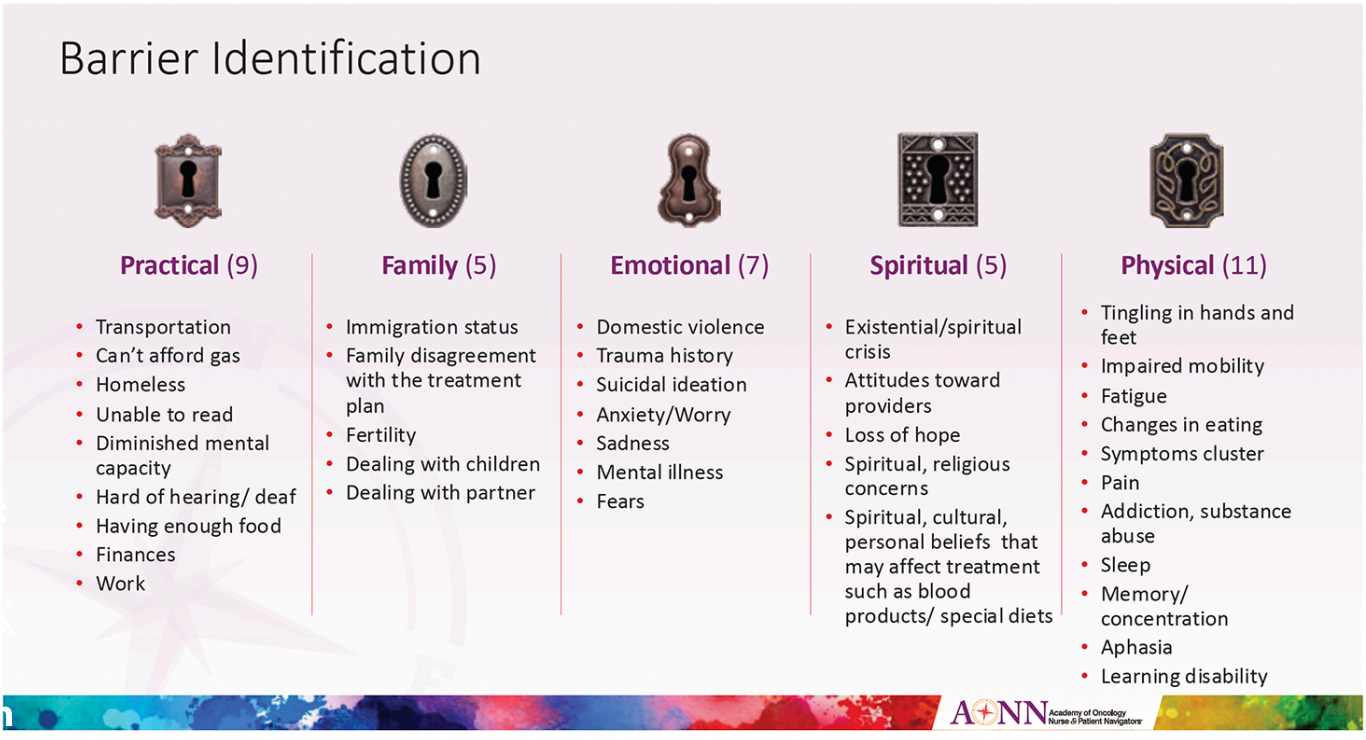
Adding to this recognition, the Centers for Medicare & Medicaid Services (CMS) has acknowledged the value of patient navigation by introducing specific reimbursement codes.[6] These codes enable healthcare providers to receive compensation for structured navigation services, including care coordination, patient education, appointment assistance, and emotional support. This development highlights the importance of patient navigation and encourages the adoption and expansion of navigation programs. With reimbursement tied to documented navigation services, there is potential for greater standardization and focus on measurable outcomes, enhancing patient care and system efficiency.

These agencies expect that effective navigation services will positively impact clinical outcomes, patient experience, and return on investment. However, significant challenges exist for organizations to adequately staff navigation programs and provide services to all cancer patients throughout the continuum of care. Administrators face questions such as: Which patients need navigation, and for how long? How can we determine the effectiveness of the navigation process? What constitutes a manageable workload? How can we measure patient outcomes related to navigation? Is navigation cost-effective?

The definition of acuity attributes specific to navigation should consider the number and types of barriers a patient is experiencing. Barriers to care can be diverse, including physical, psychosocial, systemic, financial, and educational challenges (Table). If the navigator's role is to facilitate the

resolution of these barriers, a patient facing more or more complex barriers would receive a higher acuity score. In addition, distress is a crucial indicator of how a patient copes with life challenges, including a cancer diagnosis and barriers to care. When a patient reports high distress levels, the navigator intervenes to reduce that distress through active listening, education, and referrals to support services. Therefore, "the intensity of navigator work is inversely related to both barriers and distress."[7] Successfully resolving these barriers and reducing distress can enhance the quality of the patient's oncology experience and increase their satisfaction with navigation services.

Table Barriers to Care



Importance of Validation and Standardization of Navigation Acuity Tool

A gap exists to optimize the utilization of navigation resources to support patient care effectively. Navigators require acuity tools that assist in efficiently allocating resources and managing their caseloads.

Over the past decade, significant changes in the oncology setting have highlighted the need for navigation services. Navigators have become vital multidisciplinary team members, guiding patients through the cancer care continuum and addressing barriers to care. "Patient navigation has evolved as a strategy to improve outcome in vulnerable populations by eliminating barriers to timely diagnosis and treatment of cancer and other chronic diseases."[8] These services are provided by professionals from various backgrounds and education levels, including nurses, social workers, and other nonclinically trained individuals. Navigators may be employed or volunteer in different settings, such as academic centers, private practices, specialty centers, and inpatient or outpatient facilities.

Once finalized, the acuity tool is expected to help oncology navigators characterize the **intensity of the patient navigation workload, aid in allocating resources,** and measure the effectiveness of navigation on patient outcomes. The acuity tool may support and enhance the effectiveness of

oncology navigators through patient-centric, evidence-based methods that may decrease the overall cost of care.

Rationale and Significance of the Quality Initiative

Collaborative Organizations

We were pleased to collaborate on the Oncology Navigation Acuity Initiative, uniting the efforts of the Academy of Oncology Nurse & Patient Navigators (AONN+) and Astellas Pharma US, Inc. AONN+, as the largest national organization dedicated to advancing patient care through oncology nurse and patient navigators, played a crucial role in defining and promoting best practices in patient navigation and survivorship. Our diverse membership, which included oncology nurse navigators, patient navigators, and other professionals across the United States, Puerto Rico, and Canada, significantly contributed to the initiative. We expressed our gratitude to Astellas for their support, which enabled the development of the acuity tool to optimize patient navigation workload, resource allocation, and effectiveness. Astellas biostatisticians were involved in data analysis, and the Acuity Advisory Board, consisting of key thought leaders in oncology navigation and research, provided essential guidance throughout the study.

Methodology

Research Questions

- Can the acuity tool characterize the intensity of the patient navigation workload, aid in the allocation of resources, and measure the effectiveness of navigation on patient outcomes?
- To what extent can the sites successfully implement the navigation acuity tool within their program model?
- Can sites consistently implement the web-based acuity tool (assess feasibility and utility)?
- Does the acuity score accurately reflect the intensity of the navigation workload and the allocation of resources?
- What do the data suggest about implementing acuity tools within the clinical environment across settings, navigation models, and roles?
- What challenges do programs face when implementing the web-based acuity tool?
- What are the most effective strategies for overcoming challenges?

Quality Initiative Objectives

The quality initiative aimed to validate the web-based navigation acuity tool within the clinical environment across settings, models of navigation, and roles in characterizing the intensity of the patient navigation workload effectively, aiding in allocating resources, and measuring navigation's effectiveness on patient outcomes (Box). It was imperative for the success of the quality initiative that the web-based acuity tool was carefully monitored to ensure consistency in the system and data collection. This will ensure the acuity tool's integrity, reliability, and validity.

Objectives of the Analysis

Primary Objective

All demonstration sites can implement and measure acuity in 20% with a minimum of 40 cases of eligible patients utilizing the navigation acuity tool.

Secondary Objective

Validate the digital acuity tool with the navigator's perception of acuity in a real practical setting.

The secondary objectives of the quality initiative were to understand the challenges of implementing the acuity tool and identify barriers. During the study, sites received education and support to ensure successful data capture and implementation fidelity throughout the process. Barriers and challenges continued to be measured during acuity tool implementation to inform future implementation studies. In addition, the barrier, distress, and acuity aggregate data were analyzed to inform future implementation and utilization of the acuity tool.

Design/Settings

The National Oncology Navigation Acuity Tool: Multisite Exploratory Quality Initiative was a mixed-methods quality initiative that included quantitative and qualitative data. The 5 oncology program sites participated in pre- and poststudy interviews and bimonthly conference calls.

Institutional Review Board (IRB)

The National Oncology Navigation Acuity Tool: Multisite Exploratory Quality Initiative applied for exempt status with the Western IRB and was granted approval. In addition, each participating site was required to submit the quality initiative to their respective IRB boards for individual review and approval. This process ensured that all aspects of the study adhered to ethical and regulatory standards across all locations. This process took much longer than expected and slowed the project by a month.

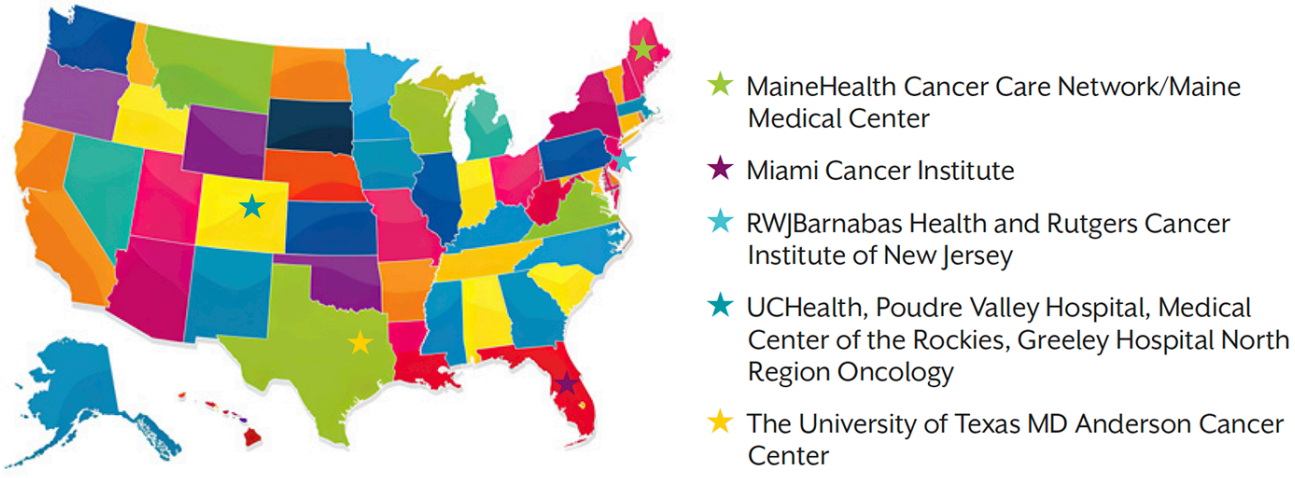
Selection of Sites

Site Selection

A diverse selection of sites participating in the acuity IRB quality initiative was vital for an acuity tool that can be utilized by all navigation models in all settings.

The study team issued a call for Letters of Intent to gauge interest in participating in the acuity quality initiative. We received 37 Letters of Intent, with 26 meeting the study criteria and subsequently submitting full applications for consideration. Six sites were selected, but 1 had to withdraw due to organizational changes (**Figure 1**).

Figure 1 Study Sites



Sixty-nine navigators participated from the selected sites. The sites were diversified by size, location, navigation model, and support services available at the site (none/minimal vs good support resources for the navigation program). Each site had to complete a minimum of 40 acuity tools within the time frame set.

To be eligible for the quality study initiative, sites had to meet the following inclusion criteria:

- Current AONN+ members
- ≥750 analytic cases
- Must currently be using the NCCN Distress Thermometer
- Institution or practice administrative support institution or practice administrative support and sign off for quality initiative participation (medical director and nurse leader)
- Must be willing to use the AONN+ acuity electronic tool
- Work with the system IT team to receive approval to authorize access to AONN+ trusted website acuity tool
- Support and engagement (up front) from the institution's IT team
- Agree to attend all required scheduled training and meetings
- Willing to have each navigator within the cancer program complete a self-assessment of navigator competency

Onboarding

As part of the initial onboarding process, each navigator completed an online self-assessment tool that gathered demographic information, including their highest level of education, years in healthcare, years in oncology, and years in navigation. Using Benner's Stages of Clinical Competence, the self-assessment allowed navigators to evaluate their professional development and proficiency in patient navigation. In addition, the survey collected information on the navigator's role across the care continuum (**Figures 2, 3,** and **4**).

Figure 2 Highest Level of Education Completed

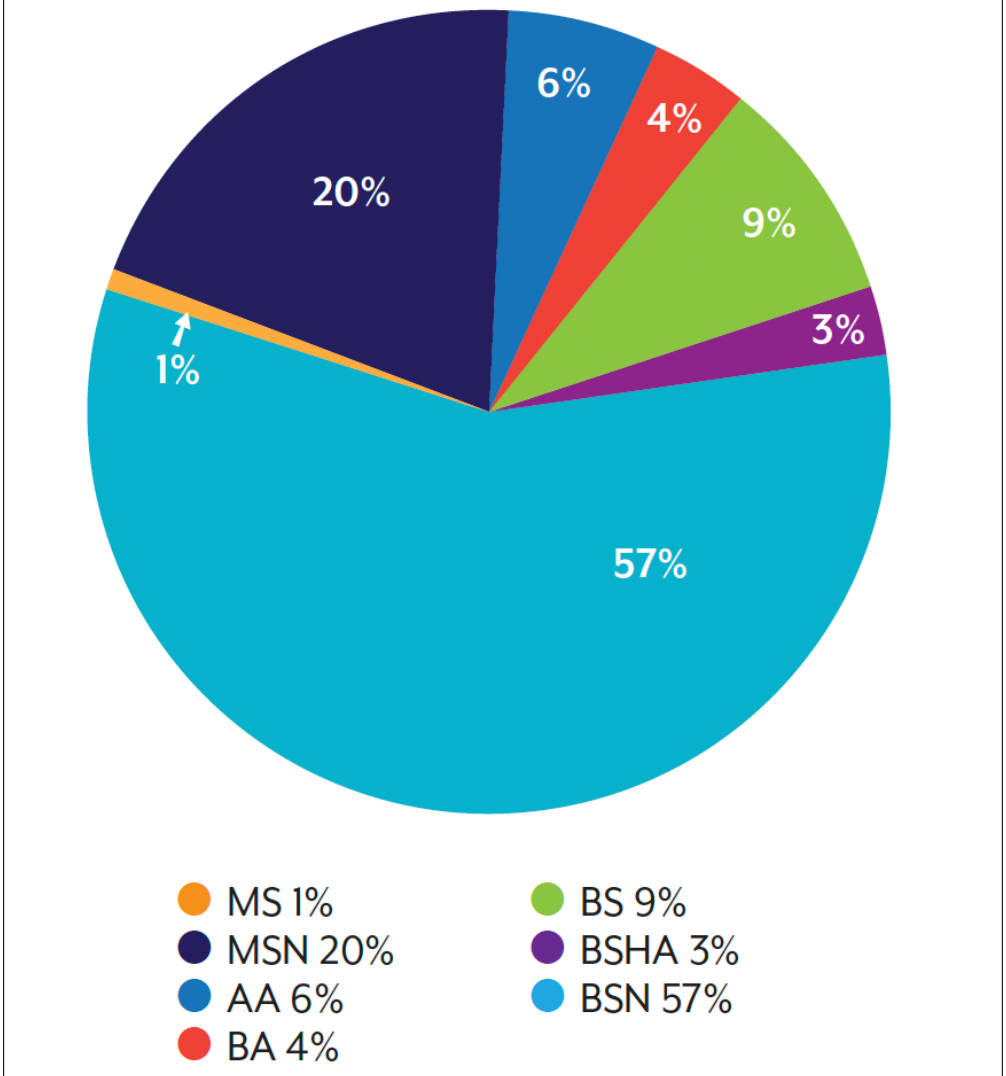
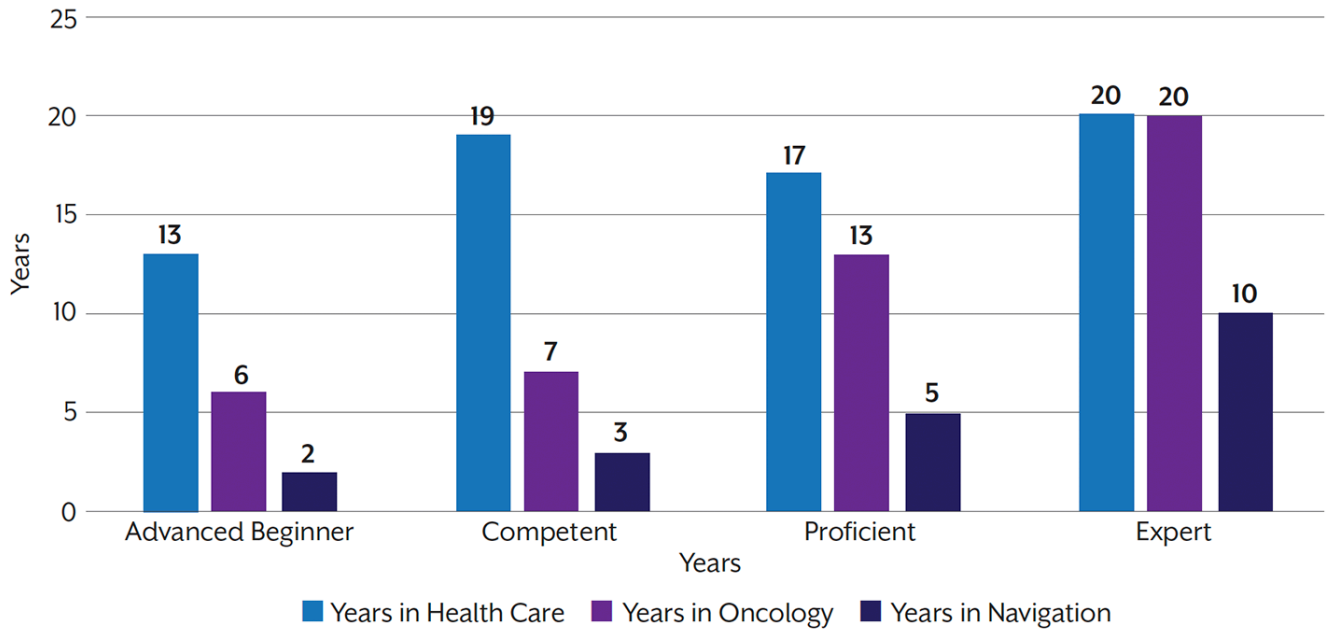
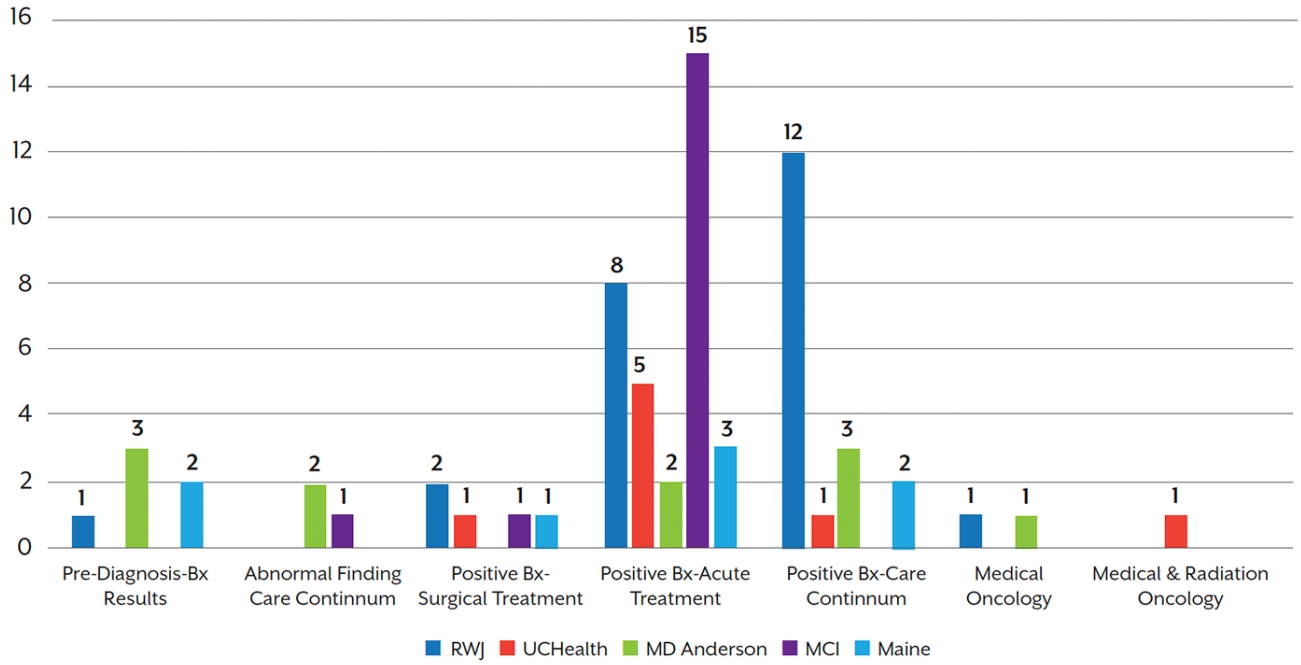


Figure 3 Years of Experience in Healthcare, Oncology, and Navigation*



*Average years of experience.

Figure 4 Navigation Across the Care Continuum



After the sites were selected for the multisite acuity IRB quality initiative, an onboarding webinar was scheduled for the entire team. The attendees included the navigators, IT professionals (optional), administrators, and administrative support staff.

The onboarding webinar was titled Introduction and Welcome Webinar to the National Oncology Navigation Acuity Tool: Multisite Exploratory Quality Initiative.

The digital acuity project webinar included:

- Introduction of AONN+, Amplity, Astellas, and NCCN members
- Introduction of the 5 participating sites
- Review of quality initiative protocol, expectations, deliverables, turnaround time, etc
- Review/demonstrate the digital navigation acuity tool
- Review of IT data elements and time frames
- Discuss the need for expedited IRB review
- Review of clinical and IT support during the project (webinars, email access, etc)

Clinical and IT Support During the Quality Initiative

Bimonthly conference calls were held for the initial 3 months, and as needed, to:

- Review concerns, barriers, opportunities for improvement, etc (we will document all steps of the project)
- Review data, discuss discrepancies, and discuss changes needed with definition, data, etc

During the implementation period, the study team regularly received calls to provide technical assistance, and the sites proactively submitted acuity tool submissions.

The IT requirements included Internet Explorer 11+, Google Chrome, or Firefox browser.

Implementation Framework: Consolidated Framework for Implementing Research (CFIR)

What Is CFIR?

The CFIR is a framework for assessing the context in terms of existing or potential barriers and facilitators to successful implementation in research. The CFIR provides a menu of constructs associated with effective implementation. It reflects the state of the science at its development in 2009, including constructs from, for example, Everett Rogers' *Diffusion of Innovations Theory* and Greenhalgh and colleagues' significant compilation of constructs based on their review of 500 published sources across 13 scientific disciplines. In addition to these 2 sources, the CFIR incorporates 18 other sources. The CFIR considered the spectrum of construct terminology and definitions and compiled them into 1 organizing framework.

The CFIR provided a practical guide for systematically assessing potential barriers and facilitators in preparation for implementing innovation and theory-based constructs for developing context-specific logic models or generalizable middle-range theories.[9]

Data Analysis

The acuity tool analysis included the following:

- The ease of completing the tool
- The time to complete the acuity tool
- The appropriate acuity score based on the navigator's experience
- The current barriers in the acuity tool. Are any barriers missing? Should any barriers be excluded?

- The tool can be used across settings and roles
- The number of barriers and the level of patient-reported distress, as indicated by a lower acuity score, directly resulting from navigation interventions
- Validate the acuity score
- Validate barrier definitions

Findings/Projected Outcomes, Limitations, Interpretations

Quantitative Data

The quantitative data captured during the quality initiative were distress scores and barriers to care.

Each study site underwent an upfront process to report how the NCCN Distress Thermometer is implemented at its clinical site.

All information entered into the AONN+ web-based digital acuity tool was anonymous, deidentified, and password protected. Results were reported in aggregate. No individual patient data were reported. Therefore, no consent for patient participation was necessary because human subjects' protection was maintained for the duration of the study.

The second level of analysis aimed to propose a scoring algorithm to calculate the intensity of understanding associated with a particular patient. The algorithm combined 2 quantities. First, pooling the barriers identified across the domains calculated a weighted average (range, 0-10) of the individual scores. In this calculation, more weights were loaded when scores from individual barriers were higher. Therefore, even if not many barriers were identified for a patient, only 1 leading barrier could escalate the final score if the score associated with this barrier approached the maximum scale. Second, the algorithm calculated the adjustment score (range, 0-10), defined based on the total number of barriers identified. The adjustment score enabled the final score to increase monotonically concerning the number of barriers. If 2 patients have a similar acuity level, the algorithm will produce a higher score for patients with more barriers than for those with fewer barriers. Finally, the algorithm combined 80% of the weighted average score and 20% of the adjustment score to produce a final score with a 0 to 10 scale, with 10 being very high intensity and 0 being no intensity. The percentage used in this calculation has been validated and confirmed based on the data obtained from the users' testing group for 10 case studies developed by the focus group members.

Qualitative Data

To understand how study sites implemented the oncology navigation acuity tool and the challenges they faced during implementation, the quality initiative cochairs led qualitative data collection through 2 sources: key informant interviews, barrier intervention assessment, as well as participant observation. The quality initiative cochairs collected all qualitative data. Key informant interviews took place at 2 points in time: before training and implementation (ie, prestudy interviews) and after implementation (ie, poststudy interviews). The interviews were conducted with the on-site coordinators for each study site. The semistructured interview guides ensured that each interview covered the same general topics while allowing participants to introduce new ideas relevant to the study.

Prestudy interview topics include background on the site's navigation program, distress and barrier assessment, and data and case management. Poststudy interview questions cover training, implementation of the acuity tool, and support for overcoming challenges. Interviews were expected to last 1 hour and were conducted via telephone or videoconference. With permission from participants, quality initiative cochairs recorded and transcribed interviews and took written notes. Throughout the implementation period, study sites submitted information on their challenges through a brief form on the acuity tool platform. These documents will be collected for review and analysis. In addition, study sites participated in regular technical assistance calls with the project team. During these calls, quality initiative cochairs observed participants and captured challenges identified by the study sites, as well as technical assistance provided by the project team using a structured notes form.

Feedback From the Navigators

The navigators completed 576 digital acuity tools, exceeding the original 200 tools to be completed in total during the IRB quality initiative.

The overall feedback from the navigators and site coordinators was positive. They provided the following to the AONN+ acuity team:

- Onboarding went well
- Extreme excitement about the tool
- Easy and fast to complete, under 3 minutes
- Acuity score is accurate
- Study coordinators are excited to review the data
- A couple of sites are going to change the distress screening workflow/process

Quotes From the Navigators

- "We don't usually look at the completed NCCN distress screening tool. I found it extremely helpful to review the DS tool before I spoke to my patient."
- "The tool helped provide more detail for my patient's needs. I was able to identify additional resources needed for my patient."
- "Technically, the tool worked well, fast, and easy to complete."
- "Coordination of care must be included in the tool."

Revisions to the Digital Acuity Tool

The acuity IRB quality initiative was completed on July 15, 2024. The cochairs reviewed and coded the data collected, and common themes were identified. The common themes included missed barriers, understanding of the current instructions and definitions, and the technology of the digital tool itself. The missing barriers or clarification of the current definitions included coordination of care/institutional barriers, lodging, translation support, health literacy, insurance, and care for others.

The acuity tool was revised to reflect the navigators' recommended updates. The revisions included the following:

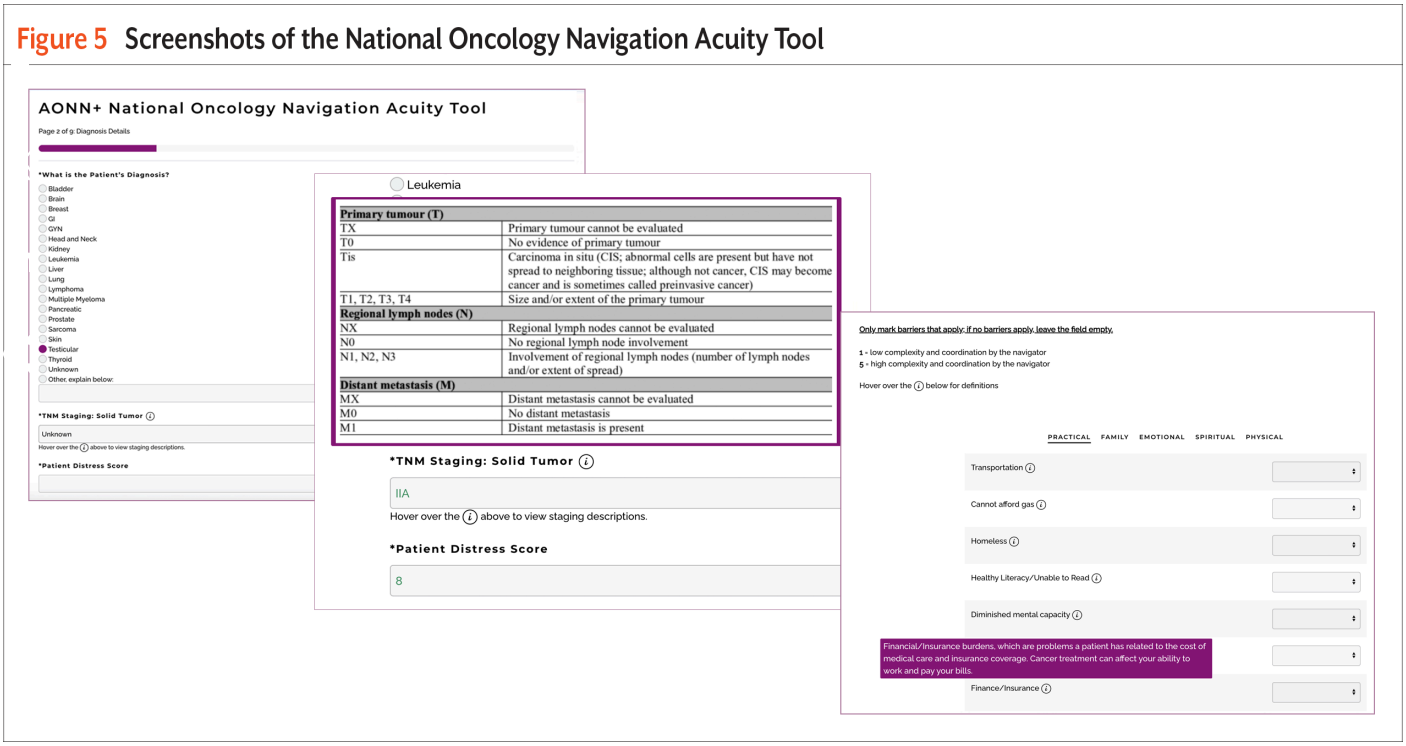
- Finance/Insurance and the definition was updated

- Changed Unable to Read to Health Literacy/Unable to Read but kept the same definition
- Added institutional barrier/coordination of care and a definition
- Added Housing/Lodging with definition
- Added Translation/Language Services and definition
- Added Support System/Care for Others with definition
- Added an index bar/navigation bar at the top of the digital acuity tool for more effortless movement through the tool

Next Steps

Several key next steps are planned as we move forward with the National Oncology Navigation Acuity Tool. We will secure a trademark for the AONN+ digital acuity tool and establish utilization agreements with cancer programs interested in implementing the tool at their sites (**Figure 5**). An aggregate data agreement will allow AONN+ to use facility data for analysis within our data warehouse, enabling each facility to access and report on its own data. The tool has been updated to address missing barriers and improve ease of use with a new indexing feature. We will continue to present findings from the acuity quality initiative through additional presentations. The rollout will include educational webinars, Facebook Live sessions, and an implementation toolkit to support adoption. In addition, we will explore partnerships with electronic medical record providers to integrate the tool further into clinical practice.

Figure 5 Screenshots of the National Oncology Navigation Acuity Tool



Special Thanks

AONN+ gratefully acknowledges Astellas Pharma US, Inc. for supporting the Oncology Navigation Acuity Initiative. When finalized, the acuity tool is expected to help oncology navigators characterize the intensity of patient navigation workload, aid in allocating resources, and measure the effectiveness of navigation on patient outcomes. This initiative may support and enhance oncology navigators' effectiveness through patient-centric, evidence-based methods that may decrease the overall cost of care.

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