Gastrointestinal (GI) cancer is the second most frequent cancer diagnosis in the United States, and the care for patients with GI cancer is multifaceted, with each clinical encounter impacting patients’ overall experience. Patients and families often navigate this complicated journey on their own with limited resources and knowledge; therefore, innovative, patient-centered, and quality-focused programs must be developed. The purpose of this article is to discuss the development of GI nurse navigators (NNs) and the important role they have in providing coordinated evidence-based cancer care and in the benchmarking of quality metrics to allow more transparency and improve GI cancer care. This article provides a foundation for developing a GI NN role within the context of a newly developed multidisciplinary GI cancer program, and identifies the importance of tracking specific quality metrics. This innovative model is useful for healthcare organizations and nursing practice because it identifies the importance of a nurse in the navigator role, as well as highlights the numerous functions the NN can provide to the GI multidisciplinary team and patients.

The healthcare system is intricate and often hard to navigate. Therefore, patients may fail to receive high-quality, well-coordinated care, with consequences ranging from low patient satisfaction to undertreatment (Fashoyin-Aje, Martinez, & Dy, 2012). In 2014, the estimated number of new gastrointestinal (GI) cancers was 289,610 (17% of all cancers), representing the second most frequent cancer diagnoses in the United States when combined as a group (American Cancer Society, 2014). In addition, an estimated 147,260 deaths (25% of all cancer-related deaths) are attributed to GI cancers (American Cancer Society, 2014).

Research has focused on factors to decrease obstacles related to efficient patient-centered care, such as wait time leading up to treatment, as well as other system barriers inhibiting receipt of coordinated, comprehensive cancer care (Freund et al., 2008; Gilbert et al., 2010). One proposed remedy has been the implementation of a patient navigator (Freund et al., 2008). Patient navigators can range from advanced practice nurses to community health workers or peer advisors (Dohan & Schrag, 2005; Fashoyin-Aje et al., 2012; Freund et al., 2008; Pedersen & Hack, 2010; Wilcox & Bruce, 2010). Literature suggests that because of the complexity of cancer, nursing knowledge is critical to becoming a navigator (Gilbert et al., 2010; Wilcox & Bruce, 2010).

In an effort to optimize care for patients newly diagnosed with GI cancer, the Richard J. Lacks Cancer Center, a midwestern community cancer center, implemented a GI multidisciplinary care (MDC) program with a novel integration of a GI nurse navigator (NN). An outcomes database was used to collect and analyze quality indicators that were previously highlighted in a 2002 report by the Institute of Medicine (IOM), primarily focusing on metrics assessing the timeliness, patient-centeredness, and effectiveness of initial cancer care.
The purpose of this article was to offer a detailed literature review regarding nurse navigation and quality indicators to facilitate discussion regarding a GI cancer NN providing coordinated, evidence-based care. In addition, benchmarking specific quality metrics is introduced, which should allow greater transparency on a national level and a broader goal of assessing the value of GI cancer programs and quality improvement of cancer care.

**Literature Review**

**Nurse Navigation**

Nurse Navigation is a relatively new term used in nursing literature. In the 1990s, Harold Freeman implemented a patient navigation program using non-NNs to decrease barriers for underserved populations with suspected breast cancer (Dohan & Schrag, 2005; Francz, 2011). Since that initial experience, cancer navigation has developed into assisting patients with cancer by coordinating diagnostic evaluations, providing disease-specific education and social support, managing symptoms, and ensuring adherence to quality treatment standards (Fashoyin-Aje et al., 2012).

While conducting the literature search, the authors searched CINAHL® and PubMed for English-language research and clinical articles or Internet sources regarding patient navigation programs, roles, and quality improvement. Unfortunately, the authors’ literature review did not produce a standard definition for patient navigation. Nonetheless, two general classifications of navigators exist, professional and peer or lay. Professional navigators include social workers, RNs, and advanced practice nurses (Ell, Vourlekis, Lee, & Xie, 2007; Gilbert et al., 2010; Tingen, Weinrich, Heydt, Boyd, & Weinrich, 1998). Peer or lay navigators are non-clinicians who have considerable knowledge or experience with the healthcare system (Gilbert et al., 2010; Steinberg et al., 2006; Turner et al., 2007). Literature has suggested that because cancer care is so complex, it is critical for navigators to have intensive knowledge regarding cancer diagnoses and treatment options to offer patients high-quality service and support (Gilbert et al., 2010; Wilcox & Bruce, 2010). Gilbert et al. (2010) indicated that NNs have the ability to assess, triage, and provide clinical education at each stage of the cancer journey. In addition, NNs can anticipate the need for supportive care and manage complex clinical issues while interacting with the patient’s healthcare team.

**Quality Indicators**

With continued calls for transparency in the quality of health care from insurance companies, patient advocacy groups, and the government, benchmarking specific quality indicators is critical. The current authors conducted a literature review prior to the initiation of the GI MDC program to guide the selection of benchmarks.


Breast cancer care has served as the initial model and remains the only cancer for which metrics are fully developed. In 2005, the National Consortium of Breast Centers developed a quality initiative program, which evolved into the National Quality Measures for Breast Centers (NQMB). Breast cancer supporters have recognized that national quality measures are a critical first step in improving the quality of breast cancer care. The NQMB developed 36 measures that primarily focus on the safety, effectiveness, efficiency, patient-centeredness, equitability, and timeliness of care. Those benchmarks are continually assessed and adjusted over time as quality of care improves (NQMB, 2012).

Unfortunately, inconsistency and lack of reporting outcomes occurs throughout different programs during patient navigation. As a result, the American Cancer Society hosted the National Patient Navigation Leadership Summit in 2010. One goal of this meeting was to develop core metrics for all types of cancer navigation programs (Esparza & Calhoun, 2011). In addition, with recent changes in healthcare policy, a new urgency exists to evaluate whether navigators improve the quality of cancer care. The summit outlined specific data elements and quality metrics to collect, linking the processes to clinical outcomes (Battaglia, Burhansstipanov, Murrell, Dwyer, & Caron, 2011; Esparza & Calhoun, 2011; Guadagnolo, Donoh, & Raich, 2011). Three quality guidelines were recommended, including core metrics for patient navigation during diagnosis and early cancer management, patient navigation during cancer treatment, and patient-reported outcomes (Guadagnolo et al., 2011). Reporting and collecting data elements on these measures are critical for NN programs to facilitate high-quality care. However, data collection presents challenges in balancing the number and type of metrics to track, as well as what data navigators can collect while not sacrificing high-quality patient care (Guadagnolo et al., 2011).

**Nurse Navigation Development**

Initial staging and diagnosis of GI cancers can be a long and arduous process, involving many different medical services and procedures. In 2012, Lyratzopoulos, Neal, Barbieri, Rubin, and Abel identified that patients diagnosed with breast cancer in England usually had one or two consultations prior to diagnosis, whereas patients with pancreatic cancer were likely to have three or more consultations prior to referral for cancer evaluation. As a result, patients with GI cancer may start treatment weeks or even months after initial diagnosis. To specifically address barriers and the measures identified in the IOM (2002) report, the Richard J. Lacks Cancer Center established a unique GI MDC program with a GI NN to facilitate, educate, and coordinate care of patients with suspected or confirmed GI malignancies.

**Training**

GI nurse navigation is an emerging specialty, and the skills and knowledge required had not yet been defined. Therefore, it was necessary for leaders at the Richard J. Lacks Cancer Center to identify the essential qualities, skills, and knowledge desired prior to the implementation of a GI NN. Fulfilling the role of a GI NN required two main qualifications, a bachelor's degree
TABLE 1. Specific Differences in Nurse Navigator–Coordinated Care in Three GI Cancers

<table>
<thead>
<tr>
<th>Type</th>
<th>Diagnostic Staging</th>
<th>Initial Assessment</th>
<th>Side Effects and Complications of Treatment</th>
<th>Follow-Up and Surveillance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esophageal</td>
<td>EGD, PET, or computed tomography scan; endorectal ultrasound; bronchoscopy</td>
<td>• Severity of dysphasia</td>
<td>• Cough and hemoptysis</td>
<td>Computed tomography scan; endoscopy after one year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Need for jejunostomy tube</td>
<td>• Shortness of breath</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Need for esophageal stent</td>
<td>• Esophagitis</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Histology</td>
<td>• Dysphagia</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tumor location (lower, middle, upper)</td>
<td>• Dumping syndrome</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Diet changes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Bowel changes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Care of jejunostomy tube</td>
<td></td>
</tr>
<tr>
<td>Pancreatic</td>
<td>Computed tomography chest scan, chest imaging, endorectal ultrasound or ERCP, cancer antigen 19-9</td>
<td>• Jaundice</td>
<td>• Signs and symptoms of esophageal stricture</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Need for biliary stent</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pain control</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pancreatic enzyme insufficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rectal</td>
<td>Colonoscopy, computed tomography scan*, endorectal ultrasound or endorectal MRI, CEA test</td>
<td>• Incontinence</td>
<td>• Pancreatic insufficiency (steatorrhea)</td>
<td>Cancer antigen 19-9, computed tomography abdomen scan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Obstruction</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Bleeding</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Potential for ostomy</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tumor location (head, and body or tail)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Chest, abdomen, and pelvis
CEA—carcinoembryonic antigen; EGD—esophagogastroduodenoscopy; ERCP—endoscopic retrograde cholangiopancreatogram; GI—gastrointestinal; MRI—magnetic resonance imaging; PET—positron-emission tomography

and an oncology certification in nursing (OCN*), as well as several important training components. Those qualifications would ensure that the GI NN had prior oncology knowledge, as well as the skills necessary to perform cancer assessments, collaborate with multidisciplinary team members, advocate for patients, and provide them with understandable clinical knowledge (Seek & Hogle, 2007).

Several training points were centered on knowledge of diagnostic strategies and treatment of patients with GI cancer, which are critical to the development and success of a GI NN. The GI NN must understand National Comprehensive Cancer Network (NCCN) guidelines and the American Joint Committee on Cancer staging manual. The GI NN also must have a good understanding of policies and procedures within the various medical practices because the navigator will be in contact with multiple medical specialties. As a result, shadowing specific areas and meeting physicians, nurses, and schedulers is essential. To facilitate the acceptance and training of the GI NN, the expertise of an eager and active GI physician champion is necessary.

Process

The GI NN usually receives a patient referral from a healthcare provider. Records are requested and reviewed to assess confirmation or suspicion of cancer. The GI NN then contacts the patient in person or via phone call for an initial review of medical history, recent events, and assessment of current symptoms. Using the NCCN guidelines, the GI NN (alongside a physician) selects the diagnostic testing or staging studies needed to complete staging for each patient’s specific cancer. The complexity of navigation is manifested by the nuances of the specific staging requirements and treatments for individual GI cancers. The GI NN at the Richard J. Lacks Cancer Center navigates for six major GI cancers: esophageal, stomach, pancreatic, and colorectal cancers, largely driven by differences in presenting symptoms.

After staging studies are completed, patients’ cases are presented at a weekly treatment planning conference organized by the GI NN and attended by other GI NNs: general surgeons; surgical, medical, or radiation oncologists; interventional radiologists; gastroenterologists; dietitians; financial advisors; genetic counselors; as well as palliative care and social workers. That approach facilitates discussion surrounding a proposed treatment plan among cancer specialists. Immediately following the conference, patients are evaluated in the GI MDC clinic, which also is coordinated by the GI NN. The individual cancer specialists examine each patient, but interact with one another between evaluations. Prior to leaving the GI MDC clinic, the GI NN meets with the patient to summarize the treatment plan, assess patient understanding, and provide additional education. The GI NN reassesses the patient’s needs every two to three weeks while the patient is on therapy.
Quality Metrics

From the inception of the GI MDC program, the program organizers thought it was important to begin a benchmarking process. Using the IOM (2002) report and the NQMBC (2012), the physician champion developed quality metrics for the GI MDC program.

Instrument

This assessment uses the GI MDC measure of effectiveness data collection tool, which focuses primarily on four areas regarding patient care coordination with measurement of timeliness, efficiency, care appropriateness, and patient-centeredness. The referral process of the assessment helps identify basic information regarding when the patient was referred and the disease type. It also incorporates when the NN contacted the patient. In addition, the NN records all pretreatment staging studies that patients received or will need for diagnosis, as well as necessity of testing and compliance with the NCCN guidelines. The NN documents when patients were seen in the GI MDC, whether they were seen by all required cancer specialists, and whether education was provided by the NN prior to leaving. In addition, the NN documents the treatment plan and date of treatment initiation. To begin a benchmarking process for the four focus areas, metrics were determined. For the purpose of this assessment, four of those benchmarking metrics will be discussed: (a) days until the NN contacts patient, (b) days until cancer staging is completed, (c) days until the patient is seen in the GI MDC clinic, and (d) days from referral to cancer treatment initiation.

Results

A total of 413 patients were referred to the GI MDC program from January 2010 to August 2012 (see Table 2). Of the 413 patients, 310 (75%) initially were considered to have a malignant diagnosis with clinically estimated stages: 3 patients with stage 0 disease (1%), 65 patients with stage I disease (21%), 71 patients with stage II disease (23%), 66 patients with stage III disease (21%), and 105 patients with stage IV disease (34%).

For metric one (days until NN contacts patient), the goal of the GI MDC was for 80% of the patients to be contacted by the GI NN within two business days of referral. All patients were included in metric one; however, four patients did not have a day of contact on their datasheet or charts, one patients had a referral date greater than the contact date, and one patient was an outlier. Therefore, those six were removed from statistical measures. Overall, 89% of the patients measured (n = 407) were contacted within two days (X = 1.7, range = 0–20).

For metric two (days until cancer staging is completed), the authors aimed for 80% of patients to have all cancer staging completed within five business days of referral. The second metric included patients with a new cancer diagnosis who were an outpatient referral; however, patients whose treatment was initiated elsewhere and had staging prior to their referral were not included in metric two. For the 168 newly identified patients with cancer for whom staging was incomplete at time of referral, 57% had staging completed within five days (X = 6.2 days, range = 0–40). Of those 168 patients, 85% had staging completed at the hospital and 94% were compliant with NCCN staging guidelines.

For metric three (days until patients seen in GI MDC), the goal was for 90% of patients to be seen within 10 calendar days of referral. Patients measured in metric three had the same inclusion and exclusion criteria as metric two. Overall, 91% of patients were seen within 10 days (X = 6.9, range = 1–53). Of patients seen in the GI MDC clinic, 92% saw all required physicians in a single clinic.

For metric four (days to cancer treatment initiation), the authors’ goal was for 70% of patients to start cancer therapy within 22 calendar days of referral. Patients measured in metric four included inpatient or outpatient referrals with a new cancer diagnosis; however, patients whose treatment was initiated elsewhere and who began treatment prior to referral were not included. To date, 75% of those patients (n = 253) began cancer therapy within 22 of referral days (X = 18.5, range = 0–135).

Discussion

The purpose of this article was to describe the novel role of a GI NN and highlight the important functions they serve in both coordinating initial cancer care and enhancing the quality of cancer care. The quality metrics introduced can serve as benchmarks to compare GI cancer care on a national level. The current study revealed the critical and central role filled by a GI NN within a multidisciplinary GI cancer program. The study’s initial outcomes demonstrate a new ability to coordinate GI cancer care more effectively among several oncology-related providers, while offering patients timely and effective care.

The process of benchmarking specific quality metrics was critical, not only for the organization to understand the role and potential impact of the GI NN, but also for providing a foundation for other programs. The selected metrics specifically addressed important issues that lead to more effective delivery of
cancer care. Achieving optimal outcomes for metric one (time to contact by NN) and metric three (time to multidisciplinary evaluation) relied heavily on the NN, whose greater availability and knowledge of GI cancers allowed for early direct contact with patients, completion of cancer staging, and detailed patient education. That outcome minimizes the individual physician availability needed to initiate first steps. The main barrier identified was the variability in contacting patients.

Although cancer staging within five days can be challenging, that time frame is extremely important in the selection of appropriate cancer treatment. At the Richard J. Lacks Cancer Center, certain studies (e.g., endoscopic ultrasound) have limited providers who can perform this testing. In addition, the NN is at the discretion of scheduling availability. The NN must understand the nuances of staging and have effective relationships with key stakeholders in various departments to expedite tests or procedures.

The treatment initiation date is subsequently dependent on staging timeliness, completion of clinical evaluations, patient readiness, and facility factors. Ideally, cancer treatment is not started until patients are staged accurately and have appropriate input from all potentially involved cancer specialists. Patients need to feel comfortable with the proposed treatment, which requires extensive patient education. Patients also may need assistance with finances, local housing, and completion of work-related disability paperwork prior to treatment. At the authors’ center, effective incorporation of financial counselors and social workers accelerated these processes.

**Limitations**

Study limitations include the lack of previously defined roles in the literature regarding GI NNs, models, and training programs. The simultaneous implementation of other elements of the GI MDC program (treatment-planning conference and a single-day GI MDC clinic) makes assessment of the specific impact of the GI NN challenging. In addition, baseline metrics were not obtained prior to the implementation of the program. However, McCahill et al. (2010) demonstrated a significant improvement in reducing the number of independent days on which studies were scheduled, from a mean of 6.3 days to a mean of 4.7 days when using a GI NN. The mean time from referral to treatment initiation of 18.5 days also is without a reliable comparison figure for GI cancers from other institutions. Nevertheless, this outcome is consistent with reported time to treatment for breast cancer, which demonstrates expeditious care. In addition, the authors’ assessment did not analyze cost effectiveness, which would be advantageous to better understanding the financial impact of nurse navigation.

**Implications for Practice**

- Require specific training and knowledge for gastrointestinal (GI) nurse navigators (NNs).
- Enhance coordination of care and facilitate high-quality care for patients with GI cancer by establishing the GI NN role.
- Incorporate quality metrics to evaluate care, which will help monitor the specific impact nurses have on health care and inspire change within the profession.

**Implications for Nursing**

Continued implementation and evaluation of the role of nurses as cancer navigators is critical to assessing cancer care quality in an ever-changing healthcare model. Nurses have the education, knowledge, and training to provide clinical collaboration and coordination as well as clinical education. Nurses are educated to be advocates for patients and to abide by the American Nursing Association code of ethics. In addition, nurses have an understanding and respect for quality research to help improve patient outcomes.

Providing clinical education to patients is a vital role for the GI NN. Multiple resources exist to assist GI NNs in providing education, including anatomic models and illustrations and booklets provided by the National Cancer Institute, the Pancreatic Action Network, and the American Cancer Society that highlight the diagnostic process, treatment options, side effects of treatment, and dietary needs post-treatment. However, a needs assessment of patients’ knowledge should always be completed first to ensure that their educational needs are met throughout the cancer journey.

**Conclusion**

The current study provides a foundation for developing a GI NN role within the context of a multidisciplinary GI cancer program and identifies the importance of tracking specific quality metrics. Those benchmarks are an important resource for healthcare professionals and organizations to ensure that the GI cancer care being provided is measured in a consistent fashion across cancer centers. Patient navigation has already been proven to decrease some barriers in access to care; however, having an OCN as the navigator may prove to be a critical component for improving overall quality of GI cancer care. Continued studies evaluating the role and impact of NNs on quality of cancer care are essential.

**References**


