Competing on Patient Engagement

Forging a New Competitive Identity for a Value-Driven Marketplace

- Elevating Engagement in Episodes of Care
- Driving Engagement in Ongoing Management
- Transforming Community Health
Health Care Advisory Board

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Available Within Your Health Care Advisory Board Membership

Over the past several years, the Health Care Advisory Board has developed numerous resources to assist health system executives in transitioning to the value-based marketplace. The most relevant resources are outlined on the right. All of these resources are available in unlimited quantities through the Health Care Advisory Board membership.

Strategic Guidance for the Transition to the Value-Based Health Care Economy

- Playbook for Accountable Care Lessons for the Transition to Total Cost Accountability
  - Financing the Transition
  - Assembling the Accountable Care Delivery System
  - Reconfiguring Operations to Transform Care

- From Contract to Compact Moving Physician Partnerships Beyond Financial Alignment to Create a Culture of Clinical Success
  - Redefining the Network Ambition
  - Executing a Unified Strategy
  - Organizing to Deliver Seamless Patient Care

Tools to Support Care Delivery System Redesign

- Care Transformation Capability Assessment
  Evaluate market characteristics and provider capabilities necessary to succeed in population management and identify future innovation ambitions for mature population managers.

- Total Margin Scenario Planner
  Generate institution-specific 5- and 10-year outlooks for payer mix, case mix, volume, occupancy, and operating margins; explore the sensitivity of margin projections to changes in underlying market forces.

To Order via Advisory.com

To order copies of these and other Health Care Advisory Board presentations, please visit our website: advisory.com/HCAB/publications

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Beyond the Health Care Advisory Board: Southwind

In addition to the resources available through the Health Care Advisory Board membership, Southwind helps organize the right physicians into the right structures with the right incentives by providing on-the-ground design and implementation services to support the development of clinical integration initiatives.

**Value-Based Care Programs**

Establishing value-based care programs for success in shifting payment models

- Clinical integration
- Patient centered medical homes
- Clinical transformation
- Bundled payments
- Co-management

**1 Establish a Physician-Led CI Organization**

- Creation of CI Operations company and governance
- Membership criteria and recruitment strategy
- Year one and out-year staffing plans
- Comprehensive physician education program

**2 Develop Initiatives Matched to Market Need**

- Streamlined process for enabling physician selection of metrics
- Comprehensive selection of initiatives
- Sequences to maximize ROI
- Market-driven metric to inclusion strategy

**3 Optimize Performance Management Processes**

- Staff training on performance measurement and reporting
- Optimization and analysis of physician report cards
- Effective peer review and remediation processes
- Technology vendor selection criteria

**4 Engage Payer and Employer Community**

- Payer and employer approach strategy
- Cost and impact modeling
- Preparation and value case to payers
- Development and dissemination of Value Reports and collateral

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Executive Summary

Value-based purchasing innovations require providers to compete on the cost and quality of care. Three characteristics will define the successful health system in the value-based marketplace: a coordinated care continuum, alignment with physicians on new performance goals, and the ability to engage patients as active participants in their own care.

While care coordination and physician alignment will be critical to performance, effective patient engagement will ultimately determine whether health systems can meet and exceed purchasers’ cost and quality expectations. To succeed under value-based payment, health systems must engage patients not only within defined acute care episodes, but also across the continuum in both ongoing care management and community health.

Recovering Lost Value in Today's Episodes of Care

Health systems must first engage patients in traditional episodes of care to capture full reimbursement under value-based payment. As value-based purchasing escalates, poor patient engagement can lead to variable cost and quality outcomes which hinder a system’s ability to compete against other providers for new patients.

When patients access the care delivery system for a specific health care need, organizations must set clear expectations for patient responsibilities, support patient self-management in recovery, and establish feedback loops between patients and providers to identify complications early for lower-acuity interventions.

Creating New Value Through Ongoing Care Management

For organizations assuming population health risk, driving down the long-term cost of care for attributed individuals requires better day-to-day management of chronic conditions and use of lower-acuity sites of care. However, given resource limitations, health systems must deploy their care management infrastructure in a targeted fashion.

To create new value through ongoing care management, organizations must prioritize direct support resources to the highest-risk patients, leverage data to identify changes in the health status of well-managed patients, open easy access points to promote low-acuity utilization, and support ongoing self-management of the larger patient population.

Adding Value Through Community Health Improvement

Organizations taking on population health risk have the opportunity to extend the care management enterprise to engage whole communities. In partnership with other community stakeholders, organizations must prioritize health system population management activities to the greatest community needs and align with community groups to spur population health.
Essay—The New Focus of Competition
Preparing for Greater Accountability

The shift to new value-based reimbursement models holds all organizations accountable for patient outcomes across longer episodes of care. As this occurs, organizations must adopt an expanded set of performance levers to meet new metrics of success.

Value-based purchasing and readmission penalties extend the traditional definition of acute care episodes to include not only treatment, but also recovery. Capturing full reimbursement hinges on hardwiring evidence-based care pathways, coordinating care across multiple provider sites, and ensuring patients follow recommended recovery care plans.

Shared savings models link reimbursement to the total cost and quality outcomes of patient populations. Earning shared savings bonuses requires building an infrastructure for chronic care management, increasing primary care access and engaging patients in long-term self management.

### New Payment Models Raising Performance Expectations

<table>
<thead>
<tr>
<th>Incentive Mechanisms</th>
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<td>• Number of procedures</td>
<td>• Cost of episode</td>
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<td></td>
<td>• Total cost of care for population</td>
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<td>• Number of visits</td>
<td>• Quality metrics specific to episode, including 3 days pre-treatment and 30 days post-treatment</td>
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<td></td>
<td>• Broad quality metrics including preventive care and screenings</td>
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<td></td>
<td>• Completion of all care pathway steps</td>
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<td>• Broad utilization metrics including ED utilization and unnecessary hospitalization</td>
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<th>Previous levers, plus:</th>
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<tr>
<td>• Specialist referral network</td>
<td>• Robust primary care network including top-of-license care management team</td>
<td>• Broad patient engagement at primary care</td>
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<td>• Workshop efficiency</td>
<td>• Open access at low-acuity sites of care</td>
<td>• Independent self-management of health and wellness</td>
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<td></td>
<td>• Targeted patient engagement at primary care</td>
<td>• Partnership-driven community engagement</td>
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Source: Health Care Advisory Board interviews and analysis.
Patient Engagement Critical to Future Health System Performance

All payment models will require hospitals to master three competencies to succeed in the value-based marketplace.

First, organizations must function as a system wherein both the patient and the patient’s information move seamlessly across the continuum. Second, health systems must build a network of physicians aligned to the same cost and quality goals. Third, and most critical, health systems must engage patients in care to drive and sustain cost and quality improvements over time. Even the most successful system coordination and physician integration efforts can be undermined by disengaged patients.

As organizations are held increasingly accountable for patient outcomes, health systems must perfect patient engagement to effectively compete for market share.

Integration of System, Physicians, and Patients Required for Market Success

Keys to Health System Performance in a Value-Based Market

System Coordination
- Hardwired evidence-based pathways resulting in high-quality, low-cost outcomes
- Seamless communication across sites of care to avoid duplicating, missing steps

Physician Integration
- Physicians serve as strategic partners sharing goals for performance of health system
- Multidisciplinary, top-of-license care team deployment standard across medical staff

Patient Engagement
- Engaging and activating patient in care to ensure smooth recovery, ongoing management
- Encouraging informed patient to select appropriate treatment options and self-manage

Source: Health Care Advisory Board interviews and analysis.
Easy for Patients to Become Disconnected

However, today’s health care delivery system is suboptimally designed for patient engagement. Patients are often confused by when and where to seek care. Poor communication between providers and patients during care episodes leads to lack of compliance during ongoing management.

Greater accountability for outcomes will require health systems to manage episodes of care beyond the acute care or physician office setting and partner with patients to close gaps in communication and coordination.

Patient View of Health Care System

Staying “Healthy”
Majority of patient’s time incorporating all day-to-day activities, lack of symptoms define health

Seeking Treatment
Specific event where patient seeks out provider for help, often after taking “wait and see” approach

Managing Ongoing Care
Patient anxious to get back to “healthy,” may minimize or underprioritize management steps

Lost in the System
“The doctors are trying to map out exactly what is wrong with you, and they’re giving it to you in sophisticated neurological terms. It’s like being in a foreign country, you don’t speak the language and you’re trying to find directions.”

45-year old patient with multiple sclerosis

Anticipating a Land-Grab for Patients

Health systems are not the only stakeholders mobilizing to engage patients. Physician groups, payers, and employers are developing strategies to attract patients to their preferred systems of care management.

Large independent physician groups are perhaps best positioned to manage population health, and at the same time may prevent hospitals from accessing the same populations. Payers and employers are exploring exclusive partnerships with providers willing to guarantee results.

The ability of these stakeholders to engage patients in care episodes, condition management, or general wellness can further disrupt the relationship between patients and health systems.

Multiple Players Attempting to Lock In Patients for Management

Stakeholder Ability to Engage Patients Across Health Care Needs

- **Episodes of Care**
  - Health System
  - Medical Group
  - Payer
  - Employer

- **Ongoing Management**
  - Health System
  - Medical Group
  - Payer
  - Employer

- **Health and Wellness**
  - Health care providers increasingly competing for patient ownership
  - Payers and employers partnering with providers to lock in patients

Effectiveness
- High
- Low

Source: Health Care Advisory Board interviews and analysis.
Innovators Could Further Fragment the Continuum

A growing number of disruptive innovators are also evaluating the opportunity to lock in patients. Innovators already offer a wide range of tools to address patient problems in today’s delivery system. However, the sheer volume of innovation risks further fragmenting the care delivery system.

Innovators often focus on discrete problems and offer solutions at individual points in the care continuum. The patient must still integrate these fragmented resources into a cohesive plan of care, a competency that challenges even the most health literate consumers.

Solutions Increase Complexity of Health Care Delivery System

17,000 Mobile health applications available in major app stores May 2012

Impact of Innovator-Driven Health Care Transformation

1. Innovators offer simple, patient-friendly solutions, targeted at individuals
2. Incredibly convenient—often available through phone, at home
3. Innovators put cost information at patient fingertips
4. Quality bar unclear, but starting to be established
5. Risk of tremendous fragmentation of patient care experience

Putting the Patient at the Center of the New Health System

In contrast to other stakeholders, only health systems offer a comprehensive continuum across a patient’s preventive and acute care needs.

Building the value-oriented system requires evaluating how each step in the care continuum reinforces patient-centered care. In addition, collaboration across sites should create momentum to keep patients in the system to improve quality and lower cost.

Patient Engagement Across the Care Continuum

Integrated Health Management
- Part of patient day-to-day activities
- Personalized to individual
- Clear, actionable goals

Collaborative Specialty Care
- Collaborative with primary care to set one comprehensive care plan across providers
- Coordinated across continuum

Outcomes-Driven System Activation
- Sensitive to minor changes in individual health status
- Tracking to identify target groups for prioritization, targeted community needs

Convenient Sites of Care
- Available when and where patient needs care
- Easy to find, low-acuity options
- Augmented with virtual access points to address needs, conduct follow-up

Patient Access to Information
- Intuitive access to care plan information, ongoing management guidance
- Reliable and comprehensive sources to support patient engagement

Personalized Primary Care
- Team available to patient for access, education, decision support
- Focused on both chronic and preventive services
- Incorporates health activities

Community Partner
- Collaborative with employers, community groups
- Streamlined across market resources
- Targeted to underlying drivers of population health

Source: Health Care Advisory Board interviews and analysis.
Success in the value-based marketplace requires merging a coordinated continuum with aligned physicians to engage patients. To achieve meaningful improvement in cost and quality across longer episodes of care, organizations must retain patients in a care delivery system capable of encouraging active participation in care.

Three opportunities emerge for elevating patient engagement.

First, to capture value lost in today’s fragmented delivery system, organizations must focus on elevating patient engagement in acute care episodes.

For population managers, patient engagement must expand to include engaging targeted groups of patients in a comprehensive care management system.

Finally, each organization will evaluate their role in engaging communities to transform population health.

Three Opportunities for Improving Patient Engagement

- **Elevating Engagement in Episodes of Care**
  - Focus on individual patients and individual episodes
  - Fixing problems in today’s system around care delivery and coordination to ensure a complete, high-quality episode of care

- **Driving Engagement in Ongoing Management**
  - Focus on targeted groups such as high-risk patients or chronic condition management
  - Building system for proactive management, low-acuity access and ongoing patient self-management

- **Transforming Community Health**
  - Focus on opportunities to impact population and community health
  - Identifying opportunities to spur community groups in health activities and drive broader population health

Source: Health Care Advisory Board interviews and analysis.
Competing on Patient Engagement
Elevating Engagement in Episodes of Care

Health systems should first focus efforts to improve patient engagement for acute care episodes, not only during treatment but also following discharge. Today, payers and employers already hold providers financially accountable for the quality and cost of care through treatment and into recovery. A lack of collaboration with patients leads to poor outcomes including unnecessary readmissions.

To meet these new performance expectations, providers must engage patients early in care episodes by outlining patient responsibilities at each step in the care pathway. Additionally, organizations should offer support to help patients manage their recovery at home, and encourage ongoing communication between the patient and the provider team.

Key Engagement Opportunities Across the Care Episode

Setting Up a Successful Episode
1. Activate patients early in episodes of care

Reinforcing Self-Management
2. Equip patients with resources to manage recovery
3. Create feedback loops to address recovery complications

Source: Health Care Advisory Board interviews and analysis.
1. Activate Patients Early in Episodes of Care

Building Longitudinal Patient Accountability

Patient engagement in an episode of care should start as early as possible to help prepare patients for necessary steps in the recovery process. Initiating patient education early can help reduce the amount of new information patients must absorb after undergoing a procedure or treatment. For scheduled procedures, providers should prioritize patient engagement before the hospital admission. Providers can employ technologies such as iCarePassport to reach out to patients with educational material about the procedure and recovery process. Such steps can ease patient anxiety and better prepare them for recovery.

Even for unscheduled admissions, organizations can leverage patient compacts to set clear expectations about treatment and recovery. Pseudonymed Cosgrove Hospital uses a patient compact as part of the discharge planning process to clearly outline the patient’s role in recovery.

Fostering Informed Patients Across an Entire Episode of Care

Facilitating Pre-admission Coordination

- Patient accesses dashboard with custom content
- Patient completes all pre-admission forms online
- Patient prompted to provide data when necessary

Sharing Post-discharge Responsibilities

- Patients indicate intention to comply with instructions
- Patients complete open-ended statements to demonstrate comprehension

Innovation in Brief: iCarePassport

- Web-based portal providing patients 24/7 access to personalized health education from home
- Patients receive educational messages, alerts and reminders in preparation for upcoming procedure, surgery
- Providers access dashboard to monitor, retrieve information at any time
- Partnered with Shawnee Mission Medical Center in Kansas to support pre-admission preparation for bariatric surgery patients

Case in Brief: Cosgrove Hospital1

- 650-bed academic medical center in the West
- Establishes expectations around recovery plan to build patient accountability
- Instructions include physician follow-up and recommended post-discharge self-care practices
- Staff confirm recovery steps have been communicated to patient; conducts follow-up calls to track patient compliance with instructions
- 93% patients fulfill discharge prescription instructions


1) Pseudonym.
Navigating the Post-acute Care Pathway

Beyond setting clear expectations about the recovery process, providers should tailor the care plan to account for the patient’s level of engagement. Identifying patients with low levels of engagement allows organizations to build in additional care team support.

To smooth the discharge and recovery process for some of the most complicated patients, pseudonymed Olson Health Care assembles a multidisciplinary team to coordinate discharge planning. The team is composed of the patient’s providers as well as a post-acute care liaison who can advise providers on appropriate post-acute settings and coordinate care plan steps across sites of care. The team also includes members of the patient’s family, who can offer additional information about the patient and help smooth the patient’s transition to the next site of care.

Seek Expert Advice to Design Appropriate Referral Plan

Multidisciplinary Rounding Team Facilitates PAC\(^1\) Discharge Planning

<table>
<thead>
<tr>
<th>Thresholds for Team Discharge Planning</th>
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<tbody>
<tr>
<td>• Length-of-stay over 10 days</td>
</tr>
<tr>
<td>• Complex psychosocial issues</td>
</tr>
<tr>
<td>• Potential guardianship case</td>
</tr>
<tr>
<td>• Lack of family support</td>
</tr>
<tr>
<td>• Lack of insurance</td>
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<tr>
<td>• Prescribed more than seven medications</td>
</tr>
</tbody>
</table>

Multidisciplinary team, PAC liaison, patient, and family collaborate to determine PAC referral plan

Case in Brief: Olson Health Care\(^2\)

• 750-bed health system located in the Northeast
• Patients meeting length of stay thresholds, psychosocial and medical complexity criteria have weekly high-risk rounds with physician, care coordinator, social worker, nurse, and liaison from PAC community
• PAC representative provides personalized insight into appropriate site for post-acute care; patient and family provide input

Source: Health Care Advisory Board interviews and analysis.

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1) Post-acute care.
2) Pseudonym.
2. Equip Patients with Resources to Manage Recovery

Bridging the Gap Between Health System and Home

Engaging patients becomes increasingly challenging as patients transition from hospital to home. To ensure continued momentum, organizations must reinforce the final steps in the care pathway by providing patients with tools for self-management.

Postwire is a discharge-planning application that allows providers to record discharge instructions for easy access by patients and caregivers once patients are home. Care teams can continue to update information throughout the recovery process to address specific patient questions or further refine the care plan across recovery.

Similarly, GetWellNetwork links a successful inpatient education system with follow-up support at the patient’s home. Through the computer, phone, or television, patients complete educational modules on the recovery process and submit questions to the care team as needed.

Easy Access to Information to Reinforce Discharge Plan

Supplementing Initial Instructions with Updated Resources

1. Provider records audio or visual discharge information

2. App organizes content onto personal, secure website

3. Provider edits content, uploads supplemental resources

Providing Continuous Access to Information

Inpatient Setting
- Customized to condition
- Focus on discharge planning, medication management

Home Setting
- Access to care plan
- Provider monitoring of patient activity; follow-up if necessary

Innovation in Brief: Postwire

- HIPAA-compliant mobile application transfers discharge instructions recorded via smartphone to personal website
- Content organized for easy accessibility by patients, caretakers; resources available for download throughout recovery
- Website access limited to patient, provider

Innovation in Brief: GetWellNetwork

- Interactive software helps providers empower, involve patients in own care pathway
- GetWell@Home extends provider guidance for recovery using web, phone, television
- Reduced pediatric asthma readmission rate at Banner Health Cardon Children’s Medical Center in Mesa, Arizona by 60%

Making Follow-Up Easier for Patients and Providers

In addition to reinforcing self-management, providers should also develop seamless mechanisms for reconnecting patients and care teams. These follow-up appointments can be critical for evaluating the recovery process at low-acuity sites of care, and adjusting the care plan to avoid complications after treatment.

Organizations have established a range of tactics, including scheduling appointments pre-discharge, following up over the phone shortly after discharge, and leveraging home health.

VGo Communications designed a robot to connect to patients in the home following discharge. Physicians can log-in to the VGo portal to conduct virtual follow-up visits and evaluate the patient’s recovery environment. The robot can be especially helpful in reconnecting patients with a multidisciplinary team which would have required the patient visit multiple sites of care.

Finding Innovative Solutions to Support Recovery at Home

Accessing Patients Regardless of Location

- Gain insight into lifestyle, home environment
- Receive care while at home
- Flexible appointment scheduling
- Avoid potential transportation risks
- Access multiple physicians at once

Driving Value with Innovation

“Physicians like me are constantly being asked to be more efficient with our time and money. This is a technology that allows us to be very cautious, efficient, and innovative at the same time.”

Hiep T. Nguyen, MD
Children’s Hospital Boston

Innovation in Brief: VGo Communications

- Simple, lightweight robotic telepresence solution enables remote physicians to conduct real-time visits
- Providers assign device according to patient risk status; length of time varies from two weeks to two months
- Physicians control movement of robot, frequency of patient interaction
- Currently being used by physicians at Children’s Hospital Boston in Massachusetts

Daily cost savings required for health system to break even

$10

3. Create Feedback Loops to Address Recovery Complications

Increasing System Awareness of Complications

As a final step in building the infrastructure to engage patients in episodes of care, providers must work to increase system sensitivity to unexpected complications in the recovery process. Today, providers often do not know a patient is experiencing complications until the patient visits the emergency department or requires readmission.

Tools like Pipette, a remote monitoring tool, offer daily snapshots into a patient’s recovery process. Patients answer a series of questions about their symptoms, and an algorithm flags patients in need of immediate care team support. By identifying early-warning signs, providers can manage patients at lower acuity settings, preventing unnecessary high-acuity care.

Collect Data to Flag Patient Problems Early

Monitoring Increases Patient, Provider Awareness of Recovery Status

Innovation in Brief: Pipette

- Remote health monitoring platform tracks patients during recovery through active patient input of health status
- Short recovery questionnaires track compliance to recovery plan, care team instructions; most patients complete questions in 45 seconds
- Algorithms detect data trends indicating high readmission risk; monitoring system notifies care team when recovery complications arise
- Generates and sends tailored, behaviorally intelligent notifications for patient education

Source: Health Care Advisory Board interviews and analysis.
Training Patients to Communicate Proactively

Organizations also need to encourage patients to alert the care team to unexpected changes in health status. To maximize the impact of these patient-initiated concerns, systems need to provide accessible communication points and respond quickly, or risk discouraging patients from communicating with the care team.

 Consultants in Medical Oncology and Hematology, a certified oncology medical home, developed a phone triage service for oncology patients who experience any type of treatment-related symptom. Nurses use symptom-management algorithms to triage patients. Across the last three years, the care team has reduced ED referrals and admissions substantially.

Increasing System Responsiveness to Patient Red Flags

Every Symptom Counts
“We tell patients to accept nothing. If you have issues, you call.”

John Sprandio, MD
Lead Physician

Case in Brief: Consultants in Medical Oncology and Hematology
- Eight-physician medical group located in Drexel Hill, Pennsylvania; created phone triage for oncology patients as part of medical home designation
- Nurses manage triage line during normal hours, on-call physicians field questions during off-hours
- Algorithms ensure standardized, timely recovery support used in clinic and for phone triage
- Triage line receives 15-20 calls/day

Helping Patients Manage Symptoms at Home
n=13,881
76%
Manage at Home

Preventing Unnecessary ED Utilization, Hospital Admissions
2007-2011
ED Referrals
Hospital Admissions
Total Patient Volume
(65%) (43%)
30%

Source: “Good Call: Oncology Practice’s Phone Triage Curbs ED Visits,” The Advisory Board Company Daily Briefing, March 2012; Health Care Advisory Board interviews and analysis.
Driving Engagement in Ongoing Management

For organizations negotiating population management contracts, the competitive implications of successful patient engagement include not only episodes of care but also ongoing patient management. To bend the total cost curve for a population, organizations must develop a care management infrastructure capable of encouraging targeted groups of patients to improve day-to-day chronic condition management.

Building the Infrastructure for Population Management

Four Key Components of a Robust Management System

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<th>Passive System Management</th>
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<tr>
<td>High Intensity Management</td>
<td>Low Intensity Management</td>
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4. Intensive Case Management
   - Identify and prioritize support for high-risk patients

5. Targeted Care Management
   - Leverage data to identify changes in health status early

6. “Automated” Self-Management
   - Open access points to promote low-acuity utilization

7. Support ongoing self-management

Source: Health Care Advisory Board interviews and analysis.
Balancing Care Team and Technology Support

In building a care management infrastructure, systems must determine how to deploy limited care team resources. By segmenting the population according to risk, organizations can identify patients in greatest need of care team support versus patient monitoring and engagement technologies.

With the highest-risk patients, organizations rely on a multidisciplinary team of physicians, nurses, social workers, and peers. Though technology can make the care team more effective, these patients still require regular care team interactions.

With the lowest-risk patients, the care team assumes a more limited role unless the patient reaches out with symptoms. However, organizations can supplement direct care team support using technology to encourage engagement in healthy day-to-day activities.

Allocating System Resources to the Right Patient at the Right Time

Technology Extends Health System Reach for Patient Management

- **Direct Support for High-Risk Patients**
  - Provide frequent, direct system resources for high-risk patients

- **Independent Tools for Ongoing Self-Management**
  - Equip patients with resources to motivate self-management

- **Remote Monitoring of Specific Groups**
  - Track long-term patient health status, recognize early indicators of complications

Source: Health Care Advisory Board interviews and analysis.
4. Identify and Prioritize Support for High-Risk Patients

Identifying Patients with the Greatest Need

For population managers, the biggest short-term opportunity to impact utilization is focusing on high-risk patients. High-risk patients commonly experience lapses in care continuity, resulting in unnecessary emergency department or inpatient visits.

First, providers must identify these patients in order to mobilize care team support. Adventist Health Portland uses an internally developed disease registry to find the highest risk patients based on claims history, pharmacy data, and biometric information. Case managers then reach out and develop a customized care plan.

Develop Customized Management Plan for the Highest-Risk Patients

Case in Brief: Adventist Health Portland

- 300-bed health system located in Oregon
- Developed in-house predictive modeler tool to identify future at-risk patients in existing patient panel
- Patient metrics tracked include pharmacy data, claims history, biometric information
- Adapted Johns Hopkins’s utilization tool to identify, address gaps in care for existing patients in the system
- At-risk patients notified by case manager for early intervention, frequent management

Source: Health Care Advisory Board interviews and analysis.
Increasing Frequency of Patient Communication

Once high-risk patients are identified, the care team should strive for more frequent interactions with these patients to monitor health status and set expectations for ongoing management. Given the complex care plans for these patients, more frequent interactions can offer additional support to patients managing their conditions, and identify when the care plan requires adjustment.

In the Cholesterol, Hypertension, and Glucose Education study at Duke University Medical Center, primary care physicians selected their highest risk patients to participate in monthly follow-up calls with nurses. Nurses focused on a range of topics from basic disease management to motivating behavior change. A particularly promising early result: patients became more active participants in the monthly calls, exhibited by an increasing number of patients preparing questions in advance.

Engagement Improves Outcomes for CVD,¹ Diabetes Patients

Recurring, Targeted Interaction Improves Management, Patient Health

1. Basic Disease Management
2. Motivating Behavior Change
3. Addressing Social, Economic Barriers

Nurse focuses on three themes of patient management

Patient anticipates monthly call; prepares updates, questions

Case in Brief: CHANGE Trial at Duke University Medical Center

- CHANGE (Cholesterol, Hypertension, and Glucose Education) trial for cardiovascular disease, diabetes risk management
- Primary care physicians select highest risk patients for monthly follow-up calls with nurses over period of one year; nurses submit quarterly patient reports back to physician
- Nurses discuss medication management and side effects on all calls; other discussion topics, such as diet, exercise, depression, stress scheduled according to perceived patient needs
- Frequent communication develops patient-nurse relationship, engages patients in management, reveals barriers to care plan adherence, enables tailored management goals


¹) Cardiovascular disease.
Analyzing Patterns to Identify Problems

Teams also need better insight into the day-to-day lives of high-risk patients. When asked at a visit to estimate the severity or frequency of symptoms, patients tend to under-report. As a result, physicians overestimate the success of individual treatment plans.

To address this problem, providers are leveraging tools to generate real-time data about patient symptom management. For example, Asthmapolis has developed a GPS sensor attached to a patient’s inhaler to capture ongoing information on asthma management. When the inhaler is used, a notice is generated, including the time and location of the asthma attack. Patients receive text messages and weekly summaries with tracking information and providers are alerted to any abnormal spikes in utilization. With the trend data, the care team makes personalized adjustments to the ongoing care plan.

Collecting Accurate Information on Asthma Complications

Real-Time Management

“There isn’t a great way right now for physicians to understand how patients are doing between visits. Physicians tend to overestimate how well their patients are doing, often because patients accept their symptoms as normal and don’t report them to their physician.”

David Van Sickle
Co-founder and CEO, Asthmapolis

GPS devices tracks patient inhaler usage automatically; triggers provider notification

Provider contacts patient to offer guidance, determine cause

Innovation in Brief: Asthmapolis

• Attachable GPS device for asthma inhalers sends real-time breathing, medication adherence data to provider; charts frequency, location of inhaler use
• Enables providers to offer personalized management guidance and advice on medication use
• Currently in pilot with Dignity Health in Sacramento, California, and employers, providers in Louisville, Kentucky

Source: Health Care Advisory Board interviews and analysis.
5. Leverage Data to Identify Changes in Health Status Early

From Monitoring to Management

With well-managed patients, the care team can scale back direct support. However, they must be able to respond quickly if patients experience a decline in health status.

Mobile health and monitoring tools can help care teams determine when patient interventions are required. For example, the University of Missouri Sinclair School of Nursing has embedded a full suite of monitoring tools in an Americare nursing home. Sensors by the stove, refrigerator, and cabinets collect data on appliance utilization. Additionally, a modified Xbox Kinect monitors activity levels. Smart carpet fibers also analyze trends in walking speed and stride length. Small behavior changes can be identified and the care team can be alerted to reach out to the individual.

Automated Alert Systems Prompt Timely Intervention for At-Risk Elderly

Immediate Data Capture and Results
Feedback from Nursing Home Sensors

- XBox Kinect, carpet fiber sensors track motion patterns, activity frequency
- Data from sensors analyzed, transferred to EMR; alerts caregivers to changes in activity
- Provider offers reassurance, medical attention if needed

Case in Brief: University of Missouri Sinclair School of Nursing

- Nursing home apartments wired with passive monitoring technology that tracks motion, recognizes personal behavior patterns
- Embedded tools, such as modified XBox Kinect sensors and carpet fiber sensors, detect falls and assess ability to live independently
- Sensor data transferred to EMRs, enabling providers to more frequently monitor status of highest-risk individuals

### A Complete Picture of Patient Health

Innovators are also tapping into data generated by smartphones to create similar monitoring platforms. Data can be analyzed to build a comprehensive picture of the individual’s normal activity patterns, enabling health systems to identify small changes that warrant patient intervention.

Ginger.io, a behavioral analytics platform, gathers data from mobile phone sensors and translates the information into indicators of individual health. The goal is to identify changes in socialization and activity levels that suggest changes in health status.

Ginger.io is currently partnering with providers and patients to feed the data into local health information exchanges, making this wealth of information available to all providers working with an individual patient.

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**Ginger.io Aggregates Cell Phone Data to Identify Health Status**

<table>
<thead>
<tr>
<th>Passive Data Collection</th>
<th>Behavioral Index Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone Sensors</td>
<td>Protecting Privacy</td>
</tr>
<tr>
<td>GPS Location</td>
<td>Tracks activity</td>
</tr>
<tr>
<td>Call/Text Patterns</td>
<td>anonymously; does not</td>
</tr>
<tr>
<td>Accelerometer</td>
<td>report specific</td>
</tr>
<tr>
<td>Balance</td>
<td>contacts or locations</td>
</tr>
</tbody>
</table>

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**Innovation in Brief: Ginger.io**

- Behavioral analytics platform for existing patients that evaluates passive data gathered from mobile phone sensors
- Generates risk-stratified “Check Engine Light” for health that alerts care team of patients who need immediate attention by monitoring, analyzing changes in behavior pattern
- Current pilot with Cincinnati Children’s Hospital Medical Center for IBD and Crohn’s Disease; care team members often install the mobile application for patients directly during office visits

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Source: Health Care Advisory Board interviews and analysis.
6. Open Access Points to Promote Low-Acuity Utilization

Making Access Easy for Patients

In addition to targeted care management, the population management infrastructure must include access points for patients when lower-acuity health care needs emerge. Critical to effective population management is encouraging patients to use lower-acuity settings before symptoms become more emergent or acute. To prompt patients to use these sites, access points must integrate into a patient’s day-to-day activities.

For example, worksite clinics can be helpful for organizations partnering with employers to manage the total cost of care for the employee population. Direct lines of access can serve as powerful tools to build care management partnerships.

Prevea Health, a 200-physician multispecialty group, operates nurse practitioner-staffed worksite clinics. These sites serve approximately 100 patients per month. In addition, the clinics integrate with the more traditional primary care sites.

**Worksite Clinics Facilitate Convenient, Low-Acuity Care**

**Prevea Worksite Clinics Manage Chronic Care Patients**

- Clinic NP\(^1\) coordinates chronic care, PCP follow-up
- Clinics serve as medical home extension for successful PCP-patient referrals

**Case in Brief: Prevea Health**

- 200-plus provider multispecialty group located in Green Bay, Wisconsin
- Established five worksite clinics each staffed by one nurse practitioner
- Chronic care processes based on medical home pilots at Prevea PCP practices
- Worksite clinics will roll out full EMR integration with PCP practices to increase care coordination, patient convenience
- Patients may visit Prevea urgent care center outside of business hours at reduced negotiated rate

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1) Nurse practitioner.
Promoting appropriate, low-acuity utilization includes interacting with patients at home. Extending access points includes leveraging the patient’s home as the most convenient site of care.

Mercy Health System, a 30-hospital system in the Midwest, is building a $90 million Virtual Care Center in its headquarters in Chesterfield, Missouri. The Virtual Care Center brings together all of Mercy’s telemedicine programs under one roof, ranging from eICU to remote disease management and primary care access. Mercy envisions that two-thirds of the patient’s clinical care could occur at the patient’s home.

Patients Sending Inquiries, Information to Providers Directly from Home

Extensive Virtual Care Center Expands System Approach to Care

iPhone Attachment Brings Patient Diagnoses to the Home

Case in Brief: Mercy Health System
- 30-hospital health system located in Arkansas, Kansas, Missouri, and Oklahoma
- Provides e-ICU capabilities in all 450 ICU beds across system; planning to expand stroke, pediatric, long-term care telehealth services
- Also plans to extend virtual access to primary care services, rural facilities

Mercy’s Projections on Potential Use of Virtual Care Delivery
- 30% Care delivered virtually to patients
- 66% Clinical care experienced at home

Source: Health Care Advisory Board interviews and analysis.
7. Support Ongoing Self-Management

Health Information at User’s Fingertips

Harnessing data to identify opportunities for patient intervention is important, but the care management enterprise must also empower patients in their own self-management. New tools can offer additional support to patients managing their own care.

For example, txt4health is an interactive, 14-week text messaging program. The program begins with a series of questions to determine the patient’s risk of developing type 2 diabetes—height, weight, diet, and other risk factors. With this information, an analytics engine tailors text messages to the individual patients. For low- to medium-risk patients, the program focuses on engaging in health activities and goal setting. High-risk patients receive additional messaging about connecting to health system resources.

Automated Text Message Program Assists At-Risk Diabetes Population

txt4health Services and User Interaction

Assessment: “Let’s start building your health profile. How much do you weigh? Don’t worry, you can tell me.”

Tips: “Eating slowly helps keep you from going for second servings. If you’re still hungry after a meal, fill up on vegetables or a piece of fruit.”

Goal setting and monitoring: “Time to check in on your goal of <---> pounds. Get on the scale and then reply with your current weight.”

Consistent Management Reminders

4-7 Free, customized text messages user receives each week

Innovation in Brief: txt4health and Crescent City Beacon Community

- New Orleans program managed by the Crescent City Beacon Community and the Louisiana Public Health Institute
- User self-registers for 14-week program by texting “HEALTH” to 300400
- Since January 2012 launch, more than 1,000 users have signed up
- Advisory group includes partners such as Blue Cross and Blue Shield of Louisiana, Ochsner Health System, Wal-Mart, Novo Nordisk, Neighborhood Partnership Network
- Additional pilot programs rolled out to Detroit and Cincinnati
- Future goal is to integrate patient data received through platform to HIE


1) Health information exchange.
Turning Self-Management into a Game

Care managers may also tap into recent innovations that “gamify” health behaviors to engage patients in self-management. Health activities are mapped to a game where individuals can earn points or prizes. The challenges focus on small, actionable tasks that create short-term milestones, adding up to longer-term results.

In one example, The Prevention Plan, patients complete a comprehensive risk assessment and then develop a personalized care plan to manage top risk factors with the help of health coaches.

The Prevention Plan includes a weekly game where individuals can earn points by completing tasks related to exercise, nutrition, and health care education.

Setting Up Customized Care Plans for Self-Management

The Prevention Plan User Workflow

Macaw App Assigns Weekly Tasks, Rewards Ongoing Engagement

Innovation in Brief: The Prevention Plan

- Web-based suite of prevention tools establishes personal action plan through HRA\(^1\) and lab panel, manages wellness goals, provides health coaching
- Users receive a “Prevention Score”—a credit score for health engagement—that motivates users to continue adherence to personal management plan
- Recently launched corresponding app, Macaw, to engage users via smartphone, tablet
- Currently marketed to employers and consumers directly, but now offering “white label” version that health systems co-brand, customize

50%-60%
Enrollment rate, compared to average 15% engagement rate for health plan-sponsored programs
(88%)
Two-year decrease in incidence of high blood pressure among high-risk users\(^2\)

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1) Health risk assessment.
2) Includes individuals with 5+ health risks such as blood pressure (systolic >139 mm Hg or diastolic >89 mm Hg), cholesterol (>239 mg/dl), high-density lipoprotein cholesterol (<35 mg/dl), fasting blood sugar (≥126).
Transforming Community Health

A comprehensive care management system enables engagement of targeted groups of patients. However, as population managers, organizations also have an opportunity to engage whole communities—to truly take on population health.

Engaging communities is by no means a new health system activity. However, many organizations approach community engagement as separate from day-to-day clinical operations. As population managers, providers must strengthen links between clinical operations and broader health and wellness activities.

Reinforcing Value through Population Engagement

Collaborate to Activate Population Health

- **8** Prioritize health system activities to greatest community needs
- **9** Extend partnerships to secure broader community health

Source: Health Care Advisory Board interviews and analysis.
8. Prioritize Health System Activities to Greatest Community Needs

Health System as “Hot Spotter”

Much like the responsive care management infrastructure, community engagement starts with leveraging data to identify how to best allocate limited resources. Dignity Health’s Community Need Index tracks five socioeconomic metrics as proxies for health care access at a zip code level. The metrics include: education, housing, income, insurance status, and language. With the data, each hospital uses the Community Need Index score to craft community benefit priorities.

Socioeconomic Analysis to Target Local Health Needs

Case in Brief: Dignity Health

- 40-hospital health system located in Arizona, California, and Nevada
- Uses metrics on socioeconomic barriers to health care access to compute Community Need Index (CNI) score, characterizing health disparity by region
- CNI score shows strong correlation between high need and high health care utilization
- Uses information available for all US zip codes

Community Need Index Calculation Framework

<table>
<thead>
<tr>
<th>Socioeconomic Factors</th>
<th>CNI Score for Green Valley, AZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Percentage without high school diploma</td>
</tr>
<tr>
<td>Housing</td>
<td>Percentage renting houses</td>
</tr>
<tr>
<td>Income</td>
<td>Percentage of people living in poverty</td>
</tr>
<tr>
<td>Insurance</td>
<td>Percentage uninsured, percentage unemployed</td>
</tr>
<tr>
<td>Language</td>
<td>Percentage with limited English proficiency</td>
</tr>
</tbody>
</table>

Aggregate CNI Score:
(1—low need to 5—high need) 1.8

9. Extend Partnerships to Secure Broader Community Health

**Leverage Social Networks to Spur Health Activity**

Organizations can extend their reach by partnering with other community stakeholders. Community groups often are natural allies because of their investment in the community’s overall health.

Methodist Le Bonheur Healthcare formed the Congregational Health Network in partnership with 480 area churches. This program assigns hospital staff to work with volunteer church liaisons, who provide ongoing patient support and act as a bridge between their congregation and the health system. The hospital staff members educate liaisons on topics such as: community health promotion, hospital visitation, end-of-life care, mental health, and first aid.

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**Additional Community Support Drives Patient Outcomes**

**Connecting Patients with Community Leaders**

Liaisons selected based on extent of integration into life, culture of congregation

Liaisons geographically matched to neighborhoods, with emphasis on reaching high-risk individuals

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**Case in Brief: Methodist Le Bonheur Healthcare**

- Seven-hospital health system in Tennessee
- Developed Congregational Health Network to leverage social infrastructure of area churches
- Hospital staff members partner with church liaisons, who educate congregation members about healthful living, disease prevention

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**480**

Area churches partnering with Methodist Le Bonheur

**20%**

Reduction in readmissions among program participants

**$4.1M**

Aggregate cost savings from decreased utilization

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1) In n=473 patient group, compared to non-participating group (matched on age, gender, ethnicity) receiving standard care over two years.

Multiple Opportunities for Community Engagement

Social networks also can encourage patients to adopt or maintain healthy habits. Because these groups are often part of people’s routines, partnering with community stakeholders can give the health system direct access to day-to-day activities.

For example, Sanford Health primary care physicians hold group visits at the YMCA. Mount Carmel Health System opened a health center in local high school to engage entire families. And, St. Luke’s Hospital has been partnering with local employers.

Encouraging Social Networks to Reinforce Health Activities

Creative Ways to Engage Populations in Ongoing Wellness

Mount Carmel Health System and School District

Opened community health center on high school campus to provide preventive care, health classes

Sanford Health and YMCA

Offers group visits at YMCA in which physicians walk, bike with patients while discussing healthy lifestyle

St. Luke’s Hospital and Employers

Implementing wellness program with access to group fitness classes, lifestyle programs at 170 local worksites

A focus on community engagement can quickly move an organization toward goals beyond the clinical health of the population. Although this may not be the right approach for all organizations, as providers engage a wider range of stakeholders, opportunities exist to improve the economic and social health of a community.

For example, the Live Midtown program is designed to revitalize Midtown Detroit. Programs include subsidies for employees who relocate to the neighborhood and redevelopment of buildings into senior housing, medical school housing, and research facilities. Organizers hope the program will not only increase the quality of life for those who take advantage of incentives, but also provide a significant economic jolt to the city’s neighborhoods.