Community Oncology Medical Homes: Physician-Driven Change to Improve Patient Care and Reduce Costs

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Abstract

Although the patient-centered medical home is a well-established model of care for primary care providers, adoption by specialty providers has been relatively limited. Recently, there has been particular interest in developing specialty medical homes in medical oncology because of practice variation, care fragmentation, and high overall costs of care. In 2012, the Center for Medicare and Medicaid Innovation awarded Innovative Oncology Business Solutions a 3-year grant for their Community Oncology Medical Home (COME HOME) program to implement specialty medical homes in seven oncology practices across the country. We report our early experience and lessons learned.

Through September 30, 2014, COME HOME has touched 16,353 unique patients through triage encounters, patient education visits, or application of clinical pathways. We describe the COME HOME model and implementation timeline, profile use of

Introduction

The patient-centered medical home (PCMH) depends on a personal physician directing integrated and coordinated teambased care, using evidence-based medicine and performance measurement, offering enhanced access, and contracting to achieve a payment structure that recognizes the added value of the PCMH.¹ There is some evidence that PCMHs may be successful in achieving better care, better health, and lower cost.² Most medical homes build on the Chronic Care Model (CCM), a program with documented evidence of improved chronic disease outcomes.³ Medical home patients report better doctor-patient interactions, coordination and timeliness of care, access to care, and helpfulness of staff.^{4,5} Recent studies have also demonstrated that medical homes can reduce costly emergency department (ED) visits by 15% to 50% and inpatient admissions by 10% to 40% in a variety of populations,⁵⁻⁸ although evidence on multipayer implementation of these models has produced disappointing results.9

Although the PCMH is quite well established in primary care, to date, adaptation of the concept to specialty providers has been limited. Alakeson et al¹⁰ proposed medical homes built around mental health care specialists for patients with severe and persistent mental disorders. The American College of Physicians has also supported specialty medical homes for subgroups of patients receiving extensive care over longer periods of time for specific conditions.¹¹

key services, and report patient satisfaction. Using feedback from practice sites, we highlight patient-centered innovations and overall lessons learned.

COME HOME incorporates best practices care driven by triage and clinical pathways, team-based care, active disease management, enhanced access and care, as well as financial support for the medical home infrastructure. Information technology plays a central role, supporting both delivery of care and performance monitoring. Volume of service use has grown steadily over time, leveling out in second quarter 2014. The program currently averages 1,265 triage encounters, 440 extended hours visits, and 655 patient education encounters per month.

COME HOME offers a patient-centered model of care to improve quality and continuity of care.

There has been particular interest in developing specialty medical homes in medical oncology because of practice variation, care fragmentation, and high overall costs of care. One medical oncology practice that achieved National Committee for Quality Assurance level III certification as a primary care PCMH reported a 68% reduction in ED visits and a 51% reduction in inpatient admissions for their patients treated with chemotherapy (per patient, per year).¹² United Healthcare introduced an oncology bundled payments pilot in five practices in 2010 and recently reported a 34% cost reduction for the 810 patients with cancer covered by the bundled payment program compared with matched fee for service patients.¹³ Cost savings in the United Healthcare pilot came from significantly reduced inpatient and ED use; costs associated with chemotherapy regimens were actually higher for patients at pilot practices. The Centers for Medicare and Medicaid Services (CMS) has also demonstrated significant interest in oncology medical homes (and associated payment reform), recently releasing initial plans for an oncology bundled payments program that could include direct support for medical home infrastructure.¹⁴ At the same time, ASCO has weighed in, proposing potential approaches to payment reform.15

In 2012, Innovative Oncology Business Solutions (IOBS) received a 3-year award from CMS to demonstrate replicability and scalability of their Community Oncology Medical Home (COME HOME) specialty medical home model in seven on-cology practices across the country. As COME HOME reaches

full functionality, we report on experiences so far and lessons learned during this implementation phase.

COME HOME Model

COME HOME includes seven features to ensure safe, efficient and high quality care.

1. Electronic Health Records

To facilitate timely sharing of near-real-time clinical information, all practices selected for the COME HOME program were experienced users of electronic health records (EHRs).

2. Best-Practices Care Driven by Triage and Clinical Pathways

To develop consensus on best-practices care and ensure timely implementation of those care protocols, two sets of pathways were developed. Triage pathways serve as decision support tools to First Responders (telephone operators) and triage nurses to ensure patients receive the level of care appropriate to their situation. Using an electronic interface, First Responders answer patient calls, ask scripted questions to determine if the patient is having an emergency, and connect patients to oncology triage nurses for clinical questions. Triage nurses use physician-approved, symptom-specific decision support tools to determine if the patient should be seen for a same-day appointment, should call 911, or should be given phone advice and scheduled for a follow-up call in 24 to 72 hours. Completion of the triage encounter generates electronic documentation for inclusion in the EHR.

Clinical pathways for diagnosis and treatment of common cancers were developed collaboratively during conference calls with practice physicians. Pathways address appropriate biomarker testing by using expert advice from leaders in the field together with imaging and treatment results. Implementation of these pathways is being driven through order sets and a back-end EHR interface that tracks whether each COME HOME patient is receiving treatment and care that is consistent with their designated pathway. Because there are a large number of "events" in each pathway, including diagnostic, therapeutic, and quality-related events, pathway compliance for each patient is calculated as the percentage of total events that are consistent with the designated pathway; thus, pathway compliance is a dynamic field, updated regularly based on patient progress.

3. Team-Based Care

To ensure that all patient care needs are met, medical teams include a range of providers, including medical oncologists, midlevel providers, registered nurses, licensed practical nurses, pharmacists, medical technologists, care coordinators, and First Responders. Many also include radiation oncology and diagnostic radiology. The key to team-based care is that, although the team is physician-led, high-quality, patient-centered care requires input from every member of the team, working at the top of their license.

4. Active Disease Management.

To empower them throughout their episode of care, COME HOME patients are provided with tailored information on their condition and treatment in electronic or paper format and are offered enhanced patient education encounters to discuss their cancer, treatment decision making, symptom recognition, self-care, pain management, caregiver support, and the medical home infrastructure. We also offer nurse counseling sessions for more one-on-one time.

5. Enhanced Access

COME HOME offers a round-the-clock triage phone line. Lines are staffed during regular office hours by First Responders using scripted decision trees. During evening and weekend clinics, triage nurses handle incoming calls, and when the clinic is closed, physicians with access to patient EHRs take calls (because of low call volume during those hours). Practices also offer patients same-day appointments and evening and weekend hours to ensure that patients are getting the right care at the right time in the right place (ie, the physician practice, rather than the ED). On-call oncologists responding to emerging situations, directly admitting (not through the ED), and limiting patient hand-offs are also a part of the enhanced access.

6. Enhanced Care

COME HOME practices also maintain on-site or near-site laboratory, pharmacy, and imaging capabilities so that patients have ready access to these services. Augmenting the existing oncology practice structure with these services allows the COME HOME practices to diagnose and treat patients with cancer far more rapidly than EDs or hospitals.

7. Financial Support for the Medical Home Infrastructure

Practices currently receive financial support through direct budgeting to build the medical home infrastructure and implement services not normally billable to Medicare or other insurers.

Implementation Timeline

The process changes associated with implementation of the COME HOME model were substantial and sequential, requiring significant external resources and guidance (available through the umbrella organization, IOBS), as well as internal effort and commitment. Specific services and functionalities followed a staggered roll-out (Figure 1). Initial implementation included triage pathways, followed by a gradual roll-out of evening clinic hours on weeknights, and then weekend clinic hours. Most recently, COME HOME practices have begun using electronic clinical dashboards to monitor and report pathway compliance (Figure 2).

New Mexico Cancer Center (NMCC) served as the betatesting site for all COME HOME infrastructure changes, implementing several of the modifications before CMS grant monies were distributed. Changes at other clinics sites were



Figure 1. COME HOME (Community Oncology Medical Home) roll-out of services

conducted in waves, with wave 1 (sites 2 to 4) implementing changes approximately 3 months after NMCC, and wave 2 (sites 5 to 7) implementing 3 months after wave 1. Practices were encouraged to offer COME HOME services to all clinic patients; five practices elected this level of implementation, whereas two elected implementation for Medicare patients only.

Staffing

Implementing the COME HOME model required practices to hire new staff, including nurses and clerical staff. Rather than use brand-new hires to staff COME HOME, however, practices supported the program with highly experienced staff and filled vacancies with the newly hired staff. This preferential approach to the program successfully communicated to employees and patients the importance and transformative nature of the COME HOME program.

Central Role of Information Technology

The COME HOME model relies heavily on information technology solutions to support both triage and clinical protocols. Because COME HOME practices use a range of different EHRs and practice management systems, we employed an external vendor, Nanthealth (formerly Net.Orange), to develop custom interface solutions.

A detailed set of triage pathway protocols focused on patient symptoms was first developed on paper and then converted to electronic interface after several months of beta testing. We continue to refine this decision support tool. First Responders (triage nurses in evening and weekend clinics) answer the telephone triage line and, following computerized decision trees, direct COME HOME patients to an appropriate level of care on the basis of their responses to the scripted questions. Computerized triage pathways are continuously monitored for timely and appropriate follow-up; compliance rates are monitored at the pathway, staff member, and practice level.

Detailed clinical pathways for diagnosis and treatment of seven common cancers (breast, lung, colorectal, pancreatic, thyroid, melanoma, and lymphoma) were developed collaboratively during conference calls with practice physicians and academic consultants. These have been translated into electronic format and integrated with practice EHRs, and now offer dashboard displays and near-real-time compliance monitoring to each practice. Nanthealth has been instrumental in data integration and data mart development to provide meaningful performance-monitoring data, accessible to physicians as well as administrators.

Patients Served

Of the patients served by the COME HOME program through September 2014 (Table 1), 52.3% were female, and the majority were white (88.1%), with sizeable Black (6.3%), Asian (2.2%), and Native American (1.4%) subpopulations. A significant number of patients (12.1%) also reported Hispanic ethnicity. Almost one half of patients served (46.2%) were covered by Medicare, although only one half of these (23.6% of total) were fee-for-service enrollees. Many patients (44.8%) reported having commercial insurance. Patients with breast cancer formed the largest group (44.9%), followed by those with lung (17.1%) and colon (16.4%) cancer. All other cancer diagnoses comprised 21.6% of COME HOME patients.



Figure 2. COME HOME (Community Oncology Medical Home) implementation timeline. Ext., extended.

Characteristic	No.	%
Female sex	8,553	52.3
Race/ethnicity		
White	14,407	88.1
Black	1,030	6.3
Asian	360	2.2
Native American	229	1.4
Other/unknown	327	2.0
Not Hispanic	12,167	74.4
Hispanic	1979	12.1
Unknown	2,207	13.5
Insurance		
Commercial/private	7,326	44.8
Medicare FFS	3,859	23.6
Medicare Advantage	3,696	22.6
Other	1,472	9.0
Diagnosis		
Breast cancer	7,342	44.9
Lung cancer	2,796	17.1
Colon cancer	2,682	16.4
Other	3,533	21.6
Total	16,353	100

Table 1. COME HOME Patient Characteristics: InceptionThrough September 30, 2014

Abbreviation: FFS, fee for service

Utilization

Telephone triage, extended clinic hours, and patient education encounters have been extremely popular among patients. In third quarter 2014, the program (seven practices) averaged 1,265 nursing (triage) encounters, 440 extended hours visits, and 655 patient education encounters per month. Figure 3 provides an overview of telephone triage call volume over time and across the seven practice sites. In 2013, the COME HOME program saw a relatively rapid increase in triage call volume as practices came online in waves and patients and providers became aware of service availability (Figure 3A). Volume peaked in March 2014 and has remained relative steady since that time. Call volume per 1,000 active patients varies significantly across practice sites (Figure 3B), with one practice averaging more than 35 calls (per 1,000 active patients, per month), one averaging approximately 25 calls, three averaging 12 to 15 calls, and two averaging fewer than five calls. We are currently investigating root causes and assessing impact of these varying levels of utilization on outcomes and cost.

Patient Satisfaction

Patient satisfaction with COME HOME has remained high since inception, with overall satisfaction rates, as assessed by the Community Oncology Alliance Consumer Assessment of Healthcare Providers and Systems–based instrument, always above 90% and exceeding 92% at the time of this report. We have encouraged practices to share the innovative ways they are meeting patient needs, either by e-mail or on monthly administrator calls. A few examples include:

- Patients starting walking in during extended hours without using the triage phone line first (ie, self-referral). In response, we developed face-to-face triage pathways for walk-in patients, mirroring the COME HOME telephone triage pathways.
- A 78-year-old patient with kidney cancer who was also caring for his disabled wife called the triage line to report a foot wound. Although he was receiving home health care assistance, the wound was not healing and continued to drain. The COME HOME practice was able to bring him in for a wound culture and antibiotics during extended hours, when one of his children could care for his wife.
- A patient with terminal cervical cancer with ongoing nausea and dehydration issues was able to remain home until the last week of her life, when hospice could no longer support her care needs. For almost 2 months, she came to the COME HOME practice twice a week (with her daughter) for fluids and nausea medications, experiencing a highly patient-centric alternative to hospital care.

Lessons Learned

Implementing medical homes in community medical oncology practices has required that both IOBS, the managing organization, and the participating oncology practices commit to shared learning and make significant changes when necessary. Oncology medical homes are not "business as usual" for practices.

One of the first major lessons learned through COME HOME has been that creating specialty practice medical homes requires significant culture shifts for some practices. Reorganizing care to ensure that patients seek care in their medical oncology home rather than at hospitals and EDs requires significant time and effort on the part of practices and the creation of strong teams. We encountered resistance from some expected places (older physicians) and some unexpected places (senior nurse leadership). In some cases, these cultural divides were overcome by open communication between practice leadership and dissenting voices. In other cases, those who strongly disagreed eventually left the practice.

Bringing practices online in stages and waves allowed beta testing and subsequent refinement of functions and features and facilitated practices learning from each other. The COME HOME team and practice administrators have met monthly to review implementation experiences and share best practices. IOBS staff offer a helpdesk from 6:00 am to 8:00 pm weekdays and 7:00 am to 4:00 pm on weekends to support staff at the practices in their daily implementation of the program. Issues and frequently asked questions are shared with user groups and used to refine service delivery and decision support systems (triage, clinical pathways). Rapid cycle evaluations have been used to determine paths for improvement. For example, one assessment focused on reasons why patients refused triage pathway guidance (usually "come in to clinic immediately" or "dial 911") and outcomes resulting from their refusal. Analyses revealed that these patients had transportation issues or copay-



Figure 3. COME HOME (Community Oncology Medical Home) triage calls. (A) No. of calls per month; (B) No. of calls per 1,000 active patients per month.

ment concerns and that they were likely to end up in the ED. On the basis of these results, multiple pathways were changed to include calls back to patients 1 to 2 hours after their refusal of initial guidance. Some practices were able to arrange free transportation services.

We have also tried to balance model fidelity with realistic accommodation of local provider and patient culture. During practice roll-outs, IOBS staff visited each practice site twice to conduct on-site training and discuss how the practice would implement program requirements. Monthly compliance dashboards monitor implementation of key program features; failure to meet targets is communicated and discussed with appropriate practice staff and leadership. Practice administrators also meet monthly with IOBS leadership to discuss global implementation issues and practical solutions that work for their practices.

Patient engagement is also critical to COME HOME model success. From the first day that a patient is cared for in a COME HOME practice, staff work with patients to emphasize calling the practice first for all their health care needs, understanding their cancer and early warning signs of adverse clinical events, and anticipating problems and concerns. These messages need to be re-emphasized regularly, especially with Medicare patients, some of whom feel they "shouldn't bother the doctor" and end up seeking care later than they should. Our comparison of patients who did and did not use the COME HOME triage line found a strong relationship between failure to use the triage line and emergency department use.

A final implementation lesson that is important to highlight is the cost and challenges of IT integration. EHR and PMS data integration are critical for patient tracking and benchmarking of quality and utilization measures, and the cost for just seven practices far exceeded initial expectation because of custom integrations. In general there is very little standardization among EHRs and their proprietary software requires all EHR-based changes be built and implemented by software vendors. In addition, robust clinical data collection is also highly dependent on clinicians completing patient records accurately and efficiently, using appropriate structured data fields whenever possible. We are now conducting a series of audits and quality improvement efforts to meet performance standards for outcomes and compliance tracking.

Discussion and Policy Implications

The COME HOME experience so far has demonstrated that it is possible to build highly patient-centered oncology medical homes that take advantage of information technology to support best-practices care. We have built oncology medical homes at a variety of community oncology practices across the country, indicating that our COME HOME model of care is scalable and replicable. Our next goal is to gain enough experience with the model to determine the impact of the program on patient outcomes and cost.

Anecdotal evidence on the program's early impact already suggests that COME HOME is substantially reducing ED use and hospitalizations. For example, one practice temporarily cancelled extended hours for a weekend because their EHR was down for maintenance. The on-call physician contacted administrators to report the unusually high volume of calls he received, a reflection how many patients were usually seen by the COME HOME weekend clinic. This same practice has lost their assigned internist because of significant declines in inpatient admissions. Another practice reports they have let admitting privileges at one of their local hospital lapse because they are not admitting as many patients as before.

The significant initial and ongoing investments required to support the COME HOME model of care cannot be sustained within our current fee-for-service payment structure. Current support for the program is being paid through direct grant support from CMS. In the absence of this support, costs of the medical home infrastructure would be borne directly by the practice, while any savings associated with reduced ED use and inpatient admissions would only accrue to payers. Obviously this is not a sustainable flow of funds. Payment reform is essential to allow practices investing in patient-centered care to realize some of the cost savings that result from their efforts.

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AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

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