Using Nurse Navigation to Improve Timeliness of Lung Cancer Care at a Veterans Hospital

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The Connecticut Veterans Affairs Healthcare System (CT-VAHCS) sought to improve the timeliness of lung cancer care by filling the new position of cancer care coordinator with an advanced practice nurse (APN) functioning as a nurse navigator. The multifaceted nature of diagnosing lung cancer and the barriers encountered by patients and families as they access the complex healthcare system contributed to substantial delays in diagnosing and treating this disease. Beginning in January 2007 when the cancer care coordinator was hired, she recorded data regarding timeliness and stage at diagnosis for all patients diagnosed with non-small cell lung cancer. CT-VAHCS created and modified several processes to improve timeliness and quality of cancer care as soon as a patient’s imaging suggested a new diagnosis of malignancy. The cancer care coordinator effectuated a measurable improvement in timeliness. In 2003, the average was 136 days from suspicion of cancer to treatment compared to 55 days in 2010, with a trend toward diagnosis of non-small cell lung cancer at an earlier stage. Oncology-certified APNs in the position of cancer care coordinator can engage multiple disciplines to generate process changes and improve timeliness of lung cancer care.

lung cancer remains the deadliest malignancy in the United States. In 2011, the estimated number of new cases of lung cancer was 221,150 (14% of all cancers) and an estimated 156,940 deaths (27% of all cancer-related deaths) were caused by this disease (American Cancer Society, 2011). Advanced stage at diagnosis accounts for the high mortality rate in lung cancer. About 75% of lung cancers are locally advanced or already metastasized at the time of diagnosis, and the five-year survival rate with metastatic disease is lower than 5% (National Lung Screening Trial Research Team, 2011a).

Although tobacco use has declined in the United States, some studies have reported an increase in certain military groups, particularly those in combat zones. In 2005, tobacco use was higher in active duty military personnel (32%) and veterans (22%) than in the general U.S. population (20%) (Bondurant & Wedge, 2009). In addition, 27% of veterans who used the Veterans Affairs (VA) Healthcare System identified themselves as current smokers in 2008 (Department of Veterans Affairs, Office of the Assistant Deputy Under Secretary for Health for Policy and Planning, 2009).

The incidence of smoking increases in veterans with mental illnesses including major depression, post-traumatic stress disorder, and schizophrenia (Bondurant & Wedge, 2009; PRIME Education, 2010). Veterans who receive health care in the VA Healthcare System tend to be of lower socioeconomic status and have poorer general health when compared with the general population. Veterans without private insurance were found to be younger, more likely to smoke, and have less education and income; in addition, veterans who receive their entire health care within the VA system are more likely to be from disadvantaged groups, less educated, poor, and of minority status (Nelson, Starkebaum, & Reiber, 2007).

The diagnosis and staging of lung cancer is a complex process that typically involves use of many different medical services and procedures that may include percutaneous or bronchoscopic biopsies, sampling of mediastinal lymph nodes, multiple radiographic assessments, and specialty services such as pulmonary and cardiology to conduct risk assessment prior to surgery. Factors contributing to delays in the diagnosis and treatment of lung cancer care coordinator can engage multiple disciplines to generate process changes and improve timeliness of lung cancer care.
cancer have not been well studied in the United States. Delays in lung cancer care that have been identified include discrepancies in patient management and lack of communication between the services, referral patterns of services, difficulty scheduling expedited diagnostic studies, multiple clinic appointments, and travel (lacking transportation or living at a distance). For example, Schwaderer and Itano (2007) found that the distance encountered by patients living in rural areas presented a significant barrier and was a key factor in the time needed to provide most services. Additional barriers identified in achieving the goal to timely care were communication (limited English or difficulty with reading and writing), emotional and cultural factors (fear and mistrust of healthcare providers) and psychological issues (underlying mental illness and emotional problems) (American Society of Clinical Oncology, 2009; Freeman, 2004, 2006).

Patient variables affecting timeliness include race, education, socioeconomic status, and whether treatment was received at private versus public hospitals (Fillion et al., 2009; Olsson, Schultz, & Gould, 2009; Yorio, Xie, Yan, & Gerber, 2009). Patients who are from disadvantaged groups experience more delays in the diagnosis and treatment of cancer. All of the previously mentioned factors contribute to the potential for fragmented care, delays, and patient dissatisfaction (Seek & Hogle, 2007).

**Timeliness of Lung Cancer Care Within the Veterans Affairs System**

The VA Healthcare System is the largest integrated system of its type in the United States. It provides care for veterans from disadvantaged, high-risk groups who are susceptible to multiple system and patient delays. Mental illness, homelessness, and substance abuse compound the risk for long delays, becoming lost to follow-up, and falling through cracks in the healthcare system (Nelson et al., 2007). Schultz, Olsson, and Gould (2008) identified system, provider, and patient barriers that contribute to excessive delays in the diagnosis and treatment of lung cancer in the VA Healthcare System. System barriers included inefficient workup, the sequential versus parallel ordering of tests and referrals, poor coordination among VA sites and between VA and non-VA providers, discontinuity of care, and resource limitations in staffing and access to services. Provider delays caused by existing institutional culture and practices included poorly defined responsibilities for lung cancer tracking and care coordination, lack of interest in improving timeliness, lack of sense of urgency, and uncertainty about how to implement change. Patient issues included nonadherence with follow-up care, missed appointments, and transportation issues. Research within the Veterans Health Administration has shown that Caucasian veterans with lung cancer receive earlier diagnosis compared to minorities (Gould, Ghaus, Olson, & Schultz, 2008). In patients studied at two tertiary VA hospitals from 2004 to 2007, missed opportunities in diagnosing lung cancer (defined as failure to recognize a predefined clinical sign within seven days and failure to complete a requested follow-up action within 30 days) adversely affected 38% of patients (Singh et al., 2010). Those missed opportunities resulted in a significant increase in median time to diagnosis (132 days) compared to cases without missed opportunities (19 days) (Singh et al., 2010).

**Patient Navigation**

Barriers can hinder access to receiving timely, efficient, and high-quality cancer care, particularly in underserved populations (American Society of Clinical Oncology, 2009; Freeman, 2004, 2006; Schwaderer & Itano, 2007). Patient navigation was conceived from the desire to reduce the unequal burden of cancer in the United States in groups designated as underserved or disadvantaged. The first navigation program was established in 1990 in Harlem, NY, and was supported by the American Cancer Society following a retrospective analysis showing that 94% of patients with breast cancer who received treatment at Harlem Hospital Center from 1964 to 1986 were diagnosed in advanced stages (Freeman & Wasfie, 1989). A follow-up study at the same facility showed that the navigation program increased the percentage of women diagnosed with early-stage disease from 6% to 41% and improved five-year survival rates from 39% to 70% (Freeman, 2006).

The original concept of patient navigation as a means to provide assistance to the poor, uninsured, and underinsured rapidly expanded, and the notion that any patient with cancer may benefit from navigation services now is increasingly recognized (Dohan & Schrag, 2005; Shaffer, 2010). For example, patient navigators were shown to have a positive impact on continuity of care in patients with head and neck cancers with evidence of improved communication between patients and the oncology staff, increased patient satisfaction with their providers, and increased feelings of empowerment (Fillion et al., 2009). The goals of patient navigation programs now are more broadly defined and include streamlining of the diagnostic process, providing patients and their families with support and education, and assisting them in making management and treatment decisions.

**The Role of Cancer Care Coordinator**

In 2004, a lung nodule task force was created at the Connecticut Veterans Affairs Healthcare System (CT-VAHCS) to examine overall timeliness in the diagnosis and treatment of non-small cell lung cancer. The task force consisted of members from the oncology, radiology, pulmonary, and research departments. Data were abstracted from records of 40 patients with non-small cell lung cancer. Patients whose treatment was not initiated at CT-VAHCS were excluded from final data analysis, resulting in 34 patients whose data were analyzed. The mean time from abnormal pathology to initiation of treatment was 136 days (median = 117, range = 12–385). At diagnosis, 33% were at stage I, 37% were at stage III, and 30% were at stage IV. Recommendations from the task force were to hire an advanced practice nurse (APN) as a cancer care coordinator to help patients navigate the diagnostic and staging process and overcome barriers to effective, timely care. Although the APN functions as a nurse navigator, the job title of care coordinator is used more widely within the VA system. The cancer care coordinator role was established to identify, track, and expedite the care of veterans from a suspicion of cancer to definitive treatment and does not continue to follow the patient once treatment has been initiated. Core qualifications and responsibilities of the newly created position were developed by the chief of oncology and the cancer committee. Desired qualifications for the position were having an advanced practice nursing degree and experience and certification in oncology nursing.
The rationale for those qualifications was that an APN with an oncology background would be able to perform new cancer case identification, knowledgeable on established guidelines in cancer care, able to have informed discussions with patients, and able to expedite care with the capability to order diagnostic and staging studies. In creating the position, the staff believed that an APN acting as cancer care coordinator would be well-positioned to interact directly with patients and providers to respond immediately and coordinate care and services to meet circumstances that often are complex and require thoughtful human interaction.

The position was approved in May 2006, and the cancer care coordinator began employment in January 2007. The specific aim of the program was to improve timeliness in diagnosis of lung cancer from suspicion to initiation of definitive treatment using the new position.

Methods

CT-VAHCS’s institutional review board granted approval for this study. Beginning in January 2007, the cancer care coordinator recorded, analyzed, and reported data regarding timeliness and stage at diagnosis for all patients diagnosed with non-small cell lung cancer. Patients were excluded from the ongoing analysis and reporting if they were not diagnosed at CT-VAHCS or if data could not be verified because they transferred care to an outside facility before treatment began. Time intervals between the dates of first suspicion of lung cancer, diagnosis, and initiation of treatment were recorded for patients diagnosed from January 2007 to December 2010. In cases in which any of the dates were unclear, two authors independently reviewed the charts and then reviewed their conclusions and reached consensus.

Tracking and Data Collection

The authors started by conducting a careful assessment of the processes involved in lung cancer diagnosis and treatment at CT-VAHCS. In this regard, the authors greatly benefited from participation in a nationwide VA Cancer Care Collaborative, a program initiated to focus on timely and appropriate care of patients with cancer (Department of Veterans Affairs, Office of the Deputy Under Secretary for Health for Operations and Management, personal communication, November 14, 2008). Although the data collection portion was time consuming, it was invaluable in identifying the bottlenecks of the processes and opportunities for improvement. Abstracting data from the electronic medical records pertaining to dates and time intervals between procedures, referrals, and time to definitive treatment in lung cancer provided additional information about system and patient-related barriers that contributed to delays to timely treatment. A database was developed and maintained by the cancer care coordinator to record, measure, and report on time intervals and overall timeliness from first suspicion of lung cancer to treatment. The data collection in real-time allowed constant examination and correction of specific causes for delays. Summaries of this analysis were reported quarterly to the cancer committee.

For example, the interval from date of abnormal chest x-ray to computed tomography (CT) scan of the thorax was identified as a potential delay factor, as was the interval from the electronic ordering of the CT scan to the actual performance. A lack of sense of urgency was implicated by the “routine” priority for the CT scan assigned by some clinicians. Review of priority and timing of CT scans in July 2009 revealed that, when chest CT scans were ordered “ASAP [as soon as possible],” they were completed about 11 days sooner than those ordered as routine. The data supported the instructions to clinicians to order all scans for cancer staging as ASAP.

Diagnostic Imaging Process Improvement

Given that radiology is almost always the service in which new cases are identified, establishing a protocol with radiology to alert the cancer care coordinator of any new cases was the first step. A cancer alert code was created for any radiology
films concerning new cancers, suspicion of cancer, and findings that required ongoing surveillance and monitoring for cancer or progression of a known cancer. The cancer care coordinator accessed the radiology reporting file in the VistA® (Veterans Health Information System and Technology Architecture), a computerized patient record system, to review any films coded as a cancer alert.

Other radiology-based process improvements included making the coding field in the radiology reports mandatory, sending an electronic alert to primary care providers on the results of all radiology films ordered on their patients, adding Fleischner guidelines (established recommendations from the Fleischner Society on the management and surveillance of small lung nodules) (MacMahon et al., 2005) to radiology reports for guidance on the management of lung nodules, allowing walk-in appointments for CT scans of the thorax, and reserving two dedicated positron-emission tomography (PET) slots per week for patients with lung cancer on a mobile scanner prior to the purchase of an on-site PET scanner.

After confirming that the patients’ primary care providers received an electronic alert of every diagnostic image their patients underwent, the authors debated whether to keep the cancer alert system, which enabled the cancer care coordinator to actively seek images suspicious for cancer, as opposed to waiting until the coordinator’s services were requested by the patients’ providers. After taking into account the complexity of the lung cancer diagnostic process, the multiple socioeconomic and medical comorbidity challenges of many CT-VAHCS patients, and the fact that many VA providers are trainees who are inexperienced and rotate between different sites, the authors decided to maintain the cancer alert as the point of entry for the cancer care coordinator.

After identifying that performing imaging-guided percutaneous biopsies was a major source of delays, the authors instituted multiple changes in the process. The first step was to insist that all biopsies be done by interventional radiologists (as opposed to general radiologists), enabling patients to receive conscious sedation for their biopsies and, as a result, increasing patients’ tolerance of the procedure and increasing the yield of the biopsies. The authors also developed an electronic referral process for interventional radiology that streamlined the process and enhanced the ability to track the status of requests and timeliness of the procedure.

**Other Process Changes**

A Pulmonary Tumor Board was created, which met weekly and brought together the cancer care coordinator with the care providers from the radiology, pulmonary, and oncology departments to review and coordinate plans for all new lung lesions. A simple, easy-to-use, electronic tumor board referral was created for the Pulmonary Tumor Board to review imaging that was suspicious for lung cancer. The electronic tool was instrumental in getting the primary care providers involved in the process and in sustaining the programs’ success by giving the opportunity for multiple providers to discuss cases that are suspicious for cancer. An APN was hired for the pulmonary department to triage pulmonary referrals and to act as a liaison with the cancer care coordinator. To ease the burden on the primary care provider of coordinating the diagnostic process of lung cancer, an electronic cancer care coordinator consult (referral) was developed, enabling the coordinator to manage the diagnostic process and to act as a point of contact for the patient. A service agreement between the cancer care coordinator and the primary care department was developed to further define the responsibilities of both parties. The service agreement defined the roles and responsibilities of the cancer care coordinator in processing cancer alerts, the cancer care coordinator consults and appropriate use of the referral system, and how to contact the cancer care coordinator. The chief of oncology also was appointed as the supervising physician of the cancer care coordinator.

<table>
<thead>
<tr>
<th>Year</th>
<th>Treatment Started or Refused</th>
<th>Computed Tomography</th>
<th>Positron-Emission Tomography</th>
<th>Pulmonary Consult</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>Median</td>
<td>N</td>
<td>X</td>
</tr>
<tr>
<td>2007</td>
<td>64.5</td>
<td>40</td>
<td>57</td>
<td>11.8</td>
</tr>
<tr>
<td>2008</td>
<td>52.9</td>
<td>42</td>
<td>97</td>
<td>9.1</td>
</tr>
<tr>
<td>2009</td>
<td>56.4</td>
<td>51</td>
<td>89</td>
<td>7.2</td>
</tr>
<tr>
<td>2010</td>
<td>52.4</td>
<td>45</td>
<td>66</td>
<td>7.3</td>
</tr>
</tbody>
</table>

**FIGURE 2. Increasing Early Detection (Stage I or II) of Non-Small Cell Lung Cancer**

<table>
<thead>
<tr>
<th>Year</th>
<th>Stage I</th>
<th>Stage II</th>
<th>Stage III</th>
<th>Stage IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>N = 54</td>
<td>N = 50</td>
<td>N = 59</td>
<td>N = 88</td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 1. Days From Abnormality Observed to Stages of Diagnosis and Treatment**
Figure 1 outlines the original design process for the Pulmonary Tumor Board. The cancer care coordinator identified cases for intervention through the cancer alerts. As the process was expanded, additional intervention methods were introduced, including Pulmonary Tumor Board consults and direct contact with referring providers, with appropriate cases then being reviewed by the Pulmonary Tumor Board. The completed consult (referral) note to the Pulmonary Tumor Board and its recommendations for management is placed in the electronic medical record and is cosigned by members of the Pulmonary Tumor Board and the primary care provider.

Results

The changes described previously resulted in significant improvements in the timeliness of care of patients with lung cancer. Table 1 shows the mean and median times from suspicion of abnormality to key diagnostic events and definitive treatment. Baseline data reviewed from fiscal year 2003 showed an average of 117 days from suspicion to treatment. However, by 2007, the mean number of days from suspicion to treatment was 64.5; by 2010, the number had been reduced by almost two weeks to 52.4 days. In 2007, the mean number of days from suspicion to CT scan was 11.8; by 2010, the mean had improved to 7.3 days. PET turnaround was improved from a mean of 16.4 days in 2007 to 10.8 days in 2010. Finally, pulmonary consult turnaround was improved from a mean of 20.9 days in 2007 to 13.4 days in 2010.

Stage at diagnosis reflected a trend toward earlier diagnosis of lung cancer (see Figure 2). In 2006, 33% of patients were diagnosed at stages I and II. The rate increased to 53% of patients being diagnosed at stages I and II in 2010, and the rate was sustained in 2011.

Feedback From Primary Care Providers

The primary care providers were the main users of the services of the cancer care coordinator; therefore, the authors sought feedback from them on the new position. Permission was granted to use and adapt the five-statement provider survey developed by Campbell, Crain, Eggert, and Bailey-Dorton (2010) to explore feedback from them on the new position. An e-mail survey was sent to the 77 primary care providers within CT-VAHCS and Massachusetts who use the oncology and cancer care coordination services at CT-VAHCS; the response rate was 31%. Most responders gave an overall rating of “very satisfied” (46%) or “satisfied” (29%) when asked to rate the cancer care coordination program at CT-VAHCS (see Table 2). In addition, 46% of responders stated that they strongly agreed with the statement that the cancer care coordinator has decreased barriers to care for veterans, and most responders said they would recommend the cancer care coordination service to other veterans (see Table 3).

Discussion

The hiring of an APN for the role of cancer care coordinator enabled CT-VAHCS to institute multiple process changes and had a major positive impact on reducing the time from suspicion of cancer to initiation of definitive treatment.

Effective diagnosis, staging, and treatment of lung cancer require a multidisciplinary team (Schwaderer & Itano, 2007; Seek & Hogle, 2007). An APN in the role of a cancer care coordinator is well suited to organize and oversee this process. Cancer care coordination or navigation services in the current healthcare system. Multiple studies have found that a cancer care coordination or navigation program improves timeliness to treatment, patient satisfaction, and decreased barriers to care in all patient groups who were assisted by a navigator and concluded that all patients with cancer, regardless of ethnic or socioeconomic status, could benefit from navigation services in the current healthcare system. Multiple studies have found that a cancer care coordination or navigation program improves timeliness to treatment, patient satisfaction, and adherence to the treatment plan (Battaglia, Roloff, Posner, & Freund, 2007; Dohan & Schrag, 2005; Freeman & Chu, 2005; Kober, Padula, Gray, & Powell, 2011; Poooy, Schreuer, Borgaonkar, & Caines, 2004). Patients who use the VA Healthcare System are

![TABLE 2. Patient Navigator Program Physician Survey Results](image-url)

particularly likely to benefit from cancer care coordination given poor socioeconomic status, multiple comorbid conditions, and the fact that many receive specialty care at a considerable distance from their residence.

The current study supports the existing literature by demonstrating that the implementation of a cancer care coordinator or navigator program can improve the overall timeliness of lung cancer care. An unanticipated outcome was the increase in the percentage of non-small cell lung cancers diagnosed at an earlier stage. Further research is necessary to elucidate the reasons for that trend. However, the authors postulate that the careful tracking of incidental findings suspicious for lung cancer through CT scans performed in the institution enabled them to identify and treat early-stage non-small cell lung cancers before they progressed. The results of the National Lung Screening Trial demonstrated that using low-dose helical CT to screen high-risk patients for lung cancer resulted in a 20% reduction in lung cancer mortality (National Lung Screening Trial Research Team, 2011b). The publication of the National Lung Screening Trial study will likely lead to the widespread implementation of lung cancer screening in high-risk individuals.

**Limitations**

Although the current study demonstrated an improvement in timeliness of non-small cell lung cancer care and satisfaction of primary care providers with the role of a cancer care coordinator, the authors did not examine patient satisfaction or cost-effectiveness of the program (Freund et al., 2008). In addition, the current study evaluated a cancer care coordinator program implemented within a VA hospital, using electronic records for case identification, tracking, and abstracting data. Other less-centralized healthcare systems that do not have a fully integrated electronic record may not be able to easily implement all the processes described in this article.

The response to the provider survey was only 31% and, therefore, the satisfaction expressed by the responders may not be representative of the entire group. However, most of the primary care providers are not yet aware of the positive results reported in this study.

**TABLE 3. Staff Survey Results on the Cancer Care Coordinator Role**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>X²</th>
</tr>
</thead>
<tbody>
<tr>
<td>I understand the role of the cancer care coordinator.</td>
<td>7</td>
<td>29</td>
<td>11</td>
<td>46</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>The cancer care coordinator has decreased barriers to care for my veterans.</td>
<td>11</td>
<td>46</td>
<td>5</td>
<td>21</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>I can distinguish veterans who have received cancer care coordinator services from those who have not.</td>
<td>6</td>
<td>25</td>
<td>8</td>
<td>33</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>I am satisfied with the cancer care coordinator’s awareness of appropriate resources.</td>
<td>10</td>
<td>42</td>
<td>6</td>
<td>25</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>I am satisfied with the cancer care coordinator’s timeliness in coordination of care. (N = 23)</td>
<td>10</td>
<td>44</td>
<td>6</td>
<td>26</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>The cancer care coordinator was helpful providing education to my veteran. (N = 23)</td>
<td>6</td>
<td>26</td>
<td>5</td>
<td>22</td>
<td>9</td>
<td>39</td>
</tr>
<tr>
<td>The cancer care coordinator worked in conjunction with me to address veterans’ concerns.</td>
<td>7</td>
<td>29</td>
<td>6</td>
<td>25</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>I was satisfied with the cancer care coordinator’s overall responsiveness.</td>
<td>8</td>
<td>33</td>
<td>9</td>
<td>38</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>The cancer care coordinator was thorough and the plan of care was well documented.</td>
<td>10</td>
<td>42</td>
<td>6</td>
<td>25</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>I feel that the cancer care coordinator worked well coordinating care with other services.</td>
<td>10</td>
<td>42</td>
<td>6</td>
<td>25</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Overall, I value the cancer care coordinator service to my practice.</td>
<td>12</td>
<td>50</td>
<td>5</td>
<td>21</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>I would recommend this service to other veterans.</td>
<td>12</td>
<td>50</td>
<td>5</td>
<td>21</td>
<td>5</td>
<td>21</td>
</tr>
</tbody>
</table>

N = 24 unless otherwise noted

* Scores ranged from 1 (strongly disagree) to 5 (strongly agree).

the current study. The authors anticipate that the positive impact of the cancer care coordinator position on timeliness and stage at diagnosis of non-small cell lung cancer will increase buy-in of primary care and other providers of the program. The authors encountered resistance to change by multiple providers within the facility, particularly when delays and inefficiencies of individual services were identified and reported. However, as the program developed and began to yield results, resistance diminished and most providers ultimately began using the services offered to streamline and accelerate care.

Improving timeliness in lung cancer care was the goal of the program; earlier diagnosis of non-small cell lung cancer was an unanticipated result, and future studies are needed to establish whether cancer-specific and overall survival of these patients have improved.

**Conclusion**

The multifaceted nature of diagnosing and staging non-small cell lung cancer and the various barriers encountered by patients and their families as they access the healthcare system cause treatment delays and leave some patients at risk for falling through the cracks in the system. Veterans often encounter socioeconomic, cultural, and educational barriers that complicate the timely diagnostic process and may result in treatment disparities. An APN in the position of a cancer care coordinator, acting with institutional support and in coordination with multiple disciplines, can have a major positive impact on this process. By accompanying patients as they navigate through the complex healthcare system, the cancer care coordinator can respond immediately to their unique concerns and fears, ensuring that their emotional and physical needs are met. The current study demonstrates that a cancer care coordinator enables patients with lung cancer of all socioeconomic backgrounds to receive high-quality care. Although the authors concentrated their efforts on the diagnostic process in patients with lung cancer, the principles and methods used in the current study are readily applicable to most patients with cancer at all stages of their disease and treatment.

**References**


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**For Exploration on the Go**

Learn more about lung cancer detection in *Site-Specific Cancer Series: Lung Cancer (2nd ed.*) by N.G. Houlihan and L.B. Tyson (Eds.) by opening a barcode scanner on your smartphone. Point your phone at the code and take a photo. Your phone will link to the content automatically. Or, access this content at http://esource.ons.org/ProductDetails.aspx?sku=INPU0599.

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