The Patient-centered Medical Home: How to Advance Patient Care through Technology

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The process of applying for National Committee for Quality Assurance recognition as a Physician Practice Connections–Patient-Centered Medical Home (PPC-PCMH) can enrich even those practices already solidly committed to providing patient-centric care based on evidence-based medical guidelines. The goal is to leverage information technology to transform both operational and patient care procedures. But even with robust technology, PCMH certification requires team commitment and an unremitting big-picture focus. This article provides an in-depth case study that shows how one groundbreaking Arizona practice used technology to reach the pinnacle of PCMH certification–and continues to use it to improve the quality of patient care.

Key words: Patient-centered medical home; quality improvement; NCQA; electronic health records; practice management system; information technology.

When the Gilbert Center for Family Medicine (GCFM) opened its doors 24 years ago, the term "patient-centered medical home" was nowhere in the clinical lexicon. Although the practice's physicians rapidly gained a reputation for providing patient-centric care based on evidence-based medical guidelines, few tools existed to aid their endeavors. Those were the days of old-fashioned scheduling books and pegboard billing systems. Electronic health records (EHRs) did not exist.

Over the years, of course, technology came along that eased scheduling needs and back-office functions. While this technology was valuable in its own way, it could not completely support the providers in their quest to enhance the quality of patient care. By 2003, they were convinced GCFM needed an integrated practice management and EHR platform if they wanted to further improve their clinical and operational goals.

That belief proved insightful. In 2009, GCFM demonstrated that care quality *can* benefit from technology when it became the first practice in Arizona—and one of the first nationwide—to earn National Committee for Quality Assurance (NCQA) recognition as an advanced, Level 3 Physician Practice Connections—Patient-Centered Medical Home (PPC-PCMH).

IT/PATIENT CARE ALLIANCE

The PCMH concept is designed to strengthen physician/patient relationships and evidence-based care through processes that leverage information technology (IT) and health information exchange (HIE). The definition created by the American College of Physicians, the American Academy of Family Physicians, the American Academy of Pediatrics, and the American Osteopathic Association explains it this way:

> " . . . a model of care where each patient has an ongoing relationship with a personal physician who leads a team that takes collective responsibility for patient care. The physician-led care team is responsible for providing all the patient's health care needs and, when needed, arranges for appropriate care with other qualified physicians. A medical home also emphasizes enhanced care through open

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scheduling, expanded hours and communication between patients, physicians and staff."[1]

Practices applying for one of NCQA's three levels of recognition are scored against the following standards: access and communication; patient tracking and registry functions; care management; patient self-management support; electronic prescribing; test tracking; referral tracking; performance reporting and improvement; and advanced electronic communications.[2] Scoring is based on a 100-point scale, with several "must-pass" elements to be achieved before recognition will be granted.

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As you can see from the standards, the program requires practices to evaluate how well they systematically use IT applications to improve care for—and communication with—their patients. It's important to note, however, that achievement is not limited only to large practices or those with well-staffed IT departments.

GCFM, in fact, is a single-location, independent family practice clinic. The three physicians and three certified family nurse practitioners handle roughly 28,000 office visits annually.

Because it's not part of a hospital group or group practice, it sinks or swims on its own merit. That's why, in 2003, GCFM began seeking ways to eliminate paper processes entirely.

KEY FUNCTIONALITY

We began our technology search with one primary criterion: no interfaces. From the outset, we limited ourselves to those vendors that could offer integrated EHR/practice management solutions. We settled on three serious contenders and measured each against its ability to satisfy a core set of desired functionalities.

For the EHR, these included:

- **A Windows-based operating system:** Without a dedicated IT department, we felt that the average user would navigate and query more easily through a Windows-based system than one built on UNIX.
- **Template-oriented architecture:** This is important for data-mining activities; it's difficult to query data that are formatted as unstructured text.
- **An open database:** We wanted the ability to mine third-party data, as well as our own.
- **Ancillary interfaces:** In addition to seamless EHR/practice management data exchange, we wanted to reduce paper flow by interfacing with the laboratory system and other ancillaries.
- **Scanning capability:** Converting all paper charts into electronic charts meant becoming paperless faster.

The three chief criteria we set for the practice management system were:

- **Auto-tasking functionality:** We wanted to increase billing efficiency by auto-tasking accounts receivable (A/R) work to our billers.
- **A/R reporting:** We sought to strengthen our financial insight via robust A/R reporting tools.
- **Flexible scheduling:** We desired a better patient flow throughout the office.

We found that the functionality offered by one solution satisfied nearly all of our criteria. Then we had the opportunity to compare five EHR systems side-by-side at a Toward the Electronic Patient Record (TEPR) annual conference. One of them happened to be our front-runner, NextGen Healthcare. After watching all five vendors walk through a hypothetical patient visit, we knew we were headed in the right direction. What we didn't know, of course, was that our IT implementation eventually would lead to more than just a reduction in paperwork.

IMPLEMENTATION STRATEGY

I believe the order in which we rolled out our NextGen technologies played a crucial role in their ultimate success. We started with systems and staff with the least direct impact on patient care. So the practice management system came first. We went live one Tuesday in October 2003 and seven days later received our first insurance check.

EHR go-live followed a few months later, on January 1, 2004. This, however, was a very deliberate two-step process that involved implementation for the staff before the physicians. The reason was simple: we wanted to ensure the staff could fully support the physicians before bringing the EHR into the clinical setting. For a few months, therefore, we allowed the physicians to dictate notes that were then printed on paper and filed in the chart.

GCFM relied heavily on one of our tech-savvy clinicians to champion the template development process. Initially, he used the EHR to document his patient visits until his schedule lagged behind by a certain number of minutes, at which point he returned to dictation. His experiences then were incorporated into our template design.

Only when all of the support staff and the inaugural clinician were comfortable using the HER system did we then train the other clinical staff. By July 2004, we were operating in a fully paperless environment.

ON THE PCMH VANGUARD

Four years later, GCFM received a phone call that would revolutionize its use of IT. In July 2008, United

Healthcare (UHC) asked whether we were interested in participating in a "patient-centered medical home" pilot project.

We really didn't know much about the medical home concept at the time. It was vaguely described as a project designed to track the potential of IT to foster quality improvement and cost savings. I was intrigued, but didn't truly believe GCFM would see much clinical enhancement—we already were fairly advanced in our IT use.

GCFM was one of seven practices chosen for the pilot. Then in February 2009, UHC offered additional reimbursement to participants that applied for NCQA's PPC-PCMH recognition by April 1. Needless to say, the next seven weeks were a whirlwind.

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Initially, our intent was to apply for Level 1 recognition—the most basic of the three levels. It requires practices to earn 25 to 49 points and demonstrate five "must-pass" elements. The more I looked into our processes, however, the closer we edged toward Level 3 recognition. Level 3 requires 75 to 100 points and all 10 "must-pass" elements; I had demonstrated 76 points and all 10 elements by the time I finished the application.

Three months later, GCFM became only the second practice in the state to receive PPC-PCMH recognition—and the first to do so at Level 3. It was a lot of work, but worth it. We benefitted financially from incentive dollars, but better yet, I quickly found out how wrong I was about our capacity for improvement. PCMH recognition has definitely enhanced the quality of our patient care.

TRANSFORMATIONS

For years, GCFM essentially operated under the "best practices" principles espoused by PCMH—just without the formal guidelines. But those guidelines are significant. They provide a framework for constantly monitoring and measuring results to spur growth. It's analogous to playing golf: if you don't keep score, you can't get better. The chief benefit of PCMH is awareness; day-by-day, patient-by-patient, each physician now is more cognizant of every opportunity to improve care quality.

But PCMH requires the entire staff—not just clinicians—to take responsibility for the care process. At GCFM, front desk staff ensures all patient demographic data are current, for example. Scheduling staff arrange for necessary lab tests to be done *before* the patient's visit, so the results will be available during the appointment.

In this respect, even with robust IT use, PCMH takes more staff and physician time, and more overall effort. In the end, it is worthwhile because of the clinical transformations it engenders. Here are a few examples of how IT and reporting have become essential ingredients in care improvement at GCFM:

- **Diabetes:** A rigorous diabetes program yields success with HbA1c control, with compliance in the 99th percentile compared with Mountain HMO/POS HEDIS rates. We provide each diabetic patient with a contract that spells out our providers' responsibilities and the patient's responsibilities (e.g., receive an HbA1c test at designated intervals) for treatment. I run reports to see which patients are not in compliance with their contract terms; providers then follow up to encourage necessary services. AQ: 2
- **Nephropathy:** Despite the successful HbA1c program, a new report we just developed found that compliance monitoring for nephropathy was well below the 50th percentile. Checking for nephropathy annually is part of our "diabetic contract" and practice standards, and is tracked in our disease management—but had not been reported by practice or by provider. The additional reporting uncovered this missed care management element—which now is being addressed.
- **Care calls:** We use patient phone calls for care compliance efforts as well as appointment reminders. The physicians record messages for patients via the third-party vendor that provides our appointment reminders. When clinically indicated, patients receive messages directing them to call a specified phone number to retrieve care instructions from their doctors (pre-op directions or preventive care reminders, for example).
- **Discharge follow-up:** GCFM is pleased about better care collaboration with the hospital that handles 75% of our patient admissions. Hospital clerks enter the names of patients' primary care providers into their admission system; the system then sends us an e-mail alert when one of our patients is admitted. We receive another e-mail when the patient is discharged. Thus we always know when patients get to the hospital and when they leave, which helps prevent duplicate diagnostic testing, for example. It also enables better transitional care; another prompt alerts GCFM to follow-up with patients the day after discharge.
- **Diagnostic follow-up:** Staff members run reports on patients sent for radiology studies, laboratory tests, and specialist consultations to make sure all care was provided; alerts ensure that GCFM receives all necessary results within expected timeframes.
- **Chart access:** Care transitions benefit because GCFM providers can access patient charts in the hospital's EHR through a pilot HIE program. One example: earlier this year one of our patients went to the emergency department at 3 a.m. complaining of ear pain. She was sent home, but a few hours later her eardrum burst. She called GCFM, and we scheduled her for an 8:30

a.m. appointment—with the emergency department physician's notes readily available for our physicians.

- **Documentation compliance:** GCFM providers monitor the appropriate completion of their documentation at every visit—history of present illness), review of systems, plan, etc. The expectation is that providers will run a report and clean up any documentation lapses before they leave each day. In addition, I run a monthly report to gauge compliance. (It once revealed, for instance, that medical assistants (MAs) were providing injections but forgetting to check the "complete" box on the visit template. Once highlighted, the problem soon was remedied.)
- **E-prescribing:** All patient prescriptions are electronically generated, recorded, and checked for drug interaction and allergies. Consequently, GCFM is able to run many reports on the patient-, provider-, and practice level to improve care management. In addition, most of our prescription refill requests come to us electronically from pharmacists. They typically are filled within two hours (an average that includes requests on nights and weekends).
- **Wellness initiatives:** In addition to monitoring chronic problems like diabetes, hypertension, and hyperlipidemia, GCFM also measures compliance with evidence-based guidelines for patient wellness services. Health maintenance factors into each step of every visit. Patients are given personal health summaries to review at check-in, and the rooming process includes face-to-face review of wellness issues. MAs are empowered to book future appointments or generate preventative testing orders for the providers to sign. Furthermore, we run practice-wide reports to determine patient wellness needs and generate automated reminder calls to encourage patient compliance. If necessary, these are followed by personal calls from our MAs. As a last step, providers are notified to determine "next steps" to convince patients to become proactive about their wellness. Overall, this approach has resulted in compliance gains to the 90th percentile compared with Mountain HMO/POS HEDIS—and we expect that number to go higher.

CONCLUSION

Before earning Level 3 PCMH status, I have to admit that I firmly believed GCFM had little room for clinical improvement. After all, the practice had long operated on principles of total, evidence-driven patient care.

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After reaching the pinnacle of PCMH recognition, however, I now believe robust IT functionality and vigorous reporting efforts are essential components for practices that wish to achieve consistent care excellence. I concede that the PCMH process has helped GCFM expand the quality of patient care beyond the limits we once thought possible. ■

REFERENCES

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