

A supportive care clinic for cancer patients embedded within an oncology practice

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Background Most cancer patients have symptoms from their disease or treatment. Symptoms are not ideally managed in the context of busy clinics, resulting in potentially avoidable emergency department (ED) visits and hospitalizations. Adjunct supportive care clinics (SCCs) may more effectively address patient needs, but they contribute to fractionation of care if different personnel are involved.

Objective We describe an SCC embedded within a physician practice in which an employed nurse practitioner delivered most of the care. We measured the disposition of patients from the SCC to the ED, and the effect on ED visits and admissions for symptom management.

Methods We conducted a retrospective review of the patients attending the SCC over a period of 11 months. Demographics and disposition outcomes were tracked and compared with pre-intervention controls.

Results In all, 340 visits were recorded from 330 unique patients. Same-day and next-day appointments with a nurse practitioner were arranged for 62% and 25% of patients, respectively. The most common complaints related to pain and gastrointestinal issues. Most of the patients were discharged home. A few needed hospitalization or ED-level care. Admissions for symptom-related care fell by 31%. An estimated 66 ED visits were avoided by patients accessing the SCC.

Limitations The study was retrospective. It did not include detailed financial data. Results may not be generalizable because of the high level of central planning and use of a shared electronic medical record system, which may be lacking in some practices.

Conclusions An embedded supportive care clinic allowed rapid access to experienced oncology care under supervision by the patient's own oncologists. The clinic was associated with less use of the ED and need for hospitalization. New methods of reimbursing medical care will increasingly require oncology practices to improve patient access to symptom-related care to avoid unnecessary admissions. An embedded SCC can accomplish these goals while avoiding further fractionation of care.

Patients with cancer suffer a range of symptoms associated with their disease and/or treatment.¹ Many will seek services in an emergency department (ED) where they have a likelihood of more than 50% of being admitted for hospitalization.² Symptoms can be magnified by anxiety, despondency, and unmet spiritual needs. The proactive provision of both palliative and symptomatic care has been recognized as a prime responsibility of oncology providers and has been the subject of professional society guidelines and incorporated into the American Society of Clinical Oncology's Quality Oncology Practice Initiative.³ Attending to these various needs can be challenging for oncologists who must multitask their way through responsibilities with scheduled outpatients, oversight of infusion activities, and duties on inpatient units, among other tasks. To bridge this potential gap, many forms of symptom management clin-

ics have been developed, some focusing exclusively on palliative care and hospice transition and others functioning as urgent care clinics.^{4,5} Despite several examples of such clinics reported in the literature, data on the operational metrics and results are sparse. We developed a nurse practitioner-run, physician-supervised supportive care clinic to attend to the urgent medical care needs of patients in a single oncology practice. In this article, we report on the operational metrics and outcomes of the program.

Materials and methods

The supportive care clinic (SCC) was contained within a single, hospital-employed, hematology-oncology practice consisting of 9 hematology-oncology physicians and 1 advanced oncology-certified nurse practitioner (NP). The practice is located on the campus of the Anne Arundel Medical Center, a 385-bed acute care facility, in Annapolis, MD. The

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practice sees an average of 77 patients and 14 inpatients a day, and is responsible for about 50 patients receiving chemotherapy each day in an adjacent building and administered by hospital-employed nurses. Before the introduction of the SCC, patients with symptoms were either counseled over the phone by the oncology triage nurse or physicians, worked into the clinic schedule as time allowed, or directed to go the ED for evaluation.

The SCC was introduced in June 2012, by creating dedicated slots in the schedule of the NP. On days when the NP was not present, physicians would try to see their own patients with urgent needs. Patients who contacted the practice with symptoms were referred to a full-time triage nurse, a position that already existed in the practice. The triage nurse reviewed the symptoms to ensure the symptom clinic was the appropriate venue for evaluation. Patients who called after hours were also referred to the SCC if appropriate by physicians who received the phone calls. New and existing patients were informed about the start of the program and infusion nurses incorporated this information in their chemotherapy teaching activities. It was intended that the NP would see the patient only on an urgent one-time basis and then arrange for additional follow-up in the oncologist's schedule.

The SCC did not operate on the weekends or after 4:30 pm. Other support services such as nutrition counseling, social work counseling, physical and occupational therapies, and spiritual care were provided by the DeCesaris Cancer Institute and available to patients as requested by the NP. Data was gathered on patient demographics, the nature of the chief complaints, disposition from the SCC, the number of admissions to the hospital for treatment of symptoms, and the number of ED visits. Data on inpatient oncology admissions for symptomatic management and ED visits for symptom management for the first 11 months of the clinic's operations were compared with data from the 12 months before the creation of the SCC. The analyses of this project were part of a performance improvement project and thus were exempt from IRB review, according to IRB guidance.⁶

Results

In the first 11 months of the SCC, 340 visits were recorded from 330 unique patients, representing all 9 of the physicians of the practice. Same-day, next-day, and 2 or more days later appointments were arranged for 62%, 25%, and 13% of all patients, respectively, depending on the patient's perception of the urgency of their complaint. The NP performed 66% of the evaluations, and the others were performed by the oncologists on their own patients when the NP was not present. Table 1 shows the chief complaints by category and the demographics of the 330 unique patients. Some patients had more than 1 chief complaint. Although the clinic was originally envisioned as an acute care clinic,

TABLE 1 Patient demographics, diagnoses, and presenting symptoms in the supportive care clinic^a

Median age, y (range)	66 (21-95)
Male:female	110:220
Diagnosis	No. of patients (%)
Breast cancer	98 (29.6)
Lung cancer	45 (13.6)
Hematologic malignancies	43 (13)
Gastro-intestinal cancer	41 (12.4)
Other hematology	24 (7.2)
Gynecologic cancer	21 (6.3)
Urinary system cancers	16 (4.8)
Other	42 (12.7)
Symptom	
Pain	60
Anorexia, nausea, vomiting, and/or diarrhea	51
Extremity or abdominal swelling	45
Fever	39
Chest pain and/or dyspnea	34
Rash	26
Fatigue	24
Cough or dyspnea	22
New nodules	21
Wound or skin infection	18
Bruising or bleeding	14
Dysuria	11
Port erythema or pain	6
Other	43

^aN = 340 visits from 330 patients over 8 months.

many of the complaints were chronic in nature. Laboratory evaluation consisting of blood counts and chemistry panels were obtained before or immediately after the visit for more than 90% of the patients. Radiology tests – chest X-rays, acute abdominal series, ultrasound, computer tomography angiograms – were obtained on an urgent basis for about a quarter of the patients.

Table 2 shows the disposition of patients from the SCC. Eleven patients were admitted directly from the SCC to the oncology floor: 4 were admitted for febrile neutropenia, 2 for leg swelling and poor functioning, 2 for pain control, 1 for symptomatic pleural effusion, 1 for radiation toxicity, and 1 for hypocalcemia. Three patients were sent directly to the ED from the SCC for further evaluation. Six patients

were invited to the SCC but did not go because they did not have transport or chose not to come. All 6 ended up in the ED within 24 hours of their initial call and all 6 were admitted. Three patients were referred for outpatient hospice care directly from the SCC. Admissions for symptom control declined from 39 admissions a month to 27 a month, a reduction of 31%. We estimated that 66 ED visits were prevented by engaging with patients through the SCC. Deaths occurred in 69 patients (21%) at a median of 117 days from the first SCC visit.

Nurse practitioner charges in the SCC were predominantly level 3 evaluation and management codes (99213), and hospital-administered clinic charges were predominantly level 1 (up to 15 minutes of clinical care time). Although 3 patients were sent directly to the ED from the SCC, no patient arrived to the SCC improperly triaged or presented with emergency conditions beyond the capabilities of the SCC.

Discussion

We found that a supportive care clinic embedded within our oncology practice successfully addressed the needs of an oncology population and reduced both ED visits and admissions for symptom management, compared with the months before the clinic was established. Through triage and patient education efforts we successfully avoided having any patient come to the SCC for conditions that would have been more properly evaluated in the ED. The clinic saw a mixture of patients receiving adjuvant therapy, those with advanced disease, and those close to death either pre- or post-hospice referral. The fact that only 69 patients (21%) died after a long median of 117 days after the SCC visit, suggests that the SCC did not serve a primarily end-stage patient population.

Our program was similar in structure to some previously described programs, though the latter were mostly adjuncts to the oncology practices and were not embedded within the practices. Whitmer and colleagues developed an SCC at the University Hospital in Cincinnati, Ohio.⁷ That program received patients through referrals from oncologists and not through direct contact with the patients. It also differed from our program in that the clinic continued to manage symptoms long term, whereas in our clinic, visits were stop-gap in nature until the patients could be reconnected with their primary oncologists. Our process allowed for the oncologists to be more directly involved in the oversight of the NP. The Cincinnati program also differed in that it was staffed with a multidisciplinary team that offered more services but also required more staff and could only be supported by a medical center and not a practice. Outcomes of patients seen in that program were not described. Ruegg has described another clinic associated with a university hospital at the James Cancer Center at Ohio State in which an NP was also the

TABLE 2 Disposition of patients from the supportive care clinic^a

Entity disposed to	No. of visits
Home	280
Infusion center	
For fluids	21
For blood products	21
Direct admission to hospital	11
Emergency department	3
Home with hospice	4

^aN = 340 visits from 330 patients over 8 months.

designated provider.⁸ The large patient volume at this NCI-designated, university-affiliated cancer center produced over 3,000 visits annually, which is large enough to justify a dedicated staffing. Disposition of patients seen in the clinic was not reported nor was data on the impact of ED visits and admissions.

The concept of embedding a clinic within an oncology practice has been described by Muir and colleagues.⁵ Their program, aimed at palliative care and pre-hospice patients, featured a partnership between a private provider of hospice and palliative care services and a US Oncology private oncology practice. The investigators identified a reduction in perceived symptom burden among patients who were seen in the clinic and a high referring physician satisfaction because of the time saved and the quality of care. No data was provided on ED visits or the number of admissions that were avoided, but data was provided on the number of minutes freed up for oncologists. An NP-led clinic at the University of Michigan Cancer Center that focuses exclusively on head and neck cancer improved some outcomes such as hospitalization rate, avoidance of dose reduction, and completion of a 7-week combined chemo-radiation therapy regimen based on retrospective chart reviews.⁹

A potential weakness of our study involves the interrupted time-sequence methodology. However, there were no obvious changes in conditions in the short interval before and after the SCC was established that would have influenced the results on ED visits and admissions. Another limitation pertains to the study's generalizability. There was considerable centralized oversight of the planning and operations of the SCC. In addition, the oncology practice had recently become a hospital-employed entity and had its clinic space on the hospital campus with access to adjacent radiology and laboratory services with rapid turnaround times for results. It also enjoyed a shared electronic medical record system with these ancillary services. It is not clear if these results could be duplicated in settings that do not have those features. In addition, not every oncology practice uses nurse practitioners or has the resources to use

NPs in this way. The flexible use of the NP allows the NP to “duty-share” between the fluctuating volume of a SCC and other responsibilities within the practice. This flexibility is not described and is possibly not needed in larger university-affiliated cancer clinic programs.

Our study design did not permit a detailed financial analysis other than to note that most visits were either level 3 or 4 evaluation and management codes and level one facility fees. A financial analysis of these data is of limited generalized usefulness because reimbursement patterns for nurse practitioner services vary by insurer, and allowable facilities fees vary not just by state, but among hospitals within a state. More important, the ultimate financial impact of supportive care clinics will be not determined by their relatively small income and costs, but by how they influence the more financially impactful ED visits, hospital admission, and readmission rates. In an era with increasing emphasis on controlling hospital admissions and readmissions, the Centers for Medicare and Medicaid Services and other payers are deploying tools such as nonpayment for readmissions within 30 days of release from hospital,¹⁰ accountable care organizations,¹¹ pay for performance to improve population health,¹² and global payments for episodes of care.¹³ In such an environment, avoiding financial penalties for admissions and readmissions at affiliated hospitals can far outweigh the profit and loss balance sheet of the individual SCC. Medical centers should thus take a strong interest in helping to expand such programs regardless of whether the oncology practices are hospital-employed or -affiliated, or independent. Beyond reducing oncology costs, improved supportive care can improve patient quality of life by keeping patients out of EDs and reducing admissions, worthwhile goals in their own right.

There is debate about whether symptom management and particularly palliative care can be handed off to other practitioners.^{14,15} Among the possible benefits are that the practitioners may have more expertise in some aspects of palliative medicine and/or may have more time for a more thorough assessment of the patient. Among the negative aspects of cleaving off supportive and palliative care are that it might further fractionate the patient experience and/or interrupt longstanding clinical relationships at a critical time of life, the practitioner might lack training in supportive and palliative care or not be as knowledgeable as the primary provider, and there might be a greater risk of miscommunication between the two sets of care providers. Embedding the clinics within a practice with a single electronic medical record system and staffing them with employees or close partners of the practice seems an appropriate method to address the shortcomings of each approach.

It is not clear how low the admission or readmission rate can be safely brought. A study of a 9-physician practice has shown a reduction of 50% in admissions and ED

visits by implementing a comprehensive oncology medical home approach.¹⁶ But not all admissions or readmissions for symptomatic care are preventable without more radical change in the support networks of patients or a change in the goals of care. It is apparent from this work and other reports that cooperative nurse practitioner models can be adapted to fit a variety of practice models in pursuit of these goals. SCCs can deliver higher-quality and lower-cost care and should be a goal of all oncology practices with or without their hospital partners.

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