Abstract

We are a large multispecialty medical group with over 1,200 clinicians. We have transformed our delivery system through a strong system of leadership and by redesigning key elements of our patient value stream. Through these efforts we have:

- Assumed collective responsibility for the quality and cost of care of our patient population by linking patients to a personal care physician and coordinating the care continuum;
- Adopted medical management principles to shape a new culture that puts patients at the center of their care experience;
- Embraced LEAN practices in order to redesign our value streams and standardize work;
- Institutionalized our medical home model to all 26 of our primary care sites, resulting in a net savings of $10 per member per month;
- Engaged patients to share in decision-making and to access care via multiple channels to including virtual visits, secure messaging, guided care, case management, and 24/7 access;
- Adopted sophisticated performance metrics at the patient population level to measure quality, cost, and satisfaction outcomes of our value stream redesign;
- Reduced Emergency Department visits and unnecessary hospitalizations, resulting in a savings of $6.5 million per month;
- Implemented a robust and fully implemented electronic health record and we use it to enhance electronic patient access, support clinician collaboration, and extend the reach of our care team;
- Vertically integrated our medical group and a financing system to better our cost/quality value proposition; and
- Expanded our delivery model to community partners.

Key transformative elements of our delivery system redesign include:

<u>Primary Care:</u>

- A personal care physician and a personal care plan for each patient.
- A patient-centered medical home model in each of our primary care medical centers.
- Virtual medicine manifested by electronic and telephonic enhanced access.
- 24/7 patient access to a care team involving consultative nurses and physicians.

<u>Specialty Care:</u>

- Shared decision-making with patients for preference-sensitive conditions, resulting in lower procedure volumes and costs.
- Delivery system redesign for specialty care, behavior health, lab, imaging, and pharmacy.

<u>Coordination of Care</u>

- Specialty consult pools that provide feedback to primary care physicians in “real time”.
- Extensive patient outreach, case management, and care management.

<u>Transitions of Care:</u>

- Emergency department/hospital initiative that has lowered readmission trends, reduced average length of stay, and improved patient satisfaction.
- Skilled nursing facility (SNF) placement coordination, resulting in reduced hospital days.

Together, these changes have led to improvements in quality, patient experience, and affordability, thereby improving value to our patients. By making a bold leadership decision to engage with community medical groups and physicians around delivery system redesign, we are expanding the scope and reach of accountable care. In the future, we will be part of an even broader network of that assumes collective responsibility for the quality and cost of our patient population.

Brief Organizational Profile

We are a multispecialty group of over 1,200 clinicians that partners with a not-for-profit, consumer-governed cooperative. Together we integrate to finance and deliver care to 628,000 patients.

Financial: Consolidated operating revenue over $2.8 billion.

Clinicians: Over 1,200 employed clinicians working in 82 specialties; our patients are also treated by approximately 6,000 community-based physicians.

Patient Population: 628,000 patients.

Patient Encounters: 1.4 million encounters annually, with 30% of conducted through virtual medicine (secure messaging between physician and patient).

Facilities: 26 primary care medical centers, six specialty centers, seven behavioral health clinics, 14 eye care clinics, 40 contracted hospitals.

Staff: Over 9,300 employees (7,500 FTEs) including 1,700 nurses with 34 specialties and certifications.

Research Institute: Our enterprise is supported by a Research Institute that is largely externally funded. This research arm plays a key role in measuring and publishing performance outcomes in the areas of cost, quality, service, and satisfaction at the level of our patient population.

Foundation: Our Foundation plays an active role in improving our delivery system of care. Besides its philanthropic endeavors, the foundation carries out leadership development and clinical innovations projects.

Electronic Health Records: We have a robust and fully integrated electronic health record which has been fully implemented since 2003. We work to align incentives along the full continuum of care.

Principles: Medical management principles shape our culture that places the patient at the center of our delivery system. LEAN management tools serve as a catalyst for redesign and permits us to practice full value stream thinking. Daily management and work measurement ensure continued momentum for implementation and sustainable improvement.

Overview

Our medical group has partnered with a consumer-governed cooperative to form a delivery system that integrates the financing and delivery of healthcare to our patient population. We have embarked on a model of whole-practice transformation that is designed to bring greater value (high quality, lower costs) to our patients. We work to leverage our system through coordinated performance to create innovative models of care and service delivery.

Value stream redesign takes place via rapid process improvement teams to reduce waste, improve quality and reduce costs. Leaders, clinicians and patients are involved in articulating design principles and reforming our model of care. Process performance metrics at the level of the individual, clinic, service line, and patient population are shared via visual displays to permit easily recognition of success and performance gaps to drive change.

Our whole-practice transformation starts with our primary care base, where patients have a personal care physician and are situated in a medical home. The reform of our delivery system extends to the full continuum of care, including specialty, hospital, and home care as we work to ensure patients receive "the right care at the right time at the right place at the right cost".

Internal and External Change Drivers

Our clinicians served as the most important internal change driver for delivery system reform. Between 2002 and 2006 we implemented a series of changes to our delivery system in an attempt to enhance efficiency and patient access to care. This included same-day appointments, direct access to specialists, and an electronic medical record with an on-line Web portal for patient information access. While these changes succeeded in improving patient access, our primary care physicians reported unsustainable workloads, challenging our ability to recruit and retain quality physicians. This led to the decision in 2006 by our leaders to embark on a two-year pilot (Jan 2007-Dec 2008) of a patient-centered medical home model which we have now spread to each of our primary care medical centers.

A second internal change driver was the realization that simply providing better value to our patients within our own organization would not achieve our strategic goals. Our patients are also seen by medical groups and physicians in the community. In order to optimize value, we recognized that we needed organize our delivery system around the patient and partner with the community to better outcomes for our patients. For example, cross-functional improvement efforts to address our patient value stream through an integrated system with community health partners involves our Emergency Department-Hospital integration Initiative (EDHI). This has reduced hospital admissions and average length of stay. As another example, tools provided to community physicians have fostered shared decision-making with patients and have provided decision support to reduce variation in high-end imaging orders.

External change drivers include:

- Changes in the legal and regulatory environment that steer organizations toward coordinated, integrated, and accountable models of care;
- Changes in the financing of healthcare to include consumer-directed plans and pay-for-value plans;
- A patient population that is increasingly requiring transparent value in the cost and quality of their experience;

- Changes in patient demographics involving a more senior patient population and one that presents with multiple chronic care conditions that require personalized care plans, guided care and patient activation; and
- The steep trend of our external delivery costs which took us in the direction of extending key elements of our delivery system redesign with community physicians to partner in improvements in quality and reduce costs for our patients.

Integration of IOM Aims into Mission and Corporate Strategies

Our mission is to provide patients with quality, personalized, coordinated medical care in a professionally satisfying group practice. Our strategic plan demonstrates our commitment to the IOM aims of safe, effective, patient-centered, timely, efficient and equitable health care and our strategies and goals are designed to continuously innovate to achieve these aims. Key elements of our strategy include:

- Improve Community Health and Lead Quality Outcomes: Deliver high quality, personalized care; optimize access and value; engage patients in their health; develop performance metrics and educate others to quality outcomes, content of care, and healthy living and wellness;
- Engage Clinicians: Engage clinicians in delivery system redesign; ensure clinicians have the right tools and support to care for a patient population and to manage continuity of care and care transitions;
- Remove Affordability as a Barrier to High Quality: Leverage the integration of finance and delivery; use a rich electronic health record and community partnerships to better system performance in service to patients; and
- Extend our Network of Care to Community: Leverage our model to community partners to achieve better outcomes for our patient population.

Management Principles

We adopted management principles to align the medical group. Examples include:

1. Our integrated delivery system and ability to coordinate all aspects of the care and service experience are our differentiating factors. We will leverage these attributes to assure that we attain better outcomes and lower costs.
2. We strive for every patient to have a personal care physician, trained in a primary care specialty. We believe that this model of care leads to better outcomes, is inherently less expensive, and is more likely to meet patient expectations.
3. The role of the personal care physician is to engage in continuous healing relationships with patients (beyond treatment of acute and chronic illness, management of injuries, and provision of preventive care).
4. Efficient, high-quality, and patient-centered care must be delivered as a system property rather than based on individual heroic efforts. To that end, the entire enterprise is accountable in supporting these outcomes.
5. Specialty physicians provide expert consultation and treatment of our patients in accordance with explicit expectations and in support of the patient-personal care physician model.
6. Access to care is a key quality of our delivery system and is provided through multiple channels. Our patients will help us define what is required by virtue of their expectations.
7. Population management and chronic disease management will be provided as system properties and will be integrated seamlessly into our entire system of care. We embrace scientific rigor and evidence-based principles in care delivery.

The Six Attributes of an Ideal Health Delivery System in Action

The six attributes of an ideal health delivery system identified by the Commonwealth Fund Commission on High Performance Health Systems are met through the redesign of our internal delivery system:

Clinically relevant patient information available to all clinicians and to patients: We were an early adopter of a sophisticated and robust electronic health record. All internal clinicians utilize this record, and importantly, a large volume of our patients actively access their personal records (i.e., test results, visit summaries, and care and treatment plans), obtain medical advice (i.e., patients interact with their care team via secure messages and with our 24/7 nurse/physician service), obtain education (i.e., access educational tools) and manage business needs (i.e., schedule visits, request prescription renewals).

Patient care is coordinated and transitions of care are actively managed: We have adopted a singular focus on "the right care at the right time at the right place at the right cost." Coordinated care across the continuum of services and facilities is driven by the patient's personal care physician and care team. Case managers actively work with patients prior to, during, and after hospitalization to ensure that transitions of care are well-managed and also proactively manage patients based on care conditions. Our Emergency Department/Hospital Initiative with our community partners has reduced readmission rates for patients and reduced average length of stay, and we have extended care coordination to residential care.

Members of the care team are accountable to each other, review work and collaborate to deliver high-quality, high-value care: At the care team level, visual displays of redesign process and performance outcomes are utilized to demonstrate the outcome of system redesign and create accountability for value-based care. Specific measures are visually displayed for individual performance (tier one), clinic-level performance (tier two) and at the service line level (tier three), as well as the impact to the patient population. Through this visual display, individuals receive daily feedback regarding their performance in relation to targets. The visual and transparent nature of how the measures are reported provides the catalyst for improvement and also ensures friendly competition between clinics as they work to improve our patient value stream. Daily huddles of the care team occur at each practice site and include performance outcomes. Progress toward goal achievement is shared with all care team members. Positive outcomes create momentum for continuous improvement and negative outcomes permit discussion of performance gaps in "real time" to ensure course corrections.

At the physician level, we have aligned our compensation plan with our strategy. We have instituted a 360 degree assessment that involves a minimum of ten evaluations from peers and team members. Our physician compensation plan, while largely salary based, includes variable compensation for productivity, quality, and service. We have also instituted individual and team incentives and incentive plans for medical group leaders. A pay-for-value plan between the medical group and cooperative aligns the two organizations on strategic goals focused on high-value care for our patients.

Patients have easy access to appropriate care with multiple points of entry by clinicians who are culturally competent and responsive: Patients select the patient access method that best meets their personal needs. Access methods include secure on-line messaging, face-to-face visits, telephone consults with nurse triage staff, virtual visits with physicians, local urgent care access, and 24/7 access to consulting nurses and physicians. Each patient has a personalized care plan and data is tracked at the individual physician level to identify defects in meeting the care plan for each patient. This data is then aggregated to measure defects at the level of the physician's panel and our patient population at-large. Outreach to the patient occurs with proactive contacts to patients with chronic disease management and to manage transitions of care by health coaches, case managers and nursing staff. The patient's care plan is also addressed during opportunistic visits and during the patient's annual physical.

Our leaders and clinicians participate in cross-cultural competency forums. Classes on communication involving cultural competency are required for all new physicians and include "skills practice", applying the skills via role-playing. A Plain Language Group meets to review all of our patient materials to ensure cultural and educational appropriateness. On-boarding of new physicians includes our mandatory attendance at our Associates Program, involving six separate tracks over a three-year period. This program includes motivational interviewing skills to elicit patient engagement. Patient survey instruments are used to assess physician respect and communication style, with intensive classes and coaching mandated for physicians who do not meet expectations.

Clear accountability for the total care of patients: Our model involves coordinating care in all settings and in all transitions of care, to include primary care, specialty care, hospital services and home health. Our quality and cost measures are published at the level of a patient population, reflecting the full continuum of care. We further align incentives via our compensation plans at the individual and team level to meet our goals for accountable care, providing variable compensation for productivity, quality and satisfaction.

The system is continuously innovating and learning: We seek to remove affordability as a barrier for our patients and to redesign our patient value stream. This requires a relentless focus on our systems and processes to reduce waste and increase value. We use LEAN practices which involves a structured process that facilitates innovation and continuous learning through the use of Plan-Do-Check-Act and other continuous improvement tools. Leaders, clinicians, staff and patients come together in small, focused, and intensive work groups to achieve innovative solutions. Implementation of our redesign work is reported in visual displays that are updated daily. Walking rounds by assistant medical directors and assistant administrative directors and daily management by on-site medical directors and managers create alignment and engage clinicians and staff in continuous improvement. As an example of continuous learning, we examined the elements of our medical home model demonstration project. Each element was systematically broken down into its component parts, refined, and then individually tested and continually refined for a nine-week period in three pilot sites. Each work element was then rolled out across 26 clinics in a 10-week cadence.

Our Most Critical Change

The transition to electronic health records gave us the infrastructure needed to transform our delivery system. This revolutionized our patient interactions and permitted us to expand to virtual visits and secure messaging. Notably, we did not simply replace a hard copy chart with an electronic version. Instead, we strategically integrated electronic health records by innovating our delivery system as we planned and implemented our EHR. Leaders and clinicians defined a new model of care. We aggressively marketed our patient portal, encouraging patients to submit secure messages to their teams and to access and participate in their on-line records. Today, 30% of our patient encounters are conducted via secure messaging.

How We Measure Success

Success is measured through:

- Industry survey instruments, including the Ambulatory Care Experiences Survey, Patient Assessment of Chronic Illness Care Survey and Maslach Burnout Inventory administered to patients, clinicians and clinical staff to assess patient and staff experience and satisfaction;
- Clinical quality measures to include 22 Healthcare Effectiveness Data and Information Set (HEDIS) indicators aggregated to four composites with the patient as the unit of analysis;
- Utilization rates including emergency room and admission rates, continuity of care with a single clinician, face-to-face visits, group visits, self-management workshops, secure message threads, and telephone encounters;
- Costs associated with changes to our delivery model pmpm and overall for our patient population;

- Process components of our model of care, such as the extent of previsit outreach to patients and post emergency department follow-up efforts initiated with patients; and
- Visual displays in each care team of process and outcomes measures in comparison to targets and trended over time.

Leadership

Linkage of Goals to Overall Mission and Strategic Planning

Our strategic plan lays out four key elements to achieve our mission: 1) Improve community health and quality outcomes, 2) engage clinicians, 3) remove affordability as a barrier to care, and 4) extend our network of care to community. Specific action plans required to achieve these goals have been articulated. Examples of the linkages between our strategy and goals is provided below.

Goal 1. Improve Community Health and Lead Quality Outcomes

We seek to be the best in clinical quality in the state and in the 90th percentile nationally; through excellent clinical care and coordination patients will experience a trusted partnership, easy access to information, and engagement in their own care plan that will drive best-in-state health care outcomes and patient loyalties.

Key Elements of Our Action Plan:

1. Develop personalized health and treatment plans.
2. Continue establishing and implementing the Medical Home Model and report quantifiable outcomes. Build quality goals into standard care processes.
3. Enhance continuity of care across the continuum of care.
4. Evaluate content of care for select diagnoses and analyze clinical variation to determine opportunities to reduce variation through best practice adoption.
5. Expand patient access methods. This includes telephone visits, case management, e-consults, secured messaging, on-line patient records. Evaluate the impact of these access methods via patient focus groups, chart reviews, physician focus groups, and care team reports.
6. Publish quality/cost metrics on a patient population basis – to care teams, patients and community.

Goal 2. Engage Clinicians

Develop an exciting, performance-driven culture that attracts and retains the best clinicians and support staff to the integrated delivery system.

Key Elements of Our Action Plan:

1. Develop a physician recruitment and retention plan to expand our clinical base for each service line and each location. This to include recognition of the specific specialties needed to meet patient access demand while ensuring an optimal physician work/life balance.
2. Conduct workforce planning by specialty, delineating the details needed to understand changing clinician supply and/or patient demand.
3. Re-visit the performance management process of physicians and staff to ensure heightened focus on group practice, teamwork, joint accountability and proactive patient-centered care and positive customer interactions.
4. Create incentives for integration, best practice processes, and teamwork.
5. Create differentiation strategy relative to recruitment of physicians and staff to include easily identified values of our organization.

Goal 3. Remove Affordability as a Barrier

Leverage our unique vertical integration and economies of scale to lower costs and remove affordability as a barrier to patient care.

Key Elements of Our Action Plan:

1. Conduct focused value stream work to ensure competitive offerings and efficient infrastructure to manage these streams to optimize revenue and service performance.
2. Organize around categories of care: wellness, chronic care, acute care to ensure consistent, systematic processes that meet patient demand and ensure continuity of care.
3. Conduct lean training for leaders. Push the lean training to leaders and medical directors, with specific, measurable goals and objectives defined and results communicated at established intervals.

Goal 4. Extend our Network of Care

We will leverage the group practice to create overall enterprise growth while aligning with patient choice.

Key Elements of Our Action Plan

1. Integrate products/benefits with push/pull strategies and differential features, with each product evaluated on a systematic scale related to these features.
2. Develop regional service delivery planning based on medical management principles, formalize geographic distribution strategies, contract with external payers and foster clinical integration.
3. Extend our delivery system and leverage organization-wide growth through diversification of product portfolio, examination of cost allocation, creation of community partnerships and influence of clinical decisions, and diversified revenue streams.

Board and Senior Leader's Activities That Support Goals and Objectives

Our Board is responsible for articulating overall strategy and ensuring progress toward strategic goals.

Senior leaders are responsible for strategy deployment and are champions of the LEAN redesign of our patient value stream. They set direction and allocate resources for rapid cycle redesign. The leadership team meets weekly to assess the status of implementation of our initiatives. The team assesses each key component of the work in relation to timeline, key lessons learned, resource gaps, countermeasures to overcome gaps, outcome measures and financial impacts.

Accountability of Senior Leaders and Team Members for Achieving Goals and Objectives

Our medical group contracts with a consumer-governed cooperative via an annual pay-for-value plan to provide clinical services. Specific pay-for-value measures include quality and service performance, encompassing quality outcomes, access to care, chronic care management, training and accountability and financial performance. Compensation for leaders is also dependent on their success in achieving annual targets and goals tied directly to our strategic plan. Compensation is further aligned with our physicians, who receive variable pay based on productivity, quality, and satisfaction.

Strategic redesign work takes place in a team environment, involving project sponsors, owners, pacesetters, team members, management guidance team, resource representatives and workshop leaders. Each team receives a work charter that includes a purpose statement, deliverables and measurements, strategic alignment factors, process boundaries, and expected activities. These teams are involved in intense, rapid

process improvement, with clear timelines for the plan, pilot, and spread of the change strategy throughout our enterprise. Visual displays of daily progress on process change and outcomes are displayed in all work areas. These tiered and linked visual systems reflect transparent outcomes and are used as a daily feedback system to ensure accountability. This is supplemented by walking rounds and daily standard management work that ensures progress toward expected targets and goals.

Tough Decisions Required to Achieve Our Goals

The following four decisions head the list of those that were particularly challenging for our organization.

Vertical Integration

The medical group's decision to contract with the cooperative to form a delivery system that is financially integrated with care delivery was challenging. Our hypothesis was that this would lead to enhanced value creation from a cost/quality perspective for a large patient population served in our community. Our integrated delivery system and the ability to coordinate the continuum of care is our differentiating factor. Through the redesign of our patient value stream we are leveraging these attributes to create value.

Medical Home Model

Although we had been practicing many of the principles of a patient-centered medical home, the change strategies we historically adopted did not improve our value/cost proposition and further, led to low levels of physician satisfaction. We initially developed our patient-centered medical home model as a demonstration project to determine the merits of such an approach toward primary care delivery. It quickly became clear that the design components of our model would require increased cost in the short-term.

Our hypothesis was that this cost increase would be mitigated by the savings in urgent care, emergency visits, and hospital care of our patients which turned out to be valid. But at the time it was only a hypothesis and we made a high cost decision with no assurance of its return on investment. After two years we are measuring savings of $10 per member per month and both patients and clinicians report increased satisfaction.

Adoption of LEAN Practices

Our enterprise is large and it has been difficult for us to exercise agility. Our decision to adopt LEAN principles of management and to reduce work variation was particularly challenging for us: a) we did not know how to implement LEAN or whether it would create cultural change; b) we were uncertain whether clinicians would embrace standard work regardless of its basis in best practices, and c) we did not know if the spread of LEAN would be more than a management fad or whether it could become inherently "how we do business".

Our hypothesis was that if we did not adopt a common language and set of tools to assist us in transforming our model of care we would not be able to galvanize the leaders, clinicians, and staff in standard work and change efforts. Fortunately, LEAN has energized our organization and has permitted us to achieve rapid redesign and success, moving our enterprise to the next level.

Enterprise-wide Adoption of Electronic Health Records

We were an early adopter of electronic health records. Given our size, this required an initial outlay of over $40 million dollars. Our hypothesis was that the electronic health record would improve quality satisfaction and efficiency of our care system. This was postulated in a time when the exact benefits of an electronic health record and the impact to clinicians in the daily course of their work were not fully vetted.

We approached implementation not as an IT project but as a business and clinical transformation project, diagramming workflows, outcomes of care, and patient experience. We placed the patient at the center of our redesign and our decision to first roll out the EHR to our patients (before our physicians), while counterintuitive, served to immediately engage patients in their health and wellness. Some of our clinicians reported that this was one of the toughest transitions in their professional lives yet it truly transformed our delivery system of care.

Implementation Plan

We have completed or are in process of redesigning 54 separate strategic work streams. An implementation timeline for key work streams is provided below and a detailed implementation plan to test and spread our medical home model is presented.

Implementation Timeline of Key Work Streams

Year	Key Work Streams
2003 – 2005	-Aligned Incentives – Financing and Delivery System -Incentive Plan – Leaders and Clinicians -EHR Implementation -Small Point Improvements in Pharmacy & Laboratory through LEAN -Cross-Functional Rapid Cycle Improvement Workgroups -Patient On-Line Portal
2006	-Medical Home Planning
2007	-Medical Home Demonstration Project -Strategic Planning Process -Strategic Deployment and Identification of Value Streams
2008	-First Year of Medical Home Demonstration Project Completed -Intensive Training of Lean to Top 120 Leaders; Downstream Training -Enterprise Value Stream Mapping
2009	-Shared Decision-making for Patient Sensitive Conditions -Emergency Department/Hospital Inpatient Initiative -Skilled Nursing Facility Placement Coordination -Standardize Work for Each Element of Medical Home Model by Role, Develop and Test Toolkits, Institute in 3 Pilot Sites -Reduce Variation of High End Imaging - Reduce Variation End of Life/Palliative Care -Spread Medical Home to All 26 Primary Care Sites (completed in early 2010)
2010:	Spread High End Imaging and Shared Decision-making to Community Partners Spread Emergency Department/Hospital Inpatient Initiative to 7 Hospital Partners

Detailed Implementation Plan: Medical Home Pilot and Spread

Task 1: Define Purpose

Increase access, enhance continuity, proactive care coordination, engage patients in their health.
Principles:

- *The relationship between the primary care physician and patient is at the core. The organization will align to promote and sustain this relationship.*
- *The primary care physician will be the leader of the clinical team, be responsible for coordination of services, and will collaborate with patients in care planning.*

- *Continuous healing relationship will be proactive and encompass all aspects of health and illness. Patients will be actively informed and encouraged to participate.*
- *Access will be centered on patients' needs, be available by various modes 24/7, and maximize the use of technology.*
- *Clinical and business systems will align to achieve the most efficient, satisfying, and effective patient experiences.*

Task 2: Select Pilot Sites
Criteria: Strong leaders, previous success with change efforts, engagement of clinicians and staff in lead management principles and practices

Task 3: Determine Leaders/Team Members
Identify sponsors, owners, pacesetters, team members, management guidance team, resource representatives, workshop leaders. Clinicians, staff, and patients from our medical home demonstration project participated on the rapid process improvement workgroup

Task 4: Define Deliverables
Develop processes, standard work, roles and accountability for each key element in the medical home value stream map using Plan-Do-Check-Act cycle. Elements of the value stream: 1) call management, 2) virtual medicine, 3) chronic disease management, 4) visit preparation, 5) patient outreach

Task 5: Define Performance Measures
1. *Call management: Percent calls answered less than 30 seconds; Percent first call resolution.*
2. *Virtual medicine: Physicians with one or more phone visits/session; Number of physicians with 30% of visits as secure messaging (vs. face-to-face visit); % patients enrolled in enhanced on-line access.*
3. *Chronic disease management: Physicians completing treatment plans.*
4. *Visit Preparation: Physicians with completed pre-visit preparation; Physicians addressing identified care needs for patient panel.*
5. *Outreach work cell: Completed versus assigned volume and ratio*
6. *Patient access: Time to appointment measure*

Task 6: Define Strategic Alignment Factors
Reduce patient panel size from 2327 to 1800; Expand patient visit from 20 to 30 minutes; Increase physicians by 15%, physician assistants by 44%, registered nurses by 17%, LPN and medical assistants by 18%; Increase clinical pharmacists by 72%

Task 7: Hold Design Workshops with Team Members and Patients (3 workshops)

Task 8: Go Live Implementation at Pilot Sites
Workplace rounds to assess progress; standard management work to facilitate implementation

Task 9: Improve Standard Work: *One day event workshop to improve standard work*

Task 10: Spread/Expand to All Primary Care Sites
Strategy: Each element rolled out across 26 clinics in a 10 week cadence
Timeline for spread:
1. *Element: Call Management – October 2008 – December 2008*
2. *Element: Virtual Medicine – October 2008 – June 2009*
3. *Element: Chronic Disease Management – January 2009 – September 2009*

4. *Element: Visit Preparation – April 2009 – November 2009*
5. *Element: Daily Access Management & Daily Huddles: June 2009 – July 2009*
6. *Element: Outreach Work Cell – August 2009 – February 2010*

Key Parties Involved in Implementation

The discussion below is specific to the redesign of our primary care model involving a patient-centered medical home. A similar approach is taken with all of our patient value stream work.

Leadership Team:
Role: Conduct enterprise value-stream mapping; identify priorities for rapid process improvement redesign; weekly review of progress toward team charter
Skills: Ability to translate vision to strategy; interpersonal acumen; organization-wide knowledge

Project Sponsors:
Role: Articulate vision for change, remove barriers; identify resources
Skills: Ability to lead and facilitate culture change; negotiation skills; lean management practices

Physician and Administrative Leaders:
Role: Ensure implementation and education; weekly work rounds at clinical sites; support clinician and staff efforts
Skills: Knowledge of lean principles; management skills; clinical skills; negotiation; interpersonal communication; empowerment

Clinic Medical Director and Administrator:
Role: Daily huddles and rounds to evaluate progress; shadow physicians to support virtual medicine; support clinicians and staff efforts; measure and evaluate process and outcomes
Skills: Knowledge of on-site challenges and operational priorities; lean principles; communication skills, clinical skills, knowledge of patient flow processes

Key Parties Involved in Planning

Patients:
Patients who were seen during the medical home demonstration project were included in the planning team and provided invaluable perspective from a patient lens
Role: Consumer consultants in design planning for medical home
Skills: Impact of medical home on patient experience; patient needs and wants

Leadership Team & Project Sponsors:
Role: Articulate team charters, resource identification and deployment; identification of deliverables, measures, strategic imperatives, timeline, identify process owners, pacesetters, team members, management guidance, resource representatives, and workshop leaders
Skills: Ability to translate vision to strategic objectives; interpersonal effectiveness; physician leaders brought unique perspective of user and owner of the process and operationalize change for physician practice; Administrative leaders brought skills in financial modeling and quality measurement

Rapid Process Improvement Team (Leaders, clinicians, staff):
Role: Key stakeholders in the work

Skills: Intimate knowledge of the operational functions and tasks, work hand-offs; creativity, energy, and active engagement; Clinicians operationalized the vision for improved patient interactions and assumed leadership of the care team; Clinical staff identified operational hurdles to be addressed.

Staff Education Regarding Goals and Implementation

On-boarding of staff was conducted directly in the clinical site with the physician medical director and the practice manager. These leaders educated staff to standard work and ensured understanding of new roles and expectations. Daily manager rounds are held to ensure that team members are actively engaged in their work. Daily medical director rounds are held, with the medical director periodically shadowing physician during patient visits to ensure active integration of virtual medicine. Visual displays of implementation status and performance are updated daily to permit immediate feedback to the care team.

Biggest Challenge

Our biggest challenge was changing our organizational culture from one of episodic face-to-face visits to embrace virtual medicine and assume the coordination of care for a patient population. Even though we had a some of the model elements in place for a medical home (i.e., EHR and Web portal), the change to practicing in a virtual environment across all continuums of care required reducing variation in clinical work, changing the physician-patient visit, and new work prescription and delegation. Physicians expressed concerns regarding standardized work and concerns that virtual medicine would depersonalize the physician-patient relationship. Staff expressed concerns regarding a change in work delegation and work tasks. We believe we have overcome many of these hurdles and are making good progress in the redesign of our patient value stream to improve quality and reduce costs for our patients.

Results

Our results for key redesign work are provided below.

Growth

Over the past one year period we have achieved a 10% patient growth.

Patient Experience

Patient experience surveys are administered quarterly to our patients. Our overall scores have continued to increase. In Quarter 1 of 2008, the average score for all our service lines was 81.63%. The most recent survey conducted during the third quarter of 2009 was 83.46%, an increase of 2.24%. Patient engagement scores for the primary care service line have increased by 3.11% during this same period, moving from 80.63% to 83.14%. While these trends are directionally correct, we are still below are goal of 87%.

Affordability

Through the combined efforts of our medical home and our Emergency Department/Hospital Initiative, we have achieved cost savings of $65 million per month.

Medical Home Model

The impact of our medical home model was measured against controls. For patient experience, a sample of patients were surveyed at the medical home clinic and two control clinics at baseline and resurveyed 12 months and 24 months. For clinician burnout, the total population of staff with clinical responsibilities (physicians and non-physicians) were surveyed at the medical home and 2 control clinics at baseline, 12 months and 24 months. For quality, utilization and cost outcomes, the universe of continuously enrolled and eligible patients were included at the medical home clinic and 19 of our other primary care clinics. The table below summarizes the performance metrics, data methods, and results for our Medical Home Model.

Table. Medical Home Model - Summary of Performance Metrics, Data Methods and Results

Category	Instrument	Result
Patient Experience	Ambulatory Care Experiences Survey (5 scales) Patient-assessment of Chronic Illness Care Survey (2 subscales) Sample: MHM n = 888 Controls n = 1,452	Adjusted differences for MHM compared to controls at 24 months: <u>Ambulatory Care Experiences Survey</u> 1.Access: +2.84 p < 0.001 2.Quality of doctor-patient interaction: +1.63 p < 0.05 3.Shared decision-making: +1.03 4.Coordination of care: +3.06 p < 0.01 5. Helpfulness of office staff: +1.14 <u>Patient assessment of Chronic Illness Care Survey</u> 1.Degreeinvolved in own care (patient activation/involvement): +2.10 p < 0.05 2.Degree care teams helped set and refine healthcare goals (goal setting and tailoring): +3.96 p < 0.01
Clinical Staff Burnout	Maslach Burnout Inventory (Health Services Version) Staff population: n = 48 (MHM and 2 control clinics)	Mean scores on Maslach Burnout scales at 24 months: 1.Mean emotional exhaustion: MHM: 12.8 Control: 25.0 P < 0.01 2. Depersonalization:

		MHM: 2.0 Control: 4.4 P = 0.03 3.Personal accomplishment: Difference is not statistically significant.
Clinical Quality (composite)	Healthcare Effectiveness Data and Information Set (HEDIS) – 22 indicators aggregated to 4 composite quality measures, with the patient as the unit of analysis Population qualifying for at least one quality indicator MHM n = 4,747 Controls n = 132,330	Patients at MHM scored 20-30% higher greater in 3 of 4 composites compared to controls.
Utilization	Generalized linear models to adjust baseline case-mix differences and estimate independent effects of medical home redesign. Patients at MHM compared to those 19 control clinics. Comparison at 21 months due to change in accounting system Population MHM n = 7,018 Control n = 200,970	Adjusted utilization differences comparing MHM patients to controls, controlling for baseline case mix differences. 6% fewer in face-to-face visits. 80% greater in secured messaging threads 5% greater in phone encounters 3% greater in specialty care. 29% greater in ER visits and urgent care visits. 6% greater in inpatient admissions (all cause).
Cost	Estimated differences in PMPM comparing MHM patients to controls using identify gamma model and iterative reweighted least-squares estimation adjusted for case-mix and baseline costs. MHM compared to 19 control clinics. Comparison at 21 months due to change in accounting system MHM n = 7,018 Control n = 200,970	Adjusted cost differences comparing MHM patients to controls, controlling for baseline case mix and baseline costs $1.60 higher pmpm in primary care costs. $5.80 higher pmpm in specialty care costs. $4.00 lower pmpm in ER/ urgent care costs $14.18 lower pmpm in total inpatient costs. $10.00 lower pmpm in total patient care costs. Overall return on investment: For every $1.00 spent on MHM return is $1.50.*
Process Change Components	Daily, weekly, and monthly tracking of standard work.	Call management Virtual medicine Chronic disease management Previsit preparation Patient activation Outreach cell

**Excludes cost of electronic health records. MHM = Medical Home Model*

Data sources:

The __Medical Home at Year Two: Cost Savings Higher Patient Satisfaction and Less Burnout for Providers. Health Affairs, 29:5, May 2010. Included as Appendix I.

Patient-Centered Medical Home Demonstration: A Prospective, Quasi-Experimental Before and After Evaluation. American Journal of Managed Care 15:9, September 2009. Included as Appendix II.

Patient Activation and Shared Decision-Making

Patient Activation and On-Line Access to Care

Thirty percent of our outpatient encounters are conducted by secure messaging. To-date, 58% of the organization's adult patients are registered for on-line patient access and 41.2 percent of adult patient have our enhanced suite of services. In the past year, 10% of enrollees reviewed medical test results on-line and 10% went on-line to request medication refills. Ninety-four percent of patients who use on-line access report they are satisfied or very satisfied with the on-line portal. An article describing the "meaningful use" of our EHR is provided in Appendix III.

Shared Medical Decision-Making with Patients (SDM)

We utilize educational aids in a systematic fashion to engage patients in shared decision-making. Patients are provided educational DVDs and/or they access our Website for information on preference-sensitive conditions and then meet with their clinician to discuss and determine their course of treatment. Approximately 5,000 of these decision aids have been utilized or accessed by our patients. Based on survey instruments administered to patients who have used the decision aids, over 90% reported the experience of using the tool and then having a discussion with their physicians very satisfying to excellent. We are seeing a decline in a number of our preference-sensitive procedures. For example, we have measured a 10% decrease in knee replacement procedures at a total cost of $1,859,000 and a 13% decrease in hysterectomy procedures, a cost savings of $1,053,059. Though we cannot rule out confounding variables, this suggests that we are directionally correct.

Community Partnership in Delivery System Redesign

Emergency Department/Hospital Inpatient Initiative (EDHI)

The EDHI is a cross-functional effort to address the patient value stream through an integrated system with community partners. The goals of EDHI are to reduce inpatient costs and readmission rates, optimize post-acute care processes, and reduce unnecessary ED utilization and costs. The specific innovations include hospitalists involved determining location of care and coordinated transfer to skilled nursing facilities.

We have reduced hospital admissions and length of stay and we estimate a $6.5 million savings per month in hospital costs (attributed to the combined work of medical home and EDHI). In addition, two years prior to this initiative our Press Ganey scores for our hospitalists and discharge satisfaction ranged from 55-84, an average of 69. In the first quarter of 2010 this increased to 97, suggesting an increase in patient satisfaction as a result of this work. We also have decreased hospital days waiting for skilled nursing placement from 25 days to 5 days per month.

High End Imaging (HEI)

The High End Imaging initiative is a cross-functional effort to address order variability for high-end imaging tests. The goal is to reduce variation in ordering patterns, ensure clinician have decision-support tools for imaging, improve patient care and safety and reduce unnecessary costs. We provided clinical decision support tools to our clinicians and to physicians in the community who treat our patients in order to improve the value of high end imaging. Images per 1,000 patients decreased 13.65% from January 2009 to January 2010 enterprise-wide.

External Performance Measures

We also utilize external measurements to gauge our success. Recent recognition includes:

- Community Check-up Report, 2009: Above-average scores in 11 of 15 quality measures, more than any other participating medical group in our region.

- Agency for Healthcare Research and Quality. Recognition for nnovations in online services to improve quality health.
- State Medical Association Patient Safety Award.
- SDI - Innovation in Health Care Analytics Award, 2009 – Top 100 Integrated Health Networks. Our organization was ranked 10th in the West and 44th in the nation.

Plans to Broaden/Expand Our Initiatives

We believe that the more integrated we are on the spectrum of finances and care delivery, the better our cost/quality value proposition. Given that, and given a need to expand into the community in order to increase value to our patients, we aspire to build the most integrated system we can which may vary by community and how strong our internal presence is and who are partners are. So, for example, we have successfully expanded our ED/Hospital initiative to seven of our contracted hospitals, our skilled nursing facility coordination program and we have provided community physicians with the tools to carry out shared decision-making with patients and decision-support tools for high-end imaging.

Mid- and long-term, we aspire to have full accountable care characteristics in most of our communities involving a strong primary care base, high interoperability of electronic health records, shared quality guidelines, excellent hospital partners, internal pay-for-value with use of shared savings as an incentive for better care and lower cost. We are seeking "medical home-oriented" partners in the community.

Lessons Learned/Advice for Others

We have learned the following lessons from our delivery system transformation efforts:

- Patient at the center. The patient needs to be at the center of delivery system redesign. Personalized patient care activates patients in their health and wellness.
- Physician leadership. Physicians must assume a leadership role in delivery system change as they transition from episodic care to managing the healthcare needs of a patient population.
- Primary care investment. We learned from our past mistakes and have heavily invested in primary care as a base for our model. We believe this core is essential to managing a patient population across the continuum of care.
- Aligned incentives. Aligned incentives are needed that promote collaboration across a continuum of care. This requires incentive alignment at the level of system, leader, team and clinician.
- Pay-for-value. To be successful in the long-term, there must be a movement away from pay-for-volume to pay-for-value. Our heavy short-term investments in primary care would have been difficult to justify if we were not measuring the cost of the full continuum of care.
- Common medical management. Clinicians need to create standard work in order to reduce variation in medical management practices, thereby increasing quality and lowering costs.
- Patient-centered EHR. Electronic health records should be approached as a business and clinical transformational strategy, not as an IT project and the patient should be the primary customer. It is important to embed patient engagement and virtual medicine in medical home work flows.
- Cultural change. A driving force is needed to shift an organization's culture. In our case, LEAN practices permitted us to galvanize enterprise members in redesign of strategic value streams. Lean principles practiced at each level in the organization have permitted us to reduce waste and to increase our agility, thereby improving the value proposition for our patients.

We believe that our model can be readily replicated by other health care systems. In fact, we are doing just that at the present time – aligning incentives and expanding our delivery system model to the community. It requires organizations to agree to collaborate rather than compete. It requires organizations to embrace collective responsibility for the quality and cost of a patient population. It requires new linkages between

the financing mechanism and the delivery system continuum. And finally, it requires a delivery system that is patient-centric and that provides expanded opportunities for patient access and activation.

Appendix

I. Article: The ___ Medical Home at Year Two: Cost Savings, Higher Patient Satisfaction and Less Burnout for Providers. Health Affairs 29:5, May 2010. (Redacted Version)

II. Article: Patient-Centered Medical Home Demonstration: A Prospective, Quasi-Experimental Before and After Evaluation. American Journal of Managed Care 15:9, September 2009. (Redacted Version)

III. Article: Patient Experience Should Be Part of Meaningful Use Criteria. Health Affairs 20:4, 2010 (Redacted Version)