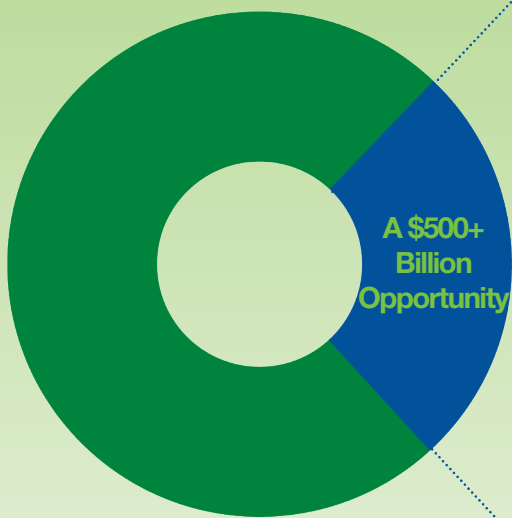


# BEND THE CURVE

## A Health Care Leader's Guide to High Value Health Care



- Reducing Emergency Department Overuse
- Reducing Antibiotic Overuse
- Improving Patient Medication Adherence
- Reducing Vaccine Underuse
- Preventing Hospital Readmissions
- Decreasing Hospital Admissions for Ambulatory Care Sensitive Conditions
- Preventing Medication Errors



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The views expressed herein are solely those of NEHI and are not intended to represent the individual viewpoints of our sponsors, members or advisors.

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## About NEHI

NEHI is a national health policy institute focused on enabling innovation to improve health care quality and lower health care costs. In partnership with members from all across the health care system, NEHI conducts evidence-based research and stimulates policy change to improve the quality and the value of health care. Together with this unparalleled network of committed health care leaders, NEHI brings an objective, collaborative and fresh voice to health policy. For more information, visit [www.nehi.net](http://www.nehi.net).

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## About the WellPoint Foundation

The WellPoint Foundation is the philanthropic arm of WellPoint, Inc. and through charitable contributions and programs, the Foundation promotes the inherent commitment of WellPoint, Inc. to enhance the health and well-being of individuals and families in communities that WellPoint, Inc. and its affiliated health plans serve.

The Foundation focuses its funding on strategic initiatives that address and provide innovative solutions to health care challenges, as well as promoting the Healthy Generations Program, a multi-generational initiative that targets specific disease states and medical conditions. These disease states and medical conditions include: prenatal care in the first trimester, low birth weight babies, cardiac morbidity rates, long term activities that decrease obesity and increase physical activity, diabetes prevalence in adult populations, adult pneumococcal and influenza vaccinations and smoking cessation.

The Foundation also coordinates the company's annual associate giving campaign and provides a 50 percent match of associates' campaign pledges. To learn more about the WellPoint Foundation, please visit [www.wellpointfoundation.org](http://www.wellpointfoundation.org).

# About this Guide

Dear Health Care Leader,

Our health care system stands at a crossroads: down one road lies increasingly higher costs that will continue to strain public and private spending; down the other, a leaner, more efficient future of high value health care and improved health for all Americans. Although we aspire to the latter path, the divide between the health care system's aspirations and reality is far too pronounced, as too much of the care we provide today is inefficient, ineffective and ultimately wasted.

The enclosed Bend the Curve guide is one attempt to bridge this divide. It is intended to support health care leaders' efforts to lower health care costs by identifying seven specific areas of waste and inefficiency that together drain \$521 billion from the system each year and steps that could be taken to curb this unnecessary spending without adversely impacting quality of care. Each of the seven topics includes a policy brief that provides details on the scope and causes of waste, describes "proven practices" that have already been implemented to curb waste, and recommends "policy actions" to remove the waste from the system. In addition, each topic includes a "Case Interview" about a successful intervention told in the words of the implementers themselves.

This guide is intended to provide you with data to make the case for solutions you can implement and promote, and also provides real-world experiences from health care leaders. More information and tools are available on the Bend the Curve Campaign's website, [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve). Please use these tools to work in your own organizations and communities to identify, educate and implement successful solutions to the very real problem of health care waste.

Change will not happen overnight, but now is the time to begin our shared work to create high value health care.



Wendy Everett, ScD  
*President, NEHI*

# BEND THE CURVE

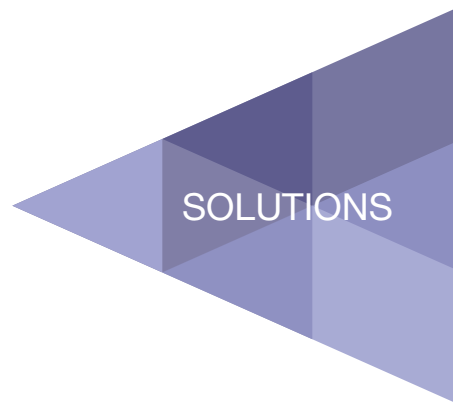
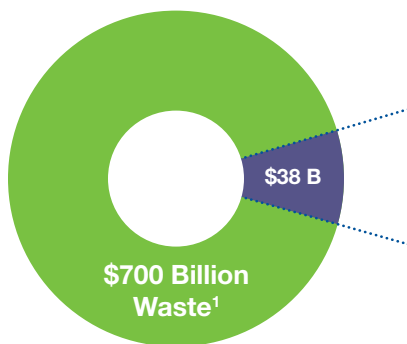
Every year, millions of Americans arrive at an Emergency Department (ED) to seek care for a non-urgent condition. They arrive with asthma flare-ups, diabetic complications, the common cold, the flu and even cases of the sniffles. Some are uninsured, but many are not. Some lack a primary care provider, but many have a regular source of health care. For thousands each day, the ED is their first source of health care, not their refuge in an emergency. The consequences of this overuse are well established: overcrowded emergency rooms, uncoordinated care and billions of dollars in unnecessary health care spending.

Data suggest that more than half of the 130 million annual ED visits are avoidable, for conditions that can be treated in urgent care clinics, primary care offices and by thoughtful prevention. Change is possible, but will only be achieved through coordinated action on many fronts.

Primary care must be elevated to priority status in the health care system and given the financial and technical resources necessary to provide appropriate care to more patients. Primary care practices themselves must work in new ways, leveraging the power of teams, extending access to care by making care convenient for patients with busy work and family lives. New sources of care must be made available, including retail clinics and “virtual” visits enabled by tele-health, and all providers need to better coordinate care across settings. Patients must also be part of the solution, embracing healthy behaviors and making thoughtful choices about where they seek care.

Successful adoption of proven practices and implementation of policy actions together offer the potential to make millions healthier and save \$38 billion currently wasted on unnecessary visits to the ED, money which can be reinvested to bring us closer to the goal of high value health care.

# Reducing Emergency Department Overuse: A \$38 Billion Opportunity



- Improve Access to Primary Care Services
- Promote Alternative Approaches to Primary Care
- Provide Specialized Services for Vulnerable Populations
- Implement Effective Chronic Disease Management
- Reform Payment for Providers
- Develop Financial Incentives for Patients
- Share Data on ED Utilization

Targeting the \$38 billion spent annually on emergency department overuse requires building on proven practices and implementing policy actions that target the root causes of the problem.<sup>2</sup>

The use of hospital emergency departments (ED) for non-urgent care and for conditions that could have been treated in a primary care setting is a significant source of wasteful health care spending. The causes of ED overuse are complex and systemic, resulting from the crisis in primary care and the appeal of the emergency department.

Reducing ED overuse requires building on a coordinated set of proven practices in the field coupled with policy actions in both the public and private sectors.

## THE PROBLEM

### Scope of Emergency Department Overuse

- Nationally, 56 percent, or roughly 67 million ED visits, are potentially avoidable.<sup>3</sup>

### Costs of Emergency Department Overuse

- The average cost of an ED visit is \$580 more than the cost of a comparable office visit.<sup>4</sup>

### Users of the ED for Non-Urgent Care

- All types of patients use the ED for non-urgent care, including all age groups, insurance types and even insured patients with a usual source of primary care.
- One-third of ED visits are made during regular business hours when primary care offices are open.

### Drivers of ED Use

- Patients can receive ED care anytime, regardless of the severity of their condition.
- The ED provides patients with immediate feedback and a sense of reassurance about their condition.
- A wide range of health care services are readily available in the ED.

### Primary Care in Crisis

- A lack of timely appointments and available after-hours care drive patients to the ED.
- Chronically ill patients without access to primary care, or those with poorly coordinated care, often end up in the ED.
- Many primary care practices instruct patients to seek care in the ED outside of business hours.

## SOLUTIONS

### Improve Access to Primary Care Services

- **Proven Practice:** Increasing access to primary care services can reduce ED overuse by up to 56 percent.<sup>5</sup>
- **Proven Practice:** Pilots of the patient-centered medical home model have recorded a 37 percent reduction in ED use.<sup>6</sup>
- **Proven Practice:** Patients receiving care from a primary care practice offering weekend hours use the ED 20 percent less than patients from practices that do not.<sup>7</sup>
- **Proven Practice:** Access to a physician-staffed 24-hour telephone consultation service reduced avoidable ED use from 41 percent to 8 percent of visits.<sup>8</sup>
- **Proven Practice:** Nurse-operated telephone triage programs, which provide patients with prompt

*Continued on back*

A number of tested measures already exist for reducing ED overuse, including offering alternative approaches to primary care, specialized services for vulnerable populations and effective chronic disease management.

Reducing the overuse of emergency department services requires policy actions that involve providers, payers and patients.

medical advice, reduced ED utilization by 4.3 percent and produced annual net savings of nearly \$400,000.<sup>9</sup>

#### Promote Alternative Approaches to Primary Care

- **Proven Practice:** Free-standing hospital-based urgent care clinics have the potential to reduce ED use by nearly 48 percent.<sup>10</sup>
- **Proven Practice:** Patients who had tele-health “virtual visits” with clinicians to diagnose and treat routine childhood symptoms used the ED 22 percent less than patients who did not use these services.<sup>11</sup>
- **Proven Practice:** Retail clinics, which provide services for simple acute medical conditions without an appointment, cost one-fifth as much as an ED visit and up to 10 percent of ED patient visits could be cared for adequately by retail clinic staff.<sup>12</sup>

#### Provide Specialized Services for Vulnerable Populations

- **Proven Practice:** Services for homeless adults, including housing and case management support, reduced ED use by 24 percent.<sup>13</sup>

#### Implement Effective Chronic Disease Management

- **Proven Practice:** Chronically ill adults who participated in group visits with other patients who had similar diseases used the ED 17 percent less than patients not participating in the program.<sup>14</sup>

#### Reform Payment for Providers

- **Policy Action:** Adopt payment approaches that enable providers to invest in primary care improvements, such as extended hours, increased contact with patients via telephone and e-mail, HIT, and additional staff for care teams.
- **Policy Action:** Implement performance-based payment systems that use patient ED utilization or appointment wait times as quality metrics to reward health care professionals who reduce ED overuse.

#### Develop Financial Incentives for Patients

- **Policy Action:** Reduce co-payments for patients who use urgent care clinics.
- **Policy Action:** Increase patient co-payments for non-urgent ED visits.

#### Share Data on ED Utilization

- **Proven Practice:** Providing hospital utilization data on avoidable ED visits to patients’ primary care providers.
- **Proven Practice:** Providing health plan claims data to health care professionals on the ED utilization of their patient populations.

► Learn more about ways to Bend the Curve in health care costs at: [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)

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BEND THE  
CURVE

## Case Interview

*Jed Weissberg, MD, Kaiser Permanente and Mark Littlewood, The Permanente Federation on Facilitating Appropriate ED Use*

**What issue within reducing unnecessary emergency department visits were you trying to address?**

Facilitating appropriate ED use.

**What was the solution you decided upon to address the issue and why?**

There was not just one solution to addressing inappropriate ED use; rather, there were a number of solutions, as it was a multi-pronged approach:

- Increasing communication and access with primary care providers, through same day clinic appointments, secure email messaging, and nurse and physician presence in call centers. Having physicians work within the call center setting might arguably have had the greatest impact on reducing ED referrals in the Kaiser Permanente network.
- Establishing urgent care centers, which have 23-hour holding beds that allow for patients to be observed and treated without directly admitting patients to the hospital. This internal capability reduces referrals to contract or outside-of-network hospital EDs.
- Analyzing frequent fliers and discovering that a large number of them were going for mental health reasons. In turn, an outreach program was created in which social workers/mental health professionals contacted these patients to learn about their needs and provide appropriate resources and referrals to behavioral health services as an alternative to the ED.
- Improving decision support for doctors through EMRs, which help doctors to better diagnose and treat patients on 10 of the highest risk patient complaints. This also reduces return visits for the same symptoms or discharge when abnormal vital signs are still present.
- Improving transition support for patients following discharge through discharge bundles, as the most common cause for patients returning to the ED is not taking their medications correctly. This support is facilitated by a pharmacist and/or at the point of discharge and/or through a phone call or email follow-up within 24 hours of leaving the hospital.

**What were the barriers you faced in the implementation of your solution?**

Resource barriers are an issue, as there are often not enough resources to continue targeted programs, such

as outreach to frequent utilizers or improved work on transitions of care for those with high acuity conditions. In addition, there is an inherent tension between the desire of easy accessibility to physicians and the reality of physicians not being able to be seen 24/7, 365. Lastly, primary care panel management is an issue, as excessive panel size encumbers a clinic's availability of same day appointments.

**How did you overcome these barriers?**

Accessibility to physicians has been remedied through same day clinic appointments, secure email messaging, and call centers staffed by nurses and physicians. The results with these approaches are quite positive, as these call center physicians are able to offer assistance to about half of the patients they speak with, eliminating the need for an ED visit. Additionally, we have addressed the issue of primary care panel management by adding primary care physicians to reduce panel size and having some unscheduled appointment slots for use by call centers, which has helped when we are unable to match a patient with their PCP.

**What were the critical success factors in the implementation of your solution?**

An increased sense of ownership among physicians and ambulatory care staff to keep patients out of the hospital when they do not need to be there, specifically out of the ED, has been crucial. Physicians and ambulatory care staff feel a responsibility for keeping patients healthy, and do not want patients in the ED unless they have to be.

**What specific clinical and financial results have you experienced?**

Reduced costs and improved quality have been a real positive result of these solutions. In addition, a sense of ownership among physicians regarding the problem has also resulted. Lastly, saving patients' time in the ED has also occurred as a result of these solutions.

**What is one piece of advice you would offer to another organization trying to reduce unnecessary emergency department visits?**

Improve engagement with primary care physicians and the overall health care team.

# BEND THE CURVE

When overused, antibiotics can be harmful and costly. Antibiotics have cured millions of deadly and debilitating conditions and improved lives around the world. Yet these life-saving treatments are all too often used without good reason and restraint. The inappropriate use of antibiotics risks more than just excess spending; overuse increases the risks of antibiotic resistance, which helps to cancel out the curative power of these therapies and leads to the rise of “superbugs,” deadly new infections that can reek havoc on at-risk patients.

At the core of the problem is overtreatment: using antibiotics in circumstances where they will not be effective, such as viral conditions or where the natural healing process would be equally successful. Patients are partially to blame for this overtreatment; many believe that a visit to the doctor that does not end with a prescription is unsatisfactory, regardless of the actual clinical benefits.

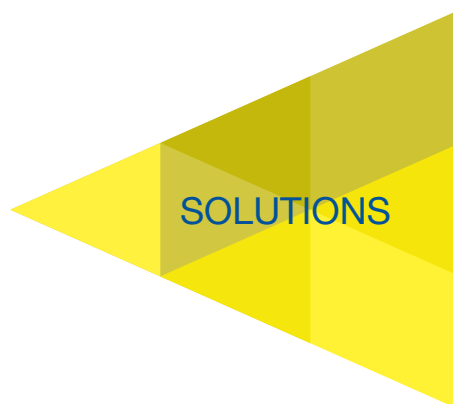
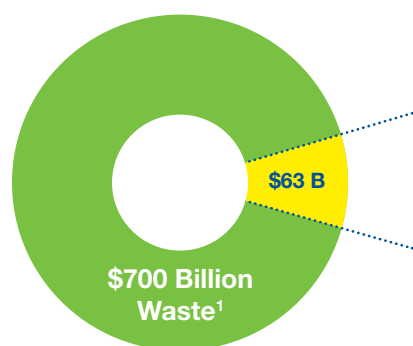
Perhaps most surprising, however, is the fact that the vast majority of antibiotics used in the U.S. are not given to humans. The extensive non-therapeutic use of antibiotics in animals in the food supply, like all overuse of antibiotics, increases the risk of antibiotic resistance in humans.

A coordinated set of solutions promoting targeted use and discretion is necessary to curb the overuse of antibiotics. Stronger guidelines covering the appropriate use of antibiotics from the clinic to the ICU, coupled with financial incentives for physicians, can encourage more targeted use. In addition, robust regulatory oversight of the use of antibiotics in the food supply can reduce this significant source of antibiotic overuse.

Successful adoption of proven practices and implementation of policy actions together offer the potential to make millions healthier and save \$63 billion currently wasted on the overuse of antibiotics, money which can be reinvested to bring us closer to the goal of high value health care.



# Reducing Antibiotic Overuse: A \$63 Billion Opportunity



- Increase Use of Appropriate Vaccinations
- Expand Use of Hospital Guidelines
- Reduce Antibiotic Use in Critical Patients
- Improve Patient Education and Medical Leadership
- Reform Payment for Providers
- Implement Regulatory Reform

Targeting the \$63 billion spent annually because of antibiotic overuse requires building on proven practices and implementing policy actions that target the root causes of the problem.<sup>2</sup>

Antibiotic overuse represents a significant source of wasteful health care spending. The causes of antibiotic overuse are complex and systemic, resulting from overprescribing, patient preferences and the non-therapeutic antibiotic treatment of animals.

Reducing antibiotic overuse requires building on a coordinated set of proven practices in the field coupled with policy actions in both the public and private sectors.

## THE PROBLEM

### Scope of Antibiotic Overuse

- The overuse of antibiotics contributes to the emergence of antibiotic-resistant infections (ARIs) that are costly and difficult to treat.<sup>3,4</sup>
- Drug-resistant “superbug” infections, such as MRSA and C-difficile, are a significant cause of mortality. In 2005, more than 95,000 people in the U.S. developed severe MRSA infections, which led to 9,000 deaths.<sup>5,6</sup>

### Costs of Antibiotic Overuse

- In the U.S., ARIs are responsible for \$20 billion in excess health care costs, \$35 billion in societal costs and \$8 million in additional hospital days.<sup>7</sup>
- Reducing ARIs by just 20 percent would save \$3.2 to \$5.2 billion in health care costs each year and eliminate up to \$11.3 million in additional in-hospital days for patients with ARIs.

### Reasons for Antibiotic Overuse

- Overtreatment: Determining if an infection is viral or bacterial is expensive and time-consuming and concerns over malpractice lead many physicians to over-prescribe antibiotics.<sup>8,9</sup>
- Patients’ Preferences: Patients may pressure providers to prescribe antibiotics for conditions for which they are inappropriate, such as the common cold or sore throat, or inappropriately save antibiotics for later use, both of which can lead to increased antibiotic resistance.<sup>10,11</sup>
- Non-therapeutic Antibiotic Treatment of Animals: Approximately 70 percent of antibiotics used in the U.S. are used in the non-therapeutic treatment of cattle, swine, and poultry, and although the FDA issued voluntary guidelines in 2010 urging farmers not to use antibiotics for livestock growth, the guidelines are not yet mandatory.<sup>12,13</sup>
- Lack of Evidence-Based Research: Evidence-based research on appropriate and inappropriate antibiotic use is often lacking.<sup>14</sup>

## SOLUTIONS

### Increase Use of Appropriate Vaccinations

- **Proven Practice:** Researchers have found that greater use of flu shots was accompanied by a reduction in prescriptions for antibiotics.<sup>15</sup>

### Expand Use of Hospital Guidelines

- **Proven Practice:** Researchers in Canada found guidelines focused on curbing the overuse of antibiotics can lower the number of prescriptions written for them.<sup>16</sup>

*Continued on back*

Implementing regulatory reform, promoting the use of outcomes-based reimbursements and reducing antibiotic use in critical patients can all help to decrease antibiotic overuse.

These interventions require a renewed emphasis on the education of patients and providers and increased medical leadership on the issue.

#### Reduce Antibiotic Use in Critical Patients

- **Proven Practice:** Measuring levels of the chemical procalcitonin (PCT) is an effective way to monitor the presence of an infection and guide the duration of antibiotic treatment.<sup>17</sup>

#### Improve Patient Education and Medical Leadership

- **Proven Practice:** The CDC's *Get Smart, Know When Antibiotics Work* program, a comprehensive public health effort directed at health care practitioners, parents and the public, has led to a 20 percent decrease in prescribing for upper respiratory infections and a 13 percent decrease in prescribing overall for all office visits among children and adults.<sup>18</sup>
- **Policy Action:** Garner the support of hospital executives and physician champions to lead and educate staff and patients about the appropriate and inappropriate use of antibiotics, and encourage the establishment of formulary restrictions on certain broad spectrum antibiotics.

#### Reform Payment for Providers

- **Policy Action:** Encourage evidence-based practices by linking payment reimbursements to adherence to evidence-based guidelines to reduce the use of antibiotic classes that promote MRSA colonization.

#### Implement Regulatory Reform

- **Policy Action:** Ask the FDA to issue mandatory regulations regarding the non-therapeutic use of antibiotics to encourage livestock growth, similar to regulations established in Europe.<sup>19</sup>
- **Policy Action:** Encourage the FDA to re-review approvals for animal feed uses of antibiotics important to human medicine.<sup>20</sup>

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## Case Interview

*David Dosa, MD, Brown University School of Medicine  
on Appropriate Antibiotic Use in Nursing Homes*

### What issue within reducing antibiotic overuse were you trying to address?

There were two main problems within antibiotic overuse we were trying to address, both in the nursing home setting: the prescription of unnecessary antibiotics and medication errors.

### What was the solution you decided upon to address the issue and why?

Knowledge goes a long way. Educating both patients and providers about antibiotic overuse or inappropriate prescription of medications is crucial. The most important thing to remember, which I think people forget for the most part, is that not everyone has to be treated. In our study, we found that not only were doctors treating people with antibiotics when they did not need them, but doctors were also using the wrong drugs. Of 172 residents with urinary tract infections (UTIs) in two high-quality Rhode Island nursing homes, 40 percent of patients received antibiotics when the guidelines suggested no treatment was necessary. Furthermore, 56 percent of patients who received antibiotics received inappropriate medications, almost half were taking the wrong doses, and two-thirds were taking the antibiotics for too long. In turn, it is clear that improved education and awareness among providers and patients about antibiotic overuse is crucial.

### What were the barriers you faced in the implementation of your solution?

There were two main barriers to reducing antibiotic overuse in the two nursing homes. The first was financial, as there are perverse incentives at play in nursing homes: the nursing home receives more money for sending patients to the hospital than they do to keep them and help get them better. The second barrier was defensive medicine, as some of the emphasis on overtreatment comes from families – the fear of what will happen if we do not treat and the fear of recriminations if a mistake is made. There's definitely pressure and fear that comes with that.

### How did you overcome these barriers?

If nothing else, the study clearly showed that sometimes waiting and deciding not to treat is the right way to proceed, as this led to reduced antibiotic overuse.

### What were the critical success factors in the implementation of your solution?

Education and awareness among providers and patients is essential to addressing this problem now and in the future.

### What specific clinical and financial results have you experienced?

One of the most important findings and other studies show similar results, is that undertreatment did not hurt any of the patients. In our sample, no bad outcomes (e.g. kidney infection, hospitalization or death) were reported among those who did not get an antibiotic. In contrast, patients who were overtreated were far more likely to get antibiotic-resistant infections, like *Clostridium difficile* bacterium. By reducing antibiotic overuse in nursing homes, patients were less likely to get an antibiotic-resistant infection, which means that their visitors, caregivers and fellow patients were also less likely to get an antibiotic-resistant infection.

### What is one piece of advice you would offer to another organization trying to reduce antibiotic overuse?

Don't accept the status quo because it is not good enough, even at the best places. Opportunities always exist to improve provider practice related to the appropriate treatment of urinary tract infections in nursing homes.

*For more information, see: Rotjanapan, P., Dosa, D., Thomas, K.S. (2011). Potentially inappropriate treatment of urinary tract infections in two Rhode Island nursing homes. Arch Intern Med, 171(5), 438-43.*

# BEND THE CURVE

The rise of chronic disease is one of the nation's most pressing and expensive health care concerns. Tens of millions of Americans suffer from cardiovascular disease, diabetes, asthma and other chronic conditions, resulting in billions of dollars in health care spending and significant morbidity and mortality.

Despite the financial and human toll, many of these diseases can be effectively managed with the use of prescription medications. Unfortunately, many patients do not take their chronic disease medications as prescribed. Some decide to forgo filling a prescription for financial reasons, others stop taking their pills due to side effects and many more struggle with prescription regimens that can include multiple medications. Regardless of the reasons, a medication not taken is an opportunity missed.

Improving patient medication adherence for chronic disease has the potential to dramatically improve the health of chronic disease sufferers and to save hundreds of billions of dollars in unnecessary health care spending. No single solution will solve this problem; rather, a system-wide approach using technology, delivery system innovations, payment reforms and a renewed focus on the needs and abilities of patients is required.

Successful adoption of proven practices and implementation of policy actions together offer the potential to make millions healthier and save \$290 billion in preventable spending on chronic disease, money which can be reinvested to bring us closer to the goal of high value health care.

# Improving Patient Medication Adherence: A \$290 Billion Opportunity



Reducing the \$290 billion spent annually because of poor medication adherence requires building on proven practices and implementing policy actions that target the root causes of the problem.<sup>2</sup>

Poor medication adherence represents a significant source of wasteful health care spending. The causes of non-adherence are complex and systemic, resulting from high out-of-pocket costs, poor care coordination and the failure to account for the patient's personal circumstances.

Improving medication adherence requires building on a coordinated set of proven practices in the field and policy actions in both the public and private sectors.

## THE PROBLEM

### Scope of Poor Medication Adherence

- Of the approximately 187 million Americans who take one or more prescription drugs, up to one-half do not take their medications as prescribed.<sup>3,4</sup>
- As many as 2 billion cases of poor medication adherence each year are avoidable.<sup>5,6</sup>

### Costs of Poor Medication Adherence

- Not taking medications as prescribed costs over \$100 billion a year in excess hospitalizations.<sup>7</sup>
- Total annual health care spending for a diabetes patient with low medication adherence (\$16,499) is almost twice the amount for a patient with high adherence (\$8,886).<sup>8</sup>
- Among hypertension patients, an estimated 89,000 premature deaths per year could be avoided with appropriate medication treatment.<sup>9</sup>
- Diabetes patients with poor medication adherence have a 30 percent yearly risk of hospitalization, as opposed to a 13 percent risk for those who accurately follow prescriber guidelines.<sup>10</sup>
- Non-adherent diabetes and heart disease patients have significantly higher mortality rates (12.1 percent) than similar patients who were adherent (6.7 percent).<sup>11</sup>

### Causes of Poor Medication Adherence<sup>12</sup>

- High out-of-pocket costs, especially for patients on multiple prescriptions for chronic conditions.
- Lack of care coordination, follow-up and shared decision-making.
- Complex or burdensome treatment regimens or multiple prescribed medications.
- Co-morbidities, such as severe and persistent mental illness.
- Side effects of prescribed medications, whether real or perceived.
- Personal factors, including lifestyle, culture and belief system.

## SOLUTIONS

### Improve Care Coordination

- **Proven Practice:** Care teams composed of physicians, pharmacists, nurses and other health care professionals can more effectively monitor adherence and counsel patients.<sup>13</sup>
- **Proven Practice:** Diabetes patients receiving case management, including bi-weekly automated calls and self-care training by nurses, are 21 percent more adherent to their medications than those who receive usual care.<sup>14</sup>

### Enhance Patient Engagement and Education

- **Proven Practice:** Elderly patients who receive pharmacist-led discharge counseling before

*Continued on back*

Using care coordination strategies, patient engagement and Medication Therapy Management can significantly improve medication adherence.

Improving medication adherence also requires investments in HIT and financial incentives for patients and providers.

hospital discharge improve their medication adherence by 43 percent.<sup>15</sup>

- **Proven Practice:** Patients who participate in motivational interviewing and discussions about their individual needs, constraints and preferences are 13 percent more likely to take their medications as prescribed compared to patients receiving usual care.<sup>16</sup>
- **Proven Practice:** Patients with depression who are provided educational materials and one-on-one follow-up are twice as likely to refill their prescriptions.<sup>17</sup>

#### Utilize Counseling and Medication Management

- **Proven Practice:** Fifty-six percent of HIV/AIDS patients enrolled in a Medication Therapy Management (MTM) program, a multi-disciplinary team approach to care, follow their medication directions, as compared to 38 percent of patients who did not receive MTM.<sup>18</sup>
- **Proven Practice:** Patients with high blood pressure taking once-daily therapies are 11 percent more adherent than those taking twice-daily therapies.<sup>19</sup>

#### Expand Screening and Assessment

- **Proven Practice:** Expanding the use of proven screening and assessment tools to target patients at greatest risk for non-adherence, such as those with depression.<sup>20</sup>
- **Proven Practice:** Establishing tools for providers to promote medication review and reconciliation as well as patient engagement, such as the American Society of Health-System Pharmacists Medication Reconciliation Toolkit.<sup>21</sup>

#### Invest in HIT Infrastructure<sup>22</sup>

- **Policy Action:** Invest in electronic health records, e-Prescribing, clinical decision support systems and sharing of data related to the proper use of medications.
- **Policy Action:** Encourage sharing of near real-time prescription fill and refill data among providers, between patients and providers, and between providers and pharmacists to implement instantaneous point-of-care medication review and regimen reconciliation.

#### Employ Quality Measurement

- **Policy Action:** Adopt consensus-based standards, such as those from the National Quality Forum and Pharmacy Quality Alliance, to measure the quality of adherence strategies.<sup>23,24,25</sup>
- **Policy Action:** Develop specific measures for adherence to medications for chronic disease.

#### Establish Financial Incentives<sup>26</sup>

- **Policy Action:** Provide incentives for Medication Therapy Management and patient counseling.
- **Policy Action:** Eliminate co-payments for generic drugs and reduce brand-name co-payments.<sup>27</sup>
- **Policy Action:** Expand adoption of value-based insurance design to reduce co-payments for medications for chronic conditions.
- **Policy Action:** Enable prescribers to simplify dosing by considering adherence and simplification of medication regimens in the development of formularies and cost-sharing requirements.

► Learn more about ways to Bend the Curve in health care costs at: [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)

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BEND THE  
CURVE

## Case Interview

*Troy Trygstad, PharmD, Community Care of North Carolina  
on Pharmacy Home Project*

### What issue within improving patient medication adherence were you trying to address?

Community Care of North Carolina (CCNC) was established over a decade ago to improve coordinated care for Medicaid patients, particularly mothers and children. Early success with this population prompted North Carolina to promote enrollment of chronically ill adults in the network. The resulting influx of seriously ill or medically complex patients exposed many gaps in medication therapy, including widespread gaps in adherence. As a result, we realized that while standard process-based quality measures (e.g. HEDIS) would actively promote medication therapy management, intermediate outcomes, such as poor adherence, and desired outcomes, such as hospitalizations avoided, were receiving less prominence.

### What was the solution you decided upon to address the issue and why?

In 2007, CCNC created the Pharmacy Home Project ([www.pharmacyhomeproject.com](http://www.pharmacyhomeproject.com) to be launched by Feb. 2012), a project that has embedded clinical pharmacists and care managers within CCNC's 14 networks of physician practices, representing over 4,500 physicians statewide, which is more than 90 percent of primary care in North Carolina. The pharmacists' services are supported by CCNC's payment model, which is a hybrid Fee-for-service and Per Member Per Month Medical Home model.

We established four uniform principles for medication management in all our practices: pharmacy services are to be 1) well-coordinated, 2) goal-oriented (clinically goal-oriented), 3) continually reinforced, and should result in a 4) medication use plan for targeted patients. These general principles are designed to help "manage the patient between encounters" with the physician practice. CCNC specifically chose the Pharmacy Home Project model because it allows flexible implementation among the diverse regions and practice settings in North Carolina while also promoting clear standards of care coordination.

### What were the barriers you faced in the implementation of your solution?

Barriers to implementation included a pervasive lack of comprehensive patient data for use by clinicians, a lack of clinician expertise with the use of data systems, and an overall lack of organizational proficiency with the use of pharmacists in daily physician practice.

### How did you overcome these barriers?

CCNC has invested in building medication databases for its physician network, drawing upon centralized Medicaid data on patient use of medications. We have followed a decentralized approach to building organizational acumen and enthusiasm for the Pharmacy Home model. Physicians are supported to devise their own, site-appropriate solutions. As a result, we have observed an increased adoption of promising adherence interventions, such as motivational interviewing. In addition, CCNC's payment model has provided a direct means of support for retaining pharmacist services and adopting good medication management and adherence-related practices.

### What were the critical success factors in the implementation of your solution?

CCNC consulted with physicians from diverse regions and practice settings on ways to improve medication management. Our flexible approach allowed physicians throughout the state to "just go out and figure out how to do it." Physicians are made responsible for the outcomes of their patient panel and have resources provided to them to help improve those outcomes. While some critics have faulted this approach for its lack of tight central management, the Pharmacy Home model has proven adaptive and apolitical.

### What specific clinical and financial results have you experienced?

The Pharmacy Home model is an essential driver of CCNC's overall financial results. Analyses suggest that CCNC-sponsored care coordination has led to \$1.5 billion in avoided costs, including a 12 percent total budgetary cost avoidance in 2009. In addition, we have seen hospital admission rates decline by 2 percent, inpatient spending decline by 5.6 percent, preventable hospital admissions decline by 12.5 percent, and preventable readmissions decline by 9.3 percent. The best thing about this is that it's statewide, it's not a pilot, so the Pharmacy Home model laid on top of the CCNC system can move an entire state's outcomes.

### What is one piece of advice you would offer to another organization trying to improve patient medication adherence?

Focus on the patient upon leaving the hospital. If you are responsible for them after they leave, you better gather information and support those patients at home or leading up to the outpatient visit, or both.

# BEND THE CURVE

Since their initial use in the late 18th century, vaccines have spared millions from death and disability and eradicated some of history's most devastating diseases. From smallpox and polio to human papillomavirus (HPV) and the flu, vaccines prevent, cure and lessen the impact of many illnesses and, as a result, save billions of dollars for the health care system.

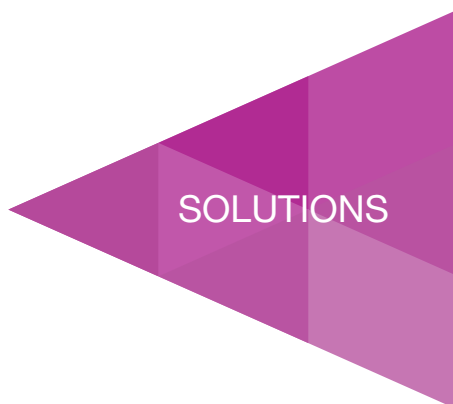
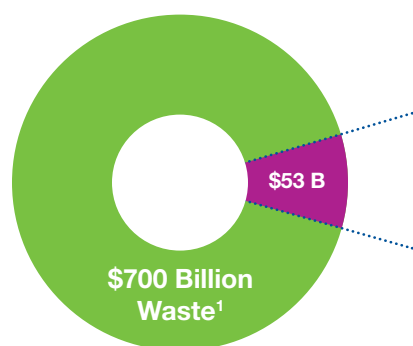
Given the clear benefits of vaccines it is surprising that so many vaccines are underused, with many Americans not receiving recommended vaccinations in a timely manner. Technical challenges and a difficult business model for vaccine manufacturers can lead to slow development of new vaccines and disrupt the supply of existing products. Patients without a usual source of primary care find it hard to access vaccines, while those without insurance struggle with the costs. The result is that millions of Americans are vulnerable to illnesses that can be prevented.

Vaccines represent a remarkably good value for the health care system, but significant effort is required to achieve that value. The development of new vaccines must be supported in regulation and reimbursement. The remaking of our primary care system into high-functioning teams and medical homes must be leveraged to expand vaccination rates. Payment systems must be rethought to invest in the long-term benefits of vaccines. Finally, all parties in the health care system must work in concert to dispel myths and educate the public about the value and safety of vaccines.

Successful adoption of proven practices and implementation of policy actions together offer the potential to make millions healthier and save \$53 billion in vaccine-preventable conditions, money which can be reinvested to bring us closer to the goal of high value health care.



# Reducing Vaccine Underuse: A \$53 Billion Opportunity



- Invest in Research and Development
- Promote Medical Home Models
- Increase Timely Immunizations of Children
- Enhance Medical Leadership
- Encourage Market Entry
- Revise Funding Models
- Promote Vaccine Registries and IT

Targeting the \$53 billion spent annually because of vaccine underuse requires building on proven practices and implementing policy actions that target the root causes of the problem.<sup>2</sup>

Vaccine underuse represents a significant source of wasteful health care spending. The causes of vaccine underuse are complex and systemic, resulting from shortages, exemptions from vaccination requirements, provider financing issues and health disparities.

Reducing vaccine underuse requires building on a coordinated set of proven practices in the field coupled with policy actions in both the public and private sectors.

## THE PROBLEM

### Scope of Vaccine Underuse

- One of every five children is not completely up to date on recommended immunizations.<sup>3</sup>
- More than one in 10 parents uses a vaccination schedule for their children other than the U.S. Recommended Immunization Schedule, including delaying some shots and refusing others.<sup>4</sup>
- Twenty-five percent of children lack full protection against vaccine-preventable communicable diseases.<sup>5</sup>
- Coverage levels for adolescents and adults are well below Healthy People 2010 targets.<sup>6</sup>
- Avoidable Deaths: For each birth cohort of children immunized, 14 million cases of vaccine-preventable diseases (VPD) are avoided and 33,000 VPD-related deaths are averted.<sup>7</sup>
- Influenza: 36,000 deaths annually in the elderly are due to the flu or its complications.<sup>8</sup>

### Costs of Vaccine Underuse

- Financial Cost: \$10 billion in annual direct health care costs.<sup>9</sup>
- Societal Cost: \$43 billion in annual indirect costs.<sup>10</sup>

### Causes of Vaccine Underuse

- Shortages: Interruptions in production and supply, higher-than-expected demand, and the time lag between the initial development and production contribute to vaccine shortages.<sup>11</sup>
- School Exemptions: Exemptions from school immunization requirements, often easily obtained, have risen over the last decade.<sup>12</sup>
- Provider Financial Barriers: The product-related costs of vaccine supply acquisition and maintenance and inadequate reimbursement for administering vaccines to children can be prohibitive.<sup>13</sup>
- New, Costly Vaccines: The number of new vaccines has increased in recent years, and newer vaccines are substantially more expensive than “traditional” vaccines.<sup>14</sup>
- Public Opinion: Increased concern regarding the supposed link between vaccines and autism, despite studies refuting the relationship, has led some to refuse vaccinations.<sup>15</sup>
- Income: Childhood poverty is a major risk factor for under-immunization.
- Race and Ethnicity: Immunization rates for Hispanics (47 percent) and Blacks (52 percent) are significantly lower than for Whites (65 percent).<sup>16</sup>
- Age: Adolescents and adults in general have lower vaccination rates than children.<sup>17</sup>

## SOLUTIONS

### Invest in Research and Development

- **Proven Practice:** Firms in the U.S. and abroad are experimenting with alternative production tech-

*Continued on back*

Innovations in vaccine development, the promotion of medical home models of care, increasing the immunizations of children and encouraging entry into untapped markets can significantly increase the appropriate use of vaccines.

These interventions increase access to the appropriate use of vaccines and help to lower the costs of vaccine administration and distribution.

nologies to reduce the lead time and dependence on egg-based production of vaccines, which could help to decrease vaccine shortages.<sup>18</sup>

#### Promote Medical Home Models

- **Proven Practice:** Children in states with a higher number of medical home practices received childhood vaccinations at a higher rate than others.<sup>19</sup>
- **Proven Practice:** Children achieve higher immunization rates when clinicians and providers focus on ensuring that every child receives all recommended vaccines.<sup>20</sup>
- **Policy Action:** Promote the immunization of children covered by Medicaid via medical home approaches.

#### Increase Timely Immunization of Children

- **Proven Practice:** Undertaking community interventions that include education and outreach and increase the adoption of effective practices by health care providers.<sup>21,22</sup>
- **Policy Action:** Adopt public policies to ensure adequate vaccine supply and financing and to improve tracking systems and participation in immunization registries.<sup>23,24</sup>

#### Enhance Medical Leadership

- **Policy Action:** Garner the support of hospital executives and physician leaders to educate hospital staff, patients and their communities about the appropriate use of vaccines.
- **Policy Action:** Medical organizations should work in partnership to educate policymakers on the appropriate use of exemptions from mandatory immunizations.<sup>25</sup>

#### Encourage Market Entry

- **Policy Action:** Provide financial incentives to accelerate the development and approval of new vaccines, such as those to prevent Dengue, RSV, AIDS, SARS and others.<sup>26</sup>

#### Revise Funding Models

- **Policy Action:** Encourage evidence-based practices that increase the number of vaccines appropriately given by linking payment reimbursements to multiple, simultaneous vaccine administrations as well as timely immunizations.

#### Promote Vaccine Registries and IT

- **Policy Action:** Registries and information technologies have shown demonstrable successes in identifying vaccine underuse; further promotion of these approaches should help to improve the appropriate administration of vaccines.

- ▶ Learn more about ways to Bend the Curve in health care costs at: [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)

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## Case Interview

*Ginny Heller, WithinReach  
on Reducing Vaccine Hesitancy*

### What issue within reducing vaccine underuse were you trying to address?

The main issue we are trying to address is vaccine hesitancy. Washington state has the highest vaccine exemption rate in the country; about 6.2 percent of parents choose to opt out of kindergarten vaccination requirements for their children, a rate that has tripled since 1999. In contrast, the national rate is around 2 percent.

### What was the solution you decided upon to address the issue and why?

In 2008, Vax Northwest, a coalition of health care provider, nonprofit and public health groups, was launched. Vax Northwest is a partnership working to ensure all children and communities in Washington are protected from preventable, life-threatening diseases. The coalition, which includes Group Health, Seattle Children's Hospital, the Washington State Department of Health, WithinReach and the Community Pediatric Foundation of Washington, was formed to provide parents with the information they need when making decisions about vaccinating their children.

Through this partnership, we created a toolkit for health care providers to work with parents as they make vaccination decisions for their children. This toolkit has been piloted successfully in four clinics so far, and the coalition plans to further test and evaluate its approach in 50 clinics through a randomized controlled trial (RCT), which starts in early 2012. Furthermore, we have also developed community outreach resources, which parents can use to share information in their own communities.

### What were the barriers you faced in the implementation of your solution?

Time is always an issue for providers because they only have a limited amount during an office visit to properly empathize with and educate concerned parents. In addition, there is a lot of information available to the public that is based on fraudulent scientific data and surrounding media and celebrity hype, which continues to fuel vaccine hesitancy. Lastly, this intervention requires a significant cultural shift, as many providers will need to re-frame how they interact with patients.

### How did you overcome these barriers?

Some of those barriers have already been overcome in our four pilot clinics but all of them will require more comprehensive testing and evaluation moving forward through our RCT. The issue of time has already been improved by using the toolkit to more quickly and effectively answer questions from families. Furthermore, this toolkit has also been used to give families more accurate and understandable information about vaccines. Finally, the toolkit has begun to enable a cultural shift among some physicians in our pilot testing, as it makes them better equipped to work with families.

### What were the critical success factors in the implementation of your solution?

Education and awareness among providers is essential to the success of the toolkit. In addition, getting other communities and clinics on-board is crucial to spread the intervention.

### What specific clinical and financial results have you experienced?

Potential outcomes and goals for the intervention going forward include the following:

- Increased self-efficacy among providers in addressing vaccination concerns;
- Decreased vaccine hesitancy from families;
- Increased vaccine administration; and
- Improved quality of care.

### What is one piece of advice you would offer to another organization trying to prevent hospital readmissions?

First, you can't just beat parents over the head with the scientific data; it doesn't work. You have to use that information and combine it with a more empathetic approach, where you listen to their issues, validate their concerns, and then provide the appropriate data and information. Second, addressing vaccine underuse is not done through a one-pronged approach, where the Vax Northwest toolkit is the only solution. Rather, addressing vaccine underuse requires a multi-pronged approach, where the toolkit is used in conjunction with an emphasis on working with communities and leveraging social networks in appropriate ways.

# BEND THE CURVE

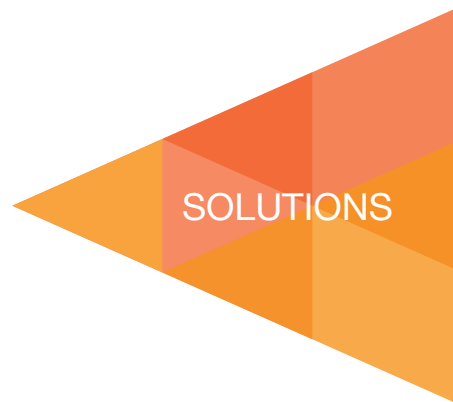
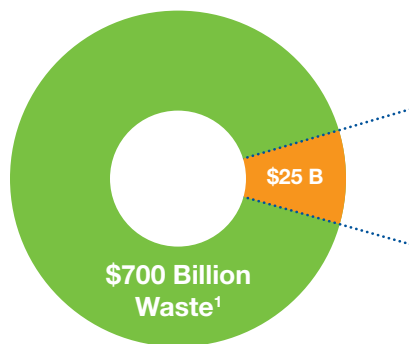
Every year millions of Americans are hospitalized, treated and released, healthier for the experience. Unfortunately, far too many of those released from the hospital return in just a few days or weeks, often for reasons that could have been prevented. With the costs of hospital stays ever increasing, the result is billions of dollars in preventable spending.

Many patients who are readmitted were originally discharged without a clear understanding of their follow-up care needs or without access to a provider to give that follow-up care. Others fall through the cracks during transitions in care, failed by a fragmented system, poor processes and ineffective technology.

Preventing hospital readmissions begins in the hospital; when a patient is discharged, especially if they suffer from chronic disease or complex comorbidities, a detailed follow-up care plan is needed. Such a plan must account for the patient's personal and financial circumstances, link them with appropriate sources of follow-up care and be communicated to the patient and their caregivers. In order to achieve this reality, providers need to invest in process and technology improvements and be financially rewarded for keeping patients healthy and out of the hospital.

Successful adoption of proven practices and implementation of policy actions together offer the potential to make millions healthier and save \$25 billion in preventable hospital readmission, money which can be reinvested to bring us closer to the goal of high value health care.

# Preventing Hospital Readmissions: A \$25 Billion Opportunity



- Change Admission Procedures
- Upgrade Discharge Processes
- Improve Follow-up Care
- Enhance Technology Interventions
- Reform Payment for Providers
- Expand Quality Measurement

Targeting the \$25 billion spent annually on preventable hospital readmissions requires building on proven practices and implementing policy actions that target the root causes of the problem.<sup>2</sup>

Preventable hospital readmissions represent a significant source of wasteful health care spending. The causes of hospital readmissions are complex and systemic, resulting from poor discharge procedures and inadequate follow-up care.

Reducing preventable hospital readmissions requires building on a coordinated set of proven practices in the field coupled with policy actions in the public and private sectors.

## THE PROBLEM

### Scope of Hospital Readmissions

- Nearly one in every five Medicare patients discharged from the hospital is readmitted within 30 days.<sup>3</sup>
- Across all insured patients, the preventable readmission rate is 11 percent; for Medicare patients the rate is 13.3 percent.<sup>4,5</sup>
- 836,000, or 12 percent, of the more than 7 million 30-day hospital readmissions that occur each year are preventable.<sup>6</sup>

### Costs of Hospital Readmissions

- Preventable hospital readmissions cost the U.S. health care system an estimated \$25 billion annually.<sup>7</sup>

### Reasons for Readmission

- Patients experience preventable medical errors and complications during the first hospital stay.
- Patients have limited or no access to effective post-hospital follow-up care (e.g. rehabilitation) in their communities.
- Patients and their families are inadequately informed about appropriate post-discharge care.
- Hospital records and discharge instructions are not effectively and efficiently disseminated to primary care clinicians and other post-discharge care providers to support the patient's recovery.

### Types of Patients Readmitted

- Preventable readmission rates are highest among patients with heart failure, COPD, psychoses, intestinal problems and/or those who have had various types of surgery (cardiac, joint replacement or bariatric procedures).<sup>8</sup>

## SOLUTIONS

### Change Admission Procedures

- **Proven Practice:** Requiring that hospital admission authorization includes both the identification of a health care professional to manage post-discharge care and a process for health care professionals to receive hospital records and discharge plans.

### Upgrade Discharge Processes

- **Proven Practice:** Requiring that discharge procedures include scheduling initial appointments

*Continued on back*

Hospital readmissions can be prevented by improving procedures for admitting and discharging patients, providing enhanced follow-up care and utilizing HIT.

A number of tested policy actions have track records in reducing readmissions, including changing payment systems and creating new readmission-based quality measures.

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for patients with health care professionals who will provide follow-up care.

- **Proven Practice:** Creating clear and detailed discharge plans tailored to patients as well as other key stakeholders: family members, clinicians, case managers and payers.
- **Proven Practice:** Conducting medication reconciliation to ensure that pre- and post-discharge medication lists are consistent and utilize clinical pharmacists for post-discharge phone calls to monitor medication use.<sup>9</sup>

#### Improve Follow-up Care

- **Proven Practice:** Providing patients with timely access to community-based care, such as health care professional visits.
- **Proven Practice:** Using nurse advocates to arrange timely post-discharge follow-up appointments with patients' primary care providers.<sup>10</sup>

#### Enhance Technology Interventions

- **Proven Practice:** Using profiling systems to identify patients at high risk for readmissions and connect them to additional discharge support.<sup>11</sup>
- **Proven Practice:** Monitoring patients in their homes using tele-health technologies to transmit clinical data to providers.
- **Proven Practice:** Empowering patients through tele-health systems to be better informed about their conditions and self-care measures they can take to prevent readmissions.

#### Reform Payment for Providers

- **Policy Action:** Reward providers with a share of net financial savings earned from reducing costly and preventable hospital readmissions.
- **Policy Action:** Create alternative payment models, such as bundled payments, to cover the entire episode of care and promote coordination and the delivery of high-value services.
- **Policy Action:** Encourage adequate payment for proven technologies that monitor and support compliance in patient groups at highest risk of readmission.
- **Policy Action:** Encourage private payers to follow Medicare's lead on reducing payments to hospitals for preventable hospital readmissions.

#### Expand Quality Measurement

- **Policy Action:** Measure whether patients received adequate continuity of care planning, including post-discharge instructions, information about help they will need at home, and symptoms they should watch for during their recovery.

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BEND THE  
CURVE

## Case Interview

*Liz Popwell; Cleveland Regional Medical Center  
on Community Care Management*

### What issue within preventing hospital readmissions were you trying to address?

The main problem was a very high readmission rate of patients with congestive heart failure (CHF). The hospital had a corporate goal to reduce 30-day readmissions of patients with CHF.

### What was the solution you decided upon to address the issue and why?

Care Solutions, a department of Cleveland Regional Medical Center, was formed to provide community care management. Our department is staffed with registered nurses and social workers who visit patients in their homes to provide education about their diagnoses. You can learn so much about an individual when you see their environment and patients are more difficult to educate in the hospital, as they do not feel good. This, in turn, allows our staff to help the patients develop a plan for changing lifestyle habits that affect their health.

### What were the barriers you faced in the implementation of your solution?

One of the barriers from the clinical perspective was the inconsistency of referrals from the hospital case managers. Another barrier was non-compliance from patients, due to a lack of transportation to grocery stores, insufficient funds to purchase medications or healthy foods, feelings of hopelessness with a diagnosis of CHF and lack of education about CHF as a condition.

### How did you overcome these barriers?

The problem of inconsistency of referrals from hospital case managers was remedied by initiating a process that would refer all CHF patients who were readmitted within 30 days to be followed by Care Solutions. As success with the patients was noted and readmissions declined, a cost savings analysis was completed. Additionally, the problem of non-compliant patients was alleviated by requiring one-on-one time and relationship building between staff and patients to get them to open up with some of their concerns and problems. Most interesting was that their problems were often related to social needs, not just a diagnosis.

### What were the critical success factors in the implementation of your solution?

As the program demonstrated success with identifying causative factors for the patients' readmissions, we realized that building a relationship with the patient is crucial. In turn, the assessment tool that we utilized gave a holistic view of the patient's needs, so they were viewed as a person, not just a diagnosis. One of our nurses was primarily focused on this program and would consult our social workers for suggestions on meeting unmet needs of the clients. Lastly, our cardiologists are aware of the success of the program and make direct referrals. Some of the patients have been identified as needing other services, and through the CHF program have been connected to beneficial programs.

### What specific clinical and financial results have you experienced?

Care Solutions has seen a number of clinical and financial improvements as a result of this program. Readmissions have been reduced by half, as has average length of stay. In addition, costs have been significantly reduced. Furthermore, Care Solutions sent out client satisfaction forms to patients in the CHF program. Their comments reflect that they felt that someone cared about their situation and that the education they received was beneficial, and their scores have consistently been 100 percent since the program began. With the program now in its eighth year, physicians have continued to make direct referrals for some of their patients who are at risk.

### What is one piece of advice you would offer to another organization trying to prevent hospital readmissions?

Don't give up and measure your process changes. This is such a big project to take on, and it has so many complex variables. As you implement new processes, be sure to measure the outcomes to determine if you are making the impact intended. If not, continue to seek new solutions and improvements.

# BEND THE CURVE

Thanks to advances in therapies, technologies and care practices, many health conditions can be effectively managed in the clinic and community settings. Cardiovascular conditions, diabetes, asthma, pulmonary disease and some infections, collectively called ambulatory care sensitive conditions (ACSCs), can all be treated in outpatient care settings. Yet millions of Americans suffering from these conditions are hospitalized each year, incurring billions in unnecessary costs.

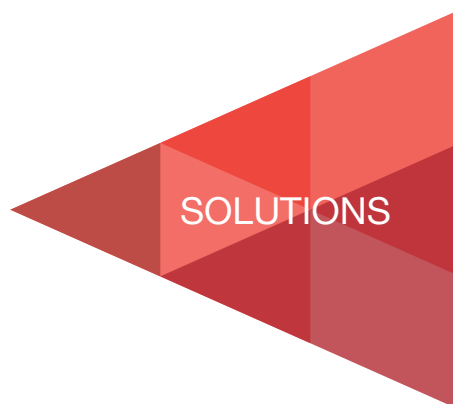
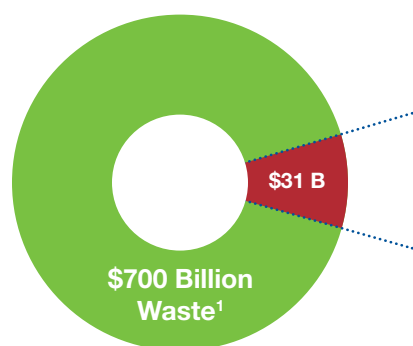
The hospitalization of patients with ACSCs represents a systemic failure. Those at greatest risk of hospitalization for ACSCs are often the patients in greatest need: low-income individuals, Medicaid recipients, the uninsured and those without access to a usual source of ambulatory care. Common among these groups is a difficulty in accessing high quality, affordable primary care in their communities.

Core to solving the problem of ACSC hospitalizations is increasing the availability of primary care in at-risk communities. This can take the form of traditional physician's offices or community health centers, conveniently located in underserved communities, or through more innovative approaches, such as primary care delivered in retail clinics. In conjunction, the expansion of insurance and coverage models which promote access and encourage preventative care, such as the Medicaid Managed Care program, can improve disease management and prevent hospitalizations. Finally, all ambulatory care settings can work to improve their chronic disease management activities and partner with patients in their own health.

Successful adoption of proven practices and implementation of policy actions together offer the potential to make millions healthier and save \$31 billion in hospitalizations for ambulatory care sensitive conditions, money which can be reinvested to bring us closer to the goal of high value health care.



# Decreasing Hospital Admissions for Ambulatory Care Sensitive Conditions: A \$31 Billion Opportunity



- Increase Access to Community Health Centers
- Reduce Patient Travel Time
- Change Medicaid Re-enrollment Policies
- Expand Medicaid Managed Care
- Increase Availability of Primary Care Services
- Improve Chronic Disease Management

Targeting the \$31 billion spent annually on ambulatory care sensitive condition (ACSC) hospital admissions requires building on proven practices and implementing policy actions that target the root causes of the problem.<sup>2</sup>

Hospital admissions for ambulatory care sensitive conditions (ACSC) represent a significant source of wasteful health care spending. The causes of ACSC admissions are complex and systemic, resulting from disparities in income and race, inadequate access to care, and a lack of private insurance coverage.

Reducing ACSC admissions requires building on a coordinated set of proven practices in the field coupled with policy actions in both the public and private sectors.

## THE PROBLEM

### Defining Ambulatory Care Sensitive Conditions

- Ambulatory care sensitive conditions are those “for which good outpatient care can potentially prevent the need for hospitalization, or for which early intervention can prevent complications or more severe disease.”<sup>3</sup>

### Scope of ACSC Hospitalizations

- From 1994-2003, hospital admission rates increased for five of 16 ACSCs: hypertension (by 26 percent); short-term complications of diabetes (20 percent); chronic obstructive pulmonary disease (12 percent); bacterial pneumonia (8 percent); and urinary tract infections (7 percent).<sup>4</sup>
- Between 1999 and 2007, among adults with Medicaid, the ED visit rate for ACSCs per 1,000 enrollees increased from 66.4 to 83.9.<sup>5</sup>

### Costs of ACSC Hospitalizations

- In 2006, hospital costs for potentially preventable conditions totaled nearly \$30.8 billion, which is one of every \$10 of total hospital expenditures.<sup>6</sup>
- Congestive heart failure and bacterial pneumonia were the two most common reasons for potentially preventable hospitalizations in 2006, accounting for half of the total hospital costs (\$8.4 billion and \$7.2 billion, respectively) for all preventable hospitalizations.<sup>7</sup>

### Patients at Risk for ACSC Hospitalizations

- Medicaid recipients and the uninsured: Among working age adults, those receiving Medicaid and the uninsured had higher ACSC hospitalization rates than insured individuals.<sup>8</sup>
- Individuals with difficulty accessing care: Medicare beneficiaries in fair or poor health who resided in a primary care shortage area were 1.82 times more likely to experience a preventable hospitalization as compared to similar individuals in non-shortage areas.<sup>9</sup>
- Racial and ethnic minorities and persons of low socioeconomic status: Racial and ethnic minorities and individuals with low socioeconomic status are more likely than non-minorities and individuals of higher socioeconomic status to be hospitalized due to ACSCs.<sup>10,11,12,13</sup>

## SOLUTIONS

### Increase Access to Community Health Centers

- **Proven Practice:** Among low-income and elderly patients in medically underserved areas, those with access to federally qualified community health centers had 21 percent fewer preventable hospitalizations than those without access to such clinics.<sup>14</sup>

*Continued on back*

Increasing access to primary care and community health centers, reducing patient travel time, increasing Medicaid re-enrollment time and expanding the Medicaid Managed Care program can significantly decrease ACSC hospital admissions.

These interventions represent a renewed emphasis on primary and community care, especially improving chronic disease management, which helps to improve quality of care and reduce costs.

#### Reduce Patient Travel Time

- **Proven Practice:** Patients in the Veterans Administration who traveled less than 30 minutes to their nearest provider had fewer ACSC hospitalizations.<sup>15</sup>

#### Change Medicaid Re-enrollment Policies

- **Proven Practice:** California extended the eligibility re-determination period from three months to 12 months, resulting in 3,060 fewer ACSC hospitalizations in the first year among children and an estimated \$17 million reduction in hospitalization costs.<sup>16</sup>

#### Expand Medicaid Managed Care

- **Proven Practice:** Individuals covered by a mandatory Medicaid Managed Care program had a 33 percent lower rate of ACSC hospitalizations as compared to Medicaid fee-for-service recipients.<sup>17</sup>

#### Increase Availability of Primary Care Services

- **Proven Practice:** Increasing physician supply by 40.2 per 100,000 reduced the ACSC hospitalization rate by 14 percent for children, 7 percent for 18-39 year olds and 8 percent for 40-64 year olds.<sup>18,19</sup>
- **Policy Action:** Enhance access to primary care for the uninsured, underinsured, Medicaid-insured and medically underserved populations.<sup>20,21</sup>
- **Policy Action:** Expand affordable and comprehensive health care coverage to the uninsured.

#### Improve Chronic Disease Management

- **Policy Action:** Educate patients and parents of children about how to control a chronic condition, as educational interventions for patients with asthma have been shown to reduce their risk of hospitalization by 36 to 43 percent.<sup>22,23,24</sup>
- **Policy Action:** Increase the use of effective care coordination programs for those with chronic disease, as discharge planning plus post-discharge support for patients with heart failure has been shown to reduce hospital readmissions by 25 percent on average.<sup>25</sup>

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BEND THE  
CURVE

## Case Interview

*Elizabeth Woods, MD, Children's Hospital Boston  
on Community Asthma Initiative*

### What issue within decreasing hospital admissions for ACSCs were you trying to address?

The Community Asthma Initiative (CAI), a program of Children's Hospital Boston (CHB), was developed with the aim of reducing the number of asthma-related hospitalizations, emergency department visits, and missed school and work days by helping children and their families from neighboring Boston communities manage their asthma.

### What was the solution you decided upon to address the issue and why?

Asthma is the leading cause of hospitalization at CHB. Moreover, the asthma hospitalization rate for Latino and Black children in Boston was five times higher than the rate for White children in 2003. As a result, the target population for our program is primarily Latino and Black children with asthma between the ages of 2 and 18 in Boston who have had prior hospitalizations and/or ED visits.

CAI uses a comprehensive, socio-ecological approach to address asthma health disparities, including enhanced patient care, access to services, quality improvement evaluation, training, community education and advocacy for policy change. The services provided include nurse case management for an individualized care plan, such as coordination with primary care and allergists; home visits, including environmental assessments, integrated pest management plans, smoking cessation programs and asthma education; and connection to community resources for patients from neighboring Boston communities identified through ED visits or inpatient admissions.

### What were the barriers you faced in the implementation of your solution?

The primary barrier has been financial, specifically, obtaining sustainable funding for the program. In 2007, CHB was awarded \$2 million dollars over five years from the CDC's REACH program to eliminate racial and ethnic health disparities among minority populations. We were one of 40 organizations selected from 22 states across the country to receive such funding. This funding has experienced recent cuts, which will clearly affect our ability to work effectively. Furthermore, the nature of the work makes it hard to get

reimbursed under the fee-for-service model. Much of the work we do is not traditionally done in the clinic or hospital; rather, it is done primarily through nurse and community health worker home visits and phone calls.

### How did you overcome these barriers?

We have tried to collaborate with Medicaid to find ways to reimburse CAI's activities but it has been difficult to identify a solution.

### What were the critical success factors in the implementation of your solution?

Success in the CAI program has largely been a result of strong cultural competency and awareness. Much of our staff, from nurse practitioners to community health workers, is bicultural and bilingual. Cultural sensitivity is a necessity given that over 90 percent of the population we serve is Latino and Black children.

### What specific clinical and financial results have you experienced?

Parental reports of children in the CAI program at 6 and 12 months as compared to baseline have shown the following: significant reductions in ED visits (64 percent), hospitalizations (79 percent), days of limited physical activity (32 percent), missed school days (41 percent), missed parent/caregiver work days (46 percent), and an increase in current asthma action plans (56 percent). The return-on-investment was 1.46 over two years and 1.73 including quality-of-life calculations. This information has been used to implement pilot bundled payments for non-reimbursable care. Overall, CAI has remarkably improved health outcomes and has been shown to be a cost-effective intervention.

### What is one piece of advice you would offer to another organization trying to decrease hospital admissions for ACSCs?

Nurse involvement with case management, care coordinators, home visits and supervision of the community health worker home visits has been critical to the success of the program and to addressing health disparities for children and families living with asthma.

# BEND THE CURVE

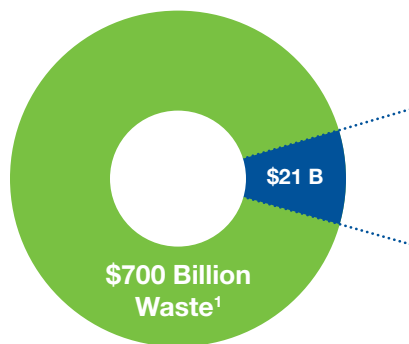
To err may be human, but medication errors in the health care system exact a considerable human and financial toll. While the introduction and availability of new medications has improved the health of countless Americans, those same medications, offered in error, cost billions of dollars in unnecessary spending and claim thousands of lives.

Preventable medication errors occur in all care settings, from hospitals to clinics, and at all steps of the care process. They may be the result of a mistake in dosing, a foreseeable allergic reaction by a patient or an interaction with another medication. Often they are caused by the fragmentation of care, especially for the complex chronically ill, and are exacerbated by the lack of information technology resources and data sharing.

Like many other areas of waste and inefficiency, reducing medication errors requires changes in the structure and financing of the health care system, paired with new ways of working. Care coordination and integrating the patient into the care team improves transitions and provides more checks throughout the care process. These new care delivery approaches must be supplemented with new technologies to catch errors and new payment models to incentivize and reward best practices and healthy outcomes.

Successful adoption of proven practices and implementation of policy actions together offer the potential to make millions healthier and save \$21 billion in preventable medication errors, money which can be reinvested to bring us closer to the goal of high value health care.

# Preventing Medication Errors: A \$21 Billion Opportunity



- Improve Care Coordination
- Facilitate Patient Engagement
- Require Pharmacist Follow-up
- Enhance Technology Interventions
- Increase Incentive Payments
- Update Accreditation/Certification

Targeting the \$21 billion spent annually on preventable medication errors requires building on proven practices and implementing policy actions that target the root causes of the problem.

Preventable medication errors represent a significant source of wasteful health care spending. The causes of medication errors are complex and systemic, resulting from the fragmented nature of the care delivery system and the failure to effectively share and use health care data.

Reducing preventable medication errors requires building on a coordinated set of proven practices in the field coupled with policy actions in the public and private sectors.

## THE PROBLEM

### Scope of Medication Errors

- Each year in the U.S., serious preventable medication errors occur in 3.8 million inpatient admissions and 3.3 million outpatient visits.<sup>2,3</sup>
- The Institute of Medicine, in its report *To Err Is Human*, estimated 7,000 deaths in the U.S. each year are due to preventable medication errors.<sup>4</sup>

### Costs of Medication Errors

- Inpatient preventable medication errors cost approximately \$16.4 billion annually.<sup>5</sup>
- Outpatient preventable medication errors cost approximately \$4.2 billion annually.<sup>6,7</sup>

### Prescription Errors

- Dosing errors make up 37 percent of all preventable medication errors.<sup>8</sup>
- Drug allergies or harmful drug interactions account for 11 percent of preventable medication errors.<sup>9</sup>
- Preventable medication reconciliation errors occur in all phases of care: 22 percent during admissions, 66 percent during transitions in care and 12 percent during discharge.<sup>10</sup>
- Approximately 100 undetected dispensing errors can occur each day as a result of the significant volume of medications dispensed.<sup>11</sup>

### Fragmentation of Care

- Only 13 percent of primary care physicians reported that they communicated with a pharmacist regarding new prescriptions.<sup>12</sup>

### Lack of Information Technology Infrastructure

- EMR systems that are described as fully functional and had a prescribing function were reported by only 4 percent of physicians.<sup>13</sup>
- Electronic prescribing is used by only 32 percent of physicians in ambulatory care settings.<sup>14</sup>

## SOLUTIONS

### Improve Care Coordination

- **Proven Practice:** Improved communication among physicians, pharmacists and nurses prevented 85 percent of serious medication errors.<sup>15</sup>
- **Proven Practice:** Including a pharmacist on routine medical rounds led to a 78 percent reduction in medication errors.<sup>16</sup> Adding a pharmacist to a physician rounds team in an intensive care unit led to annual savings of \$270,000.<sup>17</sup>

*Continued on back*

Using care coordination strategies, interdisciplinary teamwork and information technologies can significantly reduce preventable medication errors.

These interventions increase the availability of data, provide clinical decision support, engage the patient and improve the accuracy of prescriptions.

► Learn more about ways to Bend the Curve in health care costs at: [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)

#### Facilitate Patient Engagement

- **Proven Practice:** Medication errors can be reduced through active engagement of patients and family caregivers with the care team, the use of patient safety checklists, and increased awareness of publicly reported hospital safety records.
- **Policy Action:** Adopt Joint Commission recommendations for medication reconciliation, ensuring that medications are reconfirmed and reviewed with the patient at each transition in care.<sup>18,19</sup>
- **Policy Action:** Empower patients and family caregivers to manage their medications by keeping PHRs and personal medication lists and informing them about the purpose, effects, and side effects of their medications.<sup>20</sup>

#### Require Pharmacist Follow-up

- **Proven Practice:** Patients who received pharmacist follow-up calls were 88 percent less likely to have a preventable medication error resulting in an ED visit or hospitalization.<sup>21</sup>

#### Enhance Technology Interventions

- **Proven Practice:** e-Prescribing systems reduced medication errors by 85 percent and generated net cost savings of \$403,000 in ambulatory care settings.<sup>22,23</sup>
- **Proven Practice:** Verifying the correct drug dosage with Bar Code Electronic Medication Administration System (eMAR) technology led to a 51 percent reduction in medication errors and annual savings of \$2.2 million in a large academic hospital.<sup>24,25</sup>
- **Proven Practice:** Computerized Physician Order Entry (CPOE) with clinical support reduced serious medication errors by 81 percent.<sup>26</sup>

#### Increase Incentive Payments

- **Policy Action:** Assist health professionals and hospitals in adopting clinical IT tools (EHRs, e-prescribing, CPOE and eMAR), achieving “meaningful use” standards (drawn from HIT Policy Committee recommendations) and earning federal incentive payments.
- **Policy Action:** Provide private and state payer-based financial incentives to providers using evidence-based practices that reduce medication errors and using EHRs that generate key patient medication information (active medication lists, medication allergy lists).
- **Policy Action:** Encourage providers to participate in the CMS Electronic Prescribing (eRx) Incentive Program.

#### Update Accreditation/Certification

- **Proven Practice:** Certifying providers as trained and proficient in teamwork.
- **Policy Action:** Have specialty societies encourage providers to participate in the CMS Physician Quality Reporting Initiative (PQRI) for documenting current medications in the medical record.
- **Policy Action:** Set standards and require public reporting of medication errors as a condition for state licensure.

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## Case Interview

*Saul Weingart, MD, PhD, Dana-Farber Cancer Institute  
on e-Prescribing and Medication Alerts*

### What issue within preventing medication errors were you trying to address?

We wanted to estimate the impact of medication safety alerts on patient safety, health care utilization and cost in ambulatory care. Specifically, we looked at the potential of reducing the number and severity of adverse drug events (ADE) in the ambulatory care setting.

### What was the solution you decided upon to address the issue and why?

Our study examined medication alerts generated by PocketScript, an electronic prescribing application that allows clinicians to transmit prescriptions electronically to a pharmacy via a computer or a handheld device. When a prescriber attempts to order a drug, the system checks whether the prescribed medication interacts with any medications on the patient's profile, drawing on a list of medication interactions. If an interaction is detected, a warning banner is displayed showing the severity of the interaction (high, medium or low), along with a description of the interaction.

Because ambulatory care clinicians override as many as 91 percent of drug interaction alerts, the potential benefit of e-prescribing with decision support is uncertain. Although overriding alerts may jeopardize the potential impact of these systems, it is possible that even a small number of accepted alerts may reduce patient harm, decrease unnecessary utilization of health care services and save money over time. As a result, our study hypothesized that e-prescribing alerts that clinicians accepted would, in aggregate, benefit patients, lower health care costs and help to validate the continued use of these systems.

### What were the barriers you faced in the implementation of your solution?

"Alert fatigue" from physicians is a concern with e-prescribing, as providers felt some alerts were distracting. In addition, the disproportionate relationship between the number of alerts and the patient safety and financial benefits of e-prescribing in this study can make one wonder whether the juice is, in fact, worth the squeeze. Lastly, generalizability of the study was restricted by the use of a single e-prescribing system and drug interaction alert database.

### How did you overcome these barriers?

Alert fatigue from physicians can be ameliorated to a degree through the use of "non-interruptible" alerts

in e-prescribing systems, which display some of the more distracting alerts to providers but do not require them to do anything about them. Additionally, our cost estimates did not take into consideration savings that might accrue from other areas, such as from improved formulary adherence and increased use of generic drugs, which could improve the argument for e-prescribing. Lastly, despite concerns of generalizability in our study, in 2008, the PocketScript system was used by 8 percent of Massachusetts prescribers and approximately 4,000 eligible prescribers in 18 states, and many of its features are common to many commercial and home-grown e-prescribing systems.

### What were the critical success factors in the implementation of your solution?

Meaningful Use criteria through the Affordable Care Act include incentives for safe prescribing, which continue to further the encouragement of HIT, EMRs and e-prescribing. In addition, some insurance companies have been creating incentives for e-prescribing. Lastly, despite an up-front time cost, providers have been interested in doing this, which is crucial to preventing medical errors.

### What specific clinical and financial results have you experienced?

Our study found electronic drug alerts likely prevented 402 ADEs, including 49 potentially serious, 125 significant and 228 minor ADEs. Accepted alerts may have also prevented a death in 3 cases, permanent disability in 14 and temporary disability in 31. Alerts also potentially resulted in 39 fewer hospitalizations, 34 fewer ED visits, and 267 fewer office visits, for a cost savings of \$402,619. Based on our estimates, 331 alerts were required to prevent 1 ADE, and a few alerts (10 percent) likely accounted for 60 percent of ADEs and 78 percent savings.

### What is one piece of advice you would offer to another organization trying to prevent hospital readmissions?

First, technology can create safer health care, but be wary of easy solutions. Second, consider opportunities to engage patients in preventing medication errors.

*For more information, see: Weingart, S.N., Simchowitz, B., Padolsky, H., et al. (2009). An empirical model to estimate the potential impact of medication safety alerts on patient safety, health care utilization, and cost in ambulatory care. Arch Intern Med, 169(16), 1465-1473.*

For more information on how to Bend the Curve in health care costs, visit:  
**[www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)**



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[www.nehi.net](http://www.nehi.net)



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Striving for High Value Health Care:  
**Lessons Learned**



BEND THE  
**CURVE**

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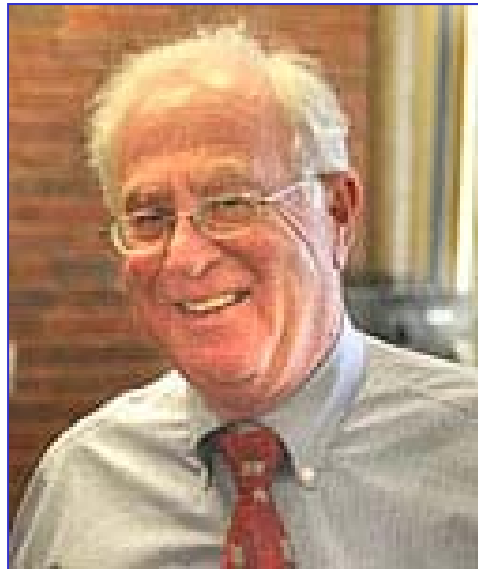
*Learn more about ways to Bend the Curve in health care costs at: [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)*

# Cost Control: Why Do We Care?



NHE was 6.2 percent of GDP

Now 17.9 percent

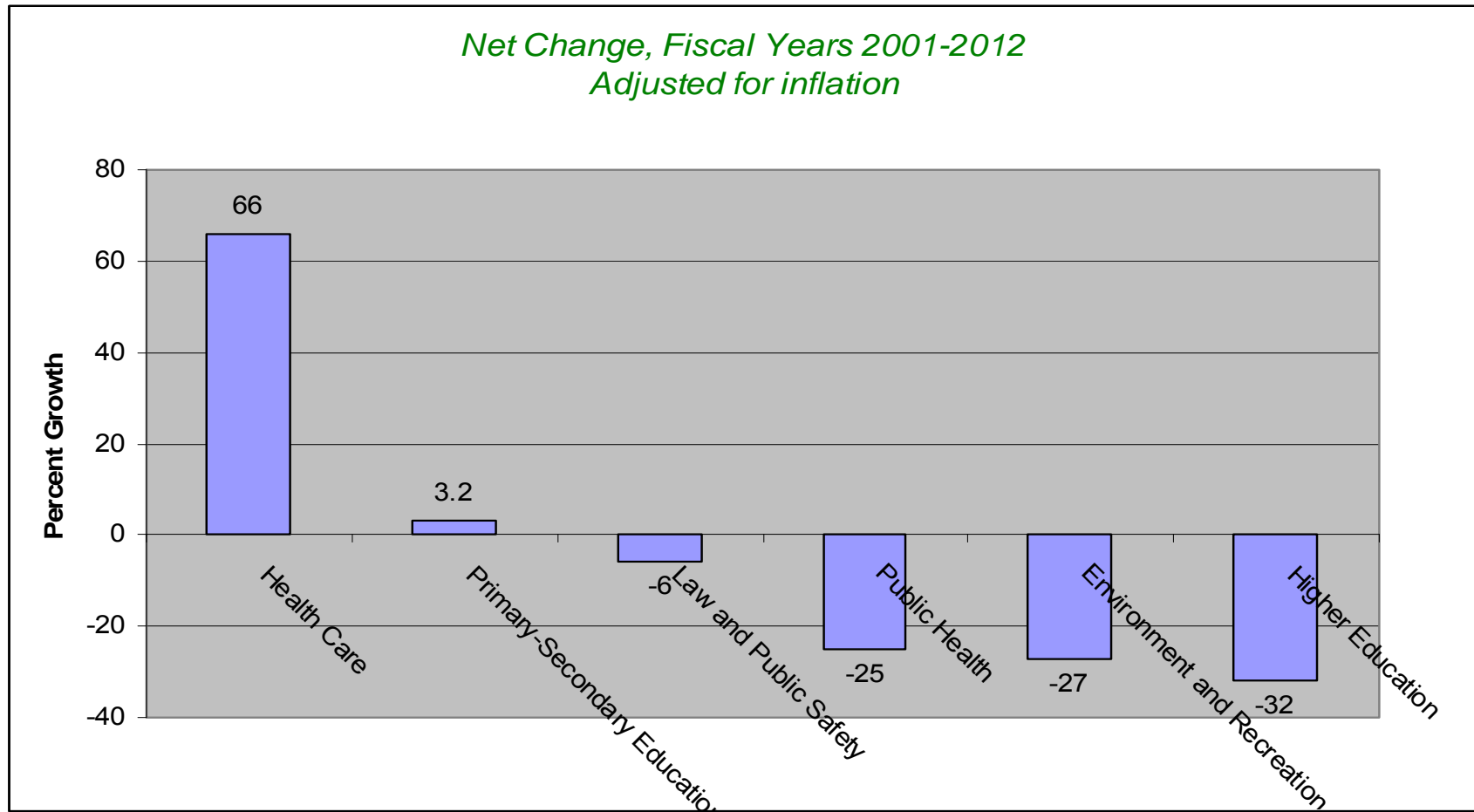


Going to 25 percent in 2025

# Cost Control: Why Should We Care?



## Massachusetts Spending Imbalance

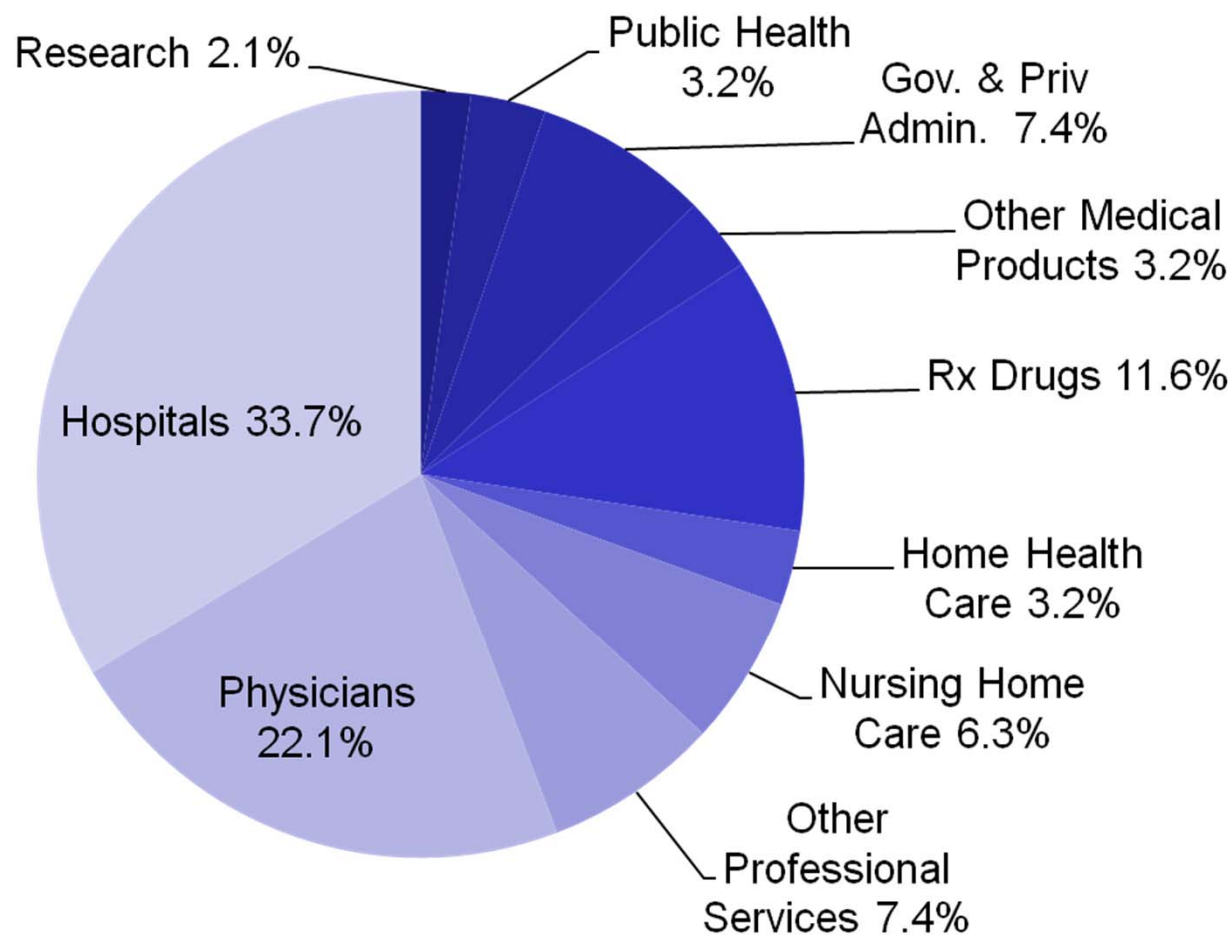


Source: Massachusetts Budget and Policy Center Budget Browser

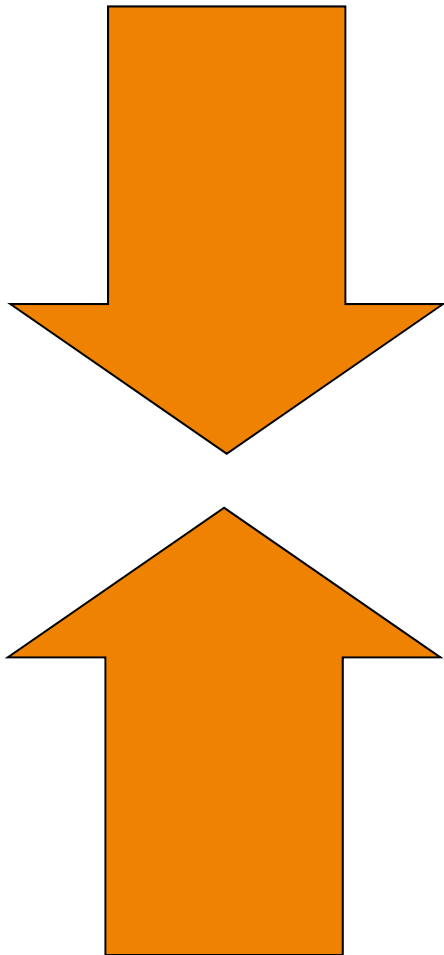
# Where Does it Go?



## 2011 NHE: \$2.7 Trillion



# Bending the Cost Curve: A Third Choice



Services

Premiums



# Waste: Where, Why, & How Much?



BEND THE  
CURVE

## Waste in the U.S. Health Care System: A Conceptual Framework

TANYA G.K. BENTLEY, RACHEL M. EFFROS,  
KARTIKA PALAR, and EMMETT B. KEELER

*RAND Corporation; University of California, Los Angeles*

 50%?



## Accounting for the Cost of Health Care in the United States

**McKinsey Global Institute**

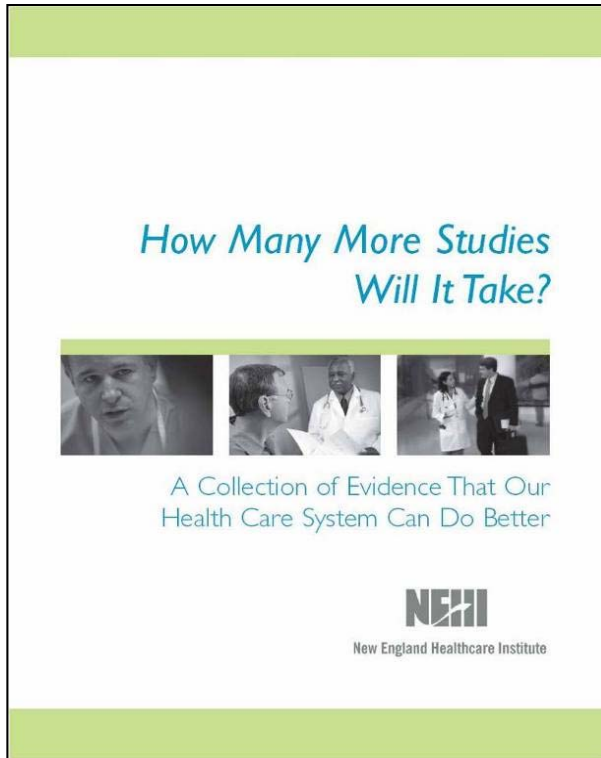
January 2007

 30%?

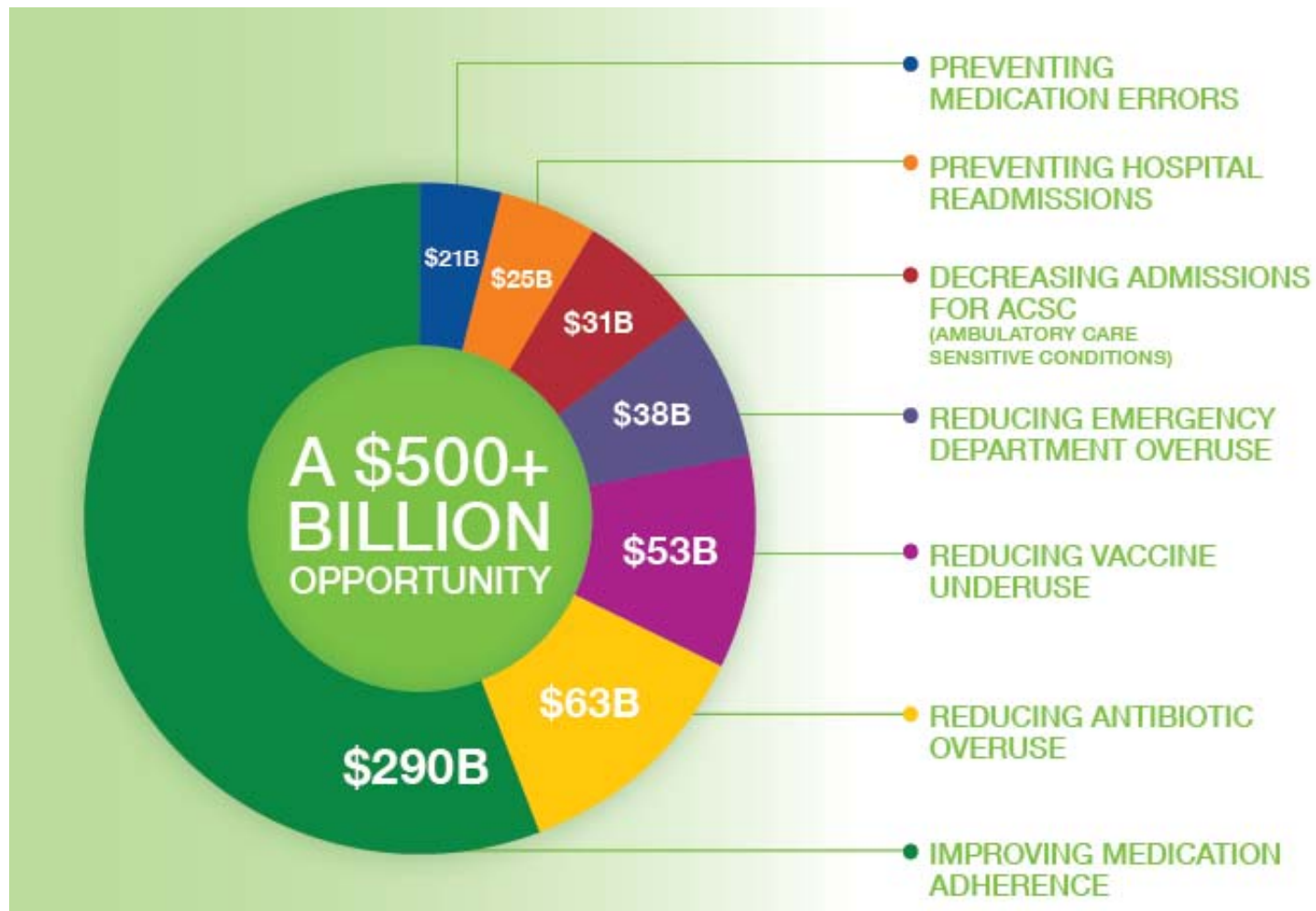
# NEHI's Work on Waste



*One-third of our health care spending does nothing to improve the quality of health care delivered.*



# Top Drivers of Waste





# NEHI's *Bend The Curve* Campaign



### Reducing Emergency Department Overuse: A \$38 Billion Opportunity

**THE PROBLEM**

- Emergency department (ED) use is increasing, and the number of ED visits has risen 30% since 2000.
- The use of hospital emergency departments (ED) for non-emergencies has increased significantly.
- ED visits are costly, often exceeding \$1,000 per visit.
- ED visits are often avoidable, leading to unnecessary costs and delays in patient care.

**SOLUTIONS**

- Expand primary care services, including telemedicine and urgent care centers.
- Improve patient education and self-management.
- Streamline ED processes and reduce wait times.
- Implement triage and diversion programs.

### Improving Patient Medication Adherence: A \$290 Billion Opportunity

**THE PROBLEM**

- Approximately 50% of patients do not take their medications as prescribed.
- Non-adherence leads to increased hospitalizations, ED visits, and mortality.
- It is a major barrier to the success of many chronic disease treatments.

**SOLUTIONS**

- Improve patient education and counseling.
- Use reminder systems and tools (e.g., pill boxes, mobile apps).
- Engage family and community support.
- Streamline medication regimens.

### Reducing Antibiotic Overuse: A \$63 Billion Opportunity

**THE PROBLEM**

- Antibiotic overuse is a significant cause of antibiotic resistance.
- It leads to the development of "superbugs" that are difficult to treat.
- Overuse also contributes to side effects and unnecessary costs.

**SOLUTIONS**

- Implement antibiotic stewardship programs.
- Improve diagnostic testing to identify bacterial infections.
- Reduce unnecessary antibiotic use.
- Improve patient education on antibiotic use.

### Reducing Vaccine Underuse: A \$53 Billion Opportunity

**THE PROBLEM**

- Vaccine underuse is a significant barrier to disease prevention.
- It leads to preventable illnesses and deaths.
- Underuse is often due to lack of information and access.

**SOLUTIONS**

- Improve vaccine access and availability.
- Enhance patient education and counseling.
- Streamline vaccination processes.
- Engage community organizations.

### Preventing Hospital Readmissions: A \$25 Billion Opportunity

**THE PROBLEM**

- Hospital readmissions are a significant cause of health care costs.
- They indicate poor patient outcomes and quality of care.
- Readmissions are often preventable with better care coordination.

**SOLUTIONS**

- Improve care coordination and communication.
- Enhance patient education and self-management.
- Streamline discharge processes.
- Engage community resources.

### Decreasing Hospital Admissions for Ambulatory Care Sensitive Conditions: A \$31 Billion Opportunity

**THE PROBLEM**

- Ambulatory care sensitive conditions (ACSCs) are preventable hospital admissions.
- They are often due to poor management of chronic conditions.
- ACSCs are a significant barrier to patient health and quality of life.

**SOLUTIONS**

- Improve chronic disease management.
- Enhance patient education and self-management.
- Streamline care coordination.
- Engage community resources.

### Preventing Medication Errors: A \$21 Billion Opportunity

**THE PROBLEM**

- Medication errors are a significant cause of patient harm and cost.
- They are often preventable with better processes and training.
- Errors can lead to hospitalizations, ED visits, and mortality.

**SOLUTIONS**

- Improve medication management processes.
- Enhance staff training and education.
- Streamline medication reconciliation.
- Engage patients and families.

## BEND THE CURVE

### A Health Care Leader's Guide to High Value Health Care

- Reducing Emergency Department Overuse
- Reducing Antibiotic Overuse
- Improving Patient Medication Adherence
- Reducing Vaccine Underuse
- Preventing Hospital Readmissions
- Decreasing Hospital Admissions for Ambulatory Care Sensitive Conditions
- Preventing Medication Errors

3600 Billion in Savings

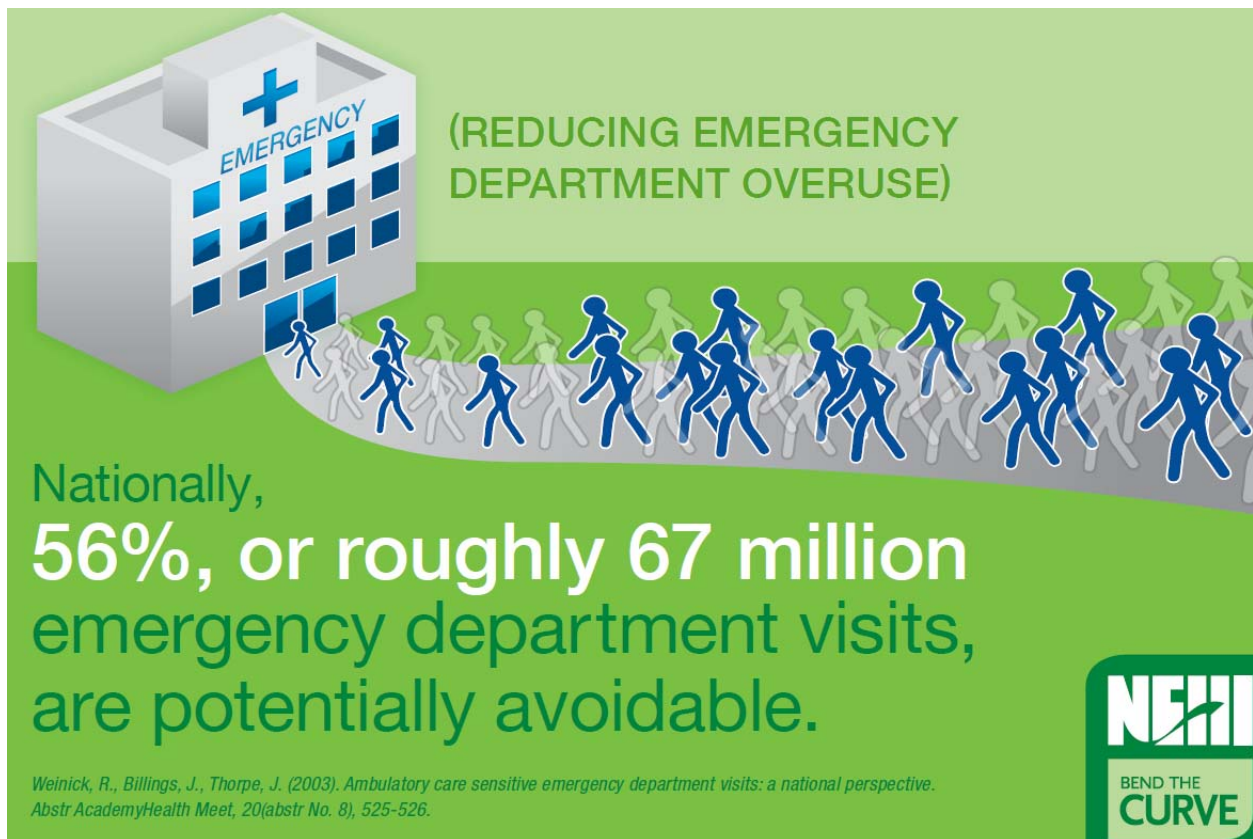




# Reducing ED Overuse: A \$38 Billion Opportunity

NEHI

BEND THE  
CURVE



## Notes

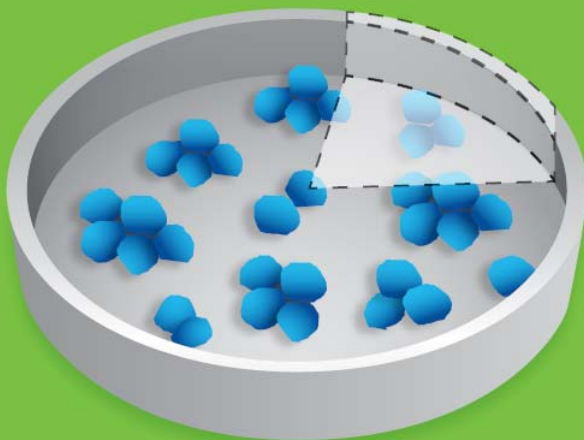
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# Reducing Antibiotic Overuse: A \$63 Billion Opportunity



(REDUCING ANTIBIOTIC OVERUSE)

**Reducing ARIs** (antibiotic-resistant infections) **by 20%** would save up to **\$5.2 billion each year** and eliminate up to **\$11 million** in additional hospital costs.



*CDC. (2010). Get Smart: Know When Antibiotics Work. November 15, 2010. <http://www.cdc.gov/Features/GetSmart/>. Last accessed on August 16, 2011.*



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# Improving Patient Medication Adherence: A \$290 Billion Opportunity



BEND THE  
CURVE

(IMPROVING PATIENT MEDICATION ADHERENCE)



who take one or more  
prescription drugs, up to  
**50% don't**  
take them  
as prescribed.

*Osterberg, L., Blaschke, T. (2005). Adherence to medication. N Engl J Med, 353(5), 487-497.*



BEND THE  
CURVE

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# Reducing Vaccine Underuse: A \$53 Billion Opportunity



(REDUCING VACCINE UNDERUSE)



One of every five children  
is not completely up to date on  
recommended immunizations.

*The Commonwealth Fund. (2008). Immunization of Young Children. <http://www.commonwealthfund.org/Performance-Snapshots/Immunizations/Immunization-of-Young-Children.aspx>. Last accessed August 2011.*



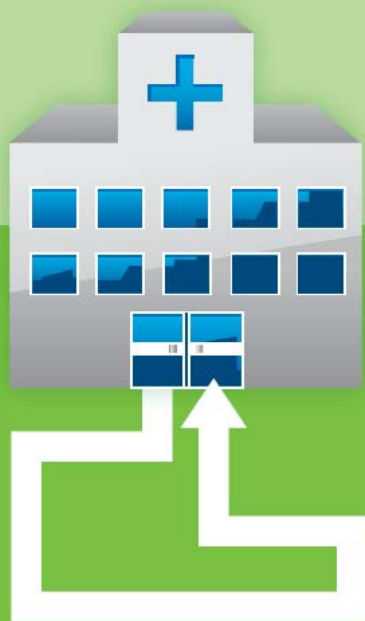
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# Preventing Hospital Readmissions: A \$25 Billion Opportunity

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(PREVENTING HOSPITAL READMISSIONS)

Preventable hospital readmissions  
cost the U.S. health care  
system an estimated  
**\$25 billion annually.**

*PriceWaterhouse Coopers' Health Research Institute. (2008). The Price of Excess: Identifying Waste in Healthcare, 2008.  
<http://www.pwc.com/us/en/healthcare/publications/the-price-of-excess.jhtml>. Last accessed October 2011.*

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CURVE

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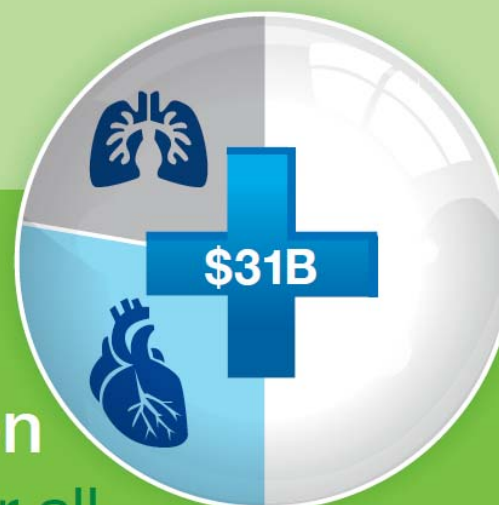
# Decreasing Hospital Admissions for Ambulatory Care Sensitive Conditions: A \$31 Billion Opportunity

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BEND THE CURVE

(DECREASING HOSPITAL ADMISSIONS FOR AMBULATORY CARE SENSITIVE CONDITIONS)

Bacterial pneumonia and congestive heart failure accounted for **\$15.6 billion** of the total hospital costs for all preventable hospitalizations in 2006.



*Jiang, H.J., Russo, C.A., Barrett, M.L. (2009). Nationwide Frequency and Costs of Potentially Preventable Hospitalizations, 2006. HCUP Statistical Brief #72. April 2009. U.S. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.hcup-us.ahrq.gov/reports/stat-briefs/sb72.pdf>. Last accessed October 2011.*

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## Notes

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# Preventing Medication Errors: A \$21 Billion Opportunity

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CURVE

(PREVENTING MEDICATION ERRORS)

Each year in the U.S.,  
serious preventable  
medication errors  
occur in...



*Massachusetts Technology Collaborative and NEHI. (2008). Saving Lives, Saving Money: The Imperative for CPOE in Massachusetts. [www.nehi.net/publications/8/saving\\_lives\\_saving\\_money\\_the\\_imperative\\_for\\_computerized\\_physician\\_order\\_entry\\_in\\_massachusetts\\_hospitals](http://www.nehi.net/publications/8/saving_lives_saving_money_the_imperative_for_computerized_physician_order_entry_in_massachusetts_hospitals). Last accessed on October 2011.*

*Center of Information Technology Leadership. (2007). The Value of Computerized Provider Order Entry in Ambulatory Settings. [http://www.partners.org/cird/pdfs/CITL\\_ACPOE\\_Full.pdf](http://www.partners.org/cird/pdfs/CITL_ACPOE_Full.pdf). Last accessed October 2011.*

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## Notes

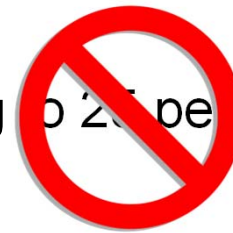
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# Cost Control: Why Do We Care?



NHE is 17.9 percent of GDP

Going to ~~25~~ percent in 2025



Going to ??? Percent in 2025

# Keynote Speaker



**J. Michael McGinnis, MD**  
Institute of Medicine



# Cutting Health Costs

*More than a quick fix*

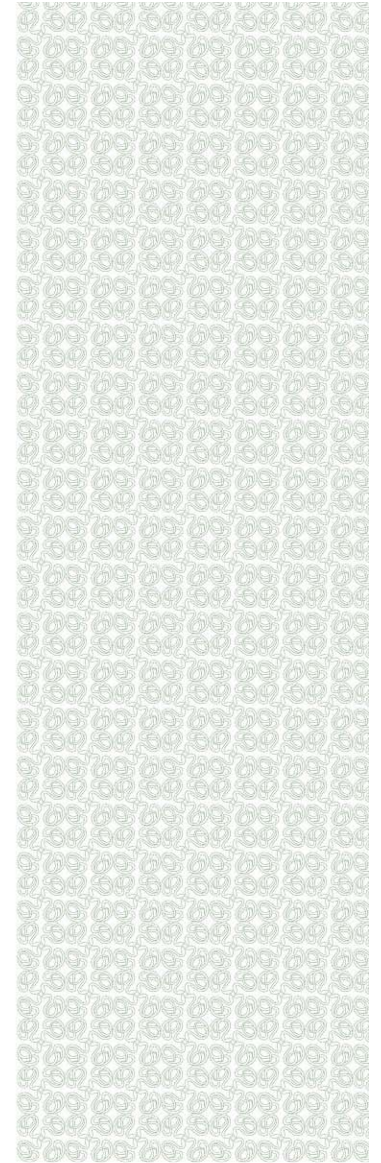
J. Michael McGinnis, MD, MPP  
Institute of Medicine

NEHI  
January 10, 2013



**INSTITUTE OF MEDICINE**  
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Advising the nation/Improving health



# What have we heard?

- **About U.S. health expenditures**
- **About the implications**
- **About the waste**
- **About reducing waste**
- **About areas needing particular attention**
- **About prospects for continuous learning health care**

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# U.S. health expenditures, 2011

Spending Category	Amount (%)	Amount (\$, billions)
Hospital care	31	850.6
Physician services	20	541.4
Long term and other care	13	356.7
Prescription drugs	10	263.0
Other clinician services	7	181.6
Health insurance administration	6	156.4
Structures and related materials	4	103.7
Other medical products	3	85.9
Public health	3	79.0
Research	2	49.8
Government administration	1	32.5
<b>TOTAL</b>	<b>100 %</b>	<b>\$ 2,700.7</b>

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# Implications

- **Contribution to federal debt**
- **U.S. commercial competitiveness**
- **Investment capacity of states**
- **Household budgets**
- **Waste and inefficiency**

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# Waste and inefficiency

- **Unnecessary services**
- **Services delivered inefficiently**
- **Excessive administrative costs**
- **Prices that are too high**
- **Missed prevention opportunities**
- **Fraud**

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*The Healthcare Imperative* (National Academies Press: 2011)

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# How much too much?—take 1

- **Unnecessary services** **\$210 billion**
- **Services delivered inefficiently** **\$130 billion**
- **Excessive administrative costs** **\$190 billion**
- **Prices that are too high** **\$105 billion**
- **Missed prevention opportunities** **\$55 billion**
- **Fraud** **\$75 billion**

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Micah Hartman et al. National Health Spending In 2011: Overall Growth Remains Low, But Some Payers and Services Show Signs Of Acceleration. *Health Affairs*. 2012; 31 (1) 87-99  
(lower bound of estimates)

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# How much too much?—take 1

- Domain sums (IOM) **\$765 billion**

---

2009

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## How much too much?—take 2

- Domain sums (IOM) \$765 billion
- Geographic variation (Dartmouth) \$750 billion

Adjusted to 2009

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## How much too much?—take 3

- Domain sums (IOM) \$765 billion
- Geographic variation (Dartmouth) \$750 billion
- Inter-country comparisons (McKinsey) \$760 billion

Adjusted to 2009



# Reducing unnecessary expenditures

- Incentives that reward value
- Evidence-based medicine
- Care process improvement
- Administrative process improvement
- Price reduction
- Health promotion and disease prevention
- Fraud prevention

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## Low hanging fruit

- ***Choosing Wisely's* 37 services**
  - Unnecessary imaging studies (17)
  - Cancer screening tests: low risk situations (7)
  - Other screening test: low risk situations (20)
- **NEHI assessment**
  - Medication errors
  - Hospital readmission levels
  - Antibiotic overuse
  - Vaccine underuse
  - Patient medication adherence



# CEO Checklist for high-value health care

- **Foundational elements**
  - Governance priority
  - Culture of continuous improvement
- **Infrastructure fundamentals**
  - IT best practices
  - Evidence protocols
  - Resource utilization
- **Care delivery priorities**
  - Integrated care
  - Shared decision-making
  - Targeted services
- **Reliability and feedback**
  - Embedded safeguards
  - Internal transparency

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Delos Cosgrove et. al. *A CEO Checklist for High-Value Health Care* (IOM:2012)

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# Current under-investments

- **Transparency on costs and outcomes**
- **Team-based, patient-driven care culture**
- **Disruptive diagnostics**
- **Proximal site care**
- **Health information technology**

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# Reducing actual costs: disruptive innovation

- In diagnostics
- In treatment
- In delivery

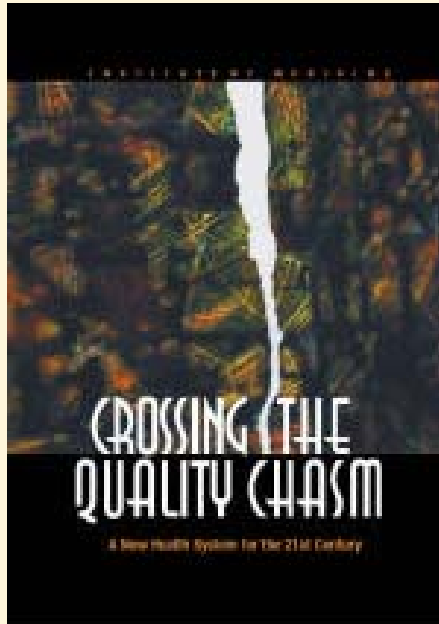
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# Best Care at Lower Cost

What's changed since *Quality Chasm*?

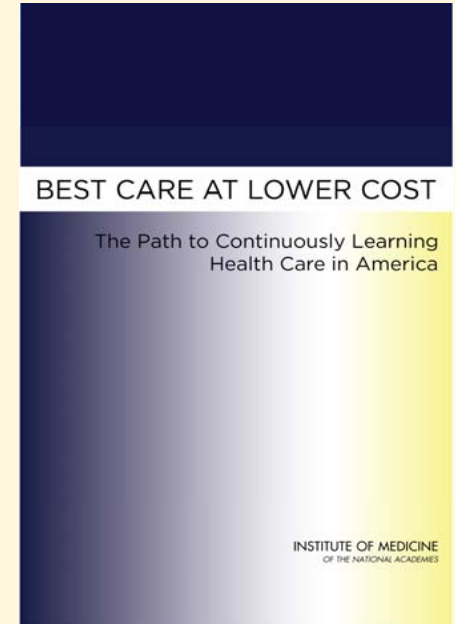


↑ **Complexity and excess costs**

↑ **New tools and levers**

↑ **Continuous learning capacity**

↑ **IOM implementation focus**



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# Continuous learning health care

- **Science and informatics**
  - Real-time access to knowledge
  - Digital capture of the care experience
- **Patient-clinician partnerships**
  - Engaged, empowered patients
- **Value-oriented incentives**
  - Incentives aligned for value
  - Full transparency
- **Continuous learning culture**
  - Leadership-instilled culture of learning
  - Supportive system competencies

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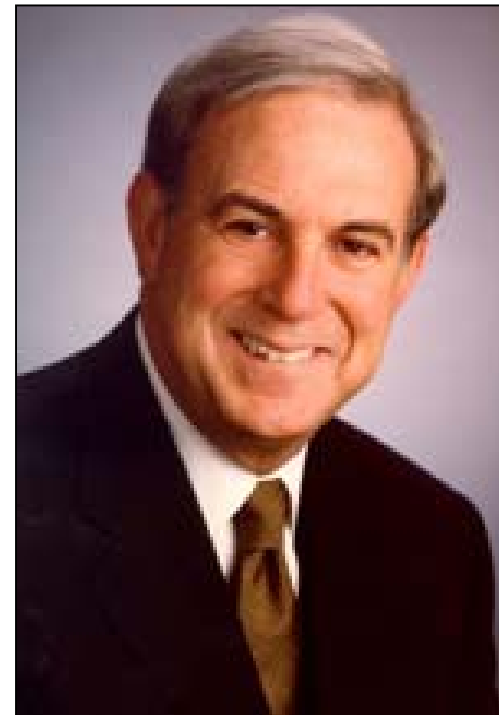
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# Practitioner Presentations



**Eric Weil, MD**  
Mass General Hospital and  
Mass General Physicians  
Organization



**Samuel Nussbaum, MD**  
WellPoint



MASSACHUSETTS GENERAL  
PHYSICIANS ORGANIZATION



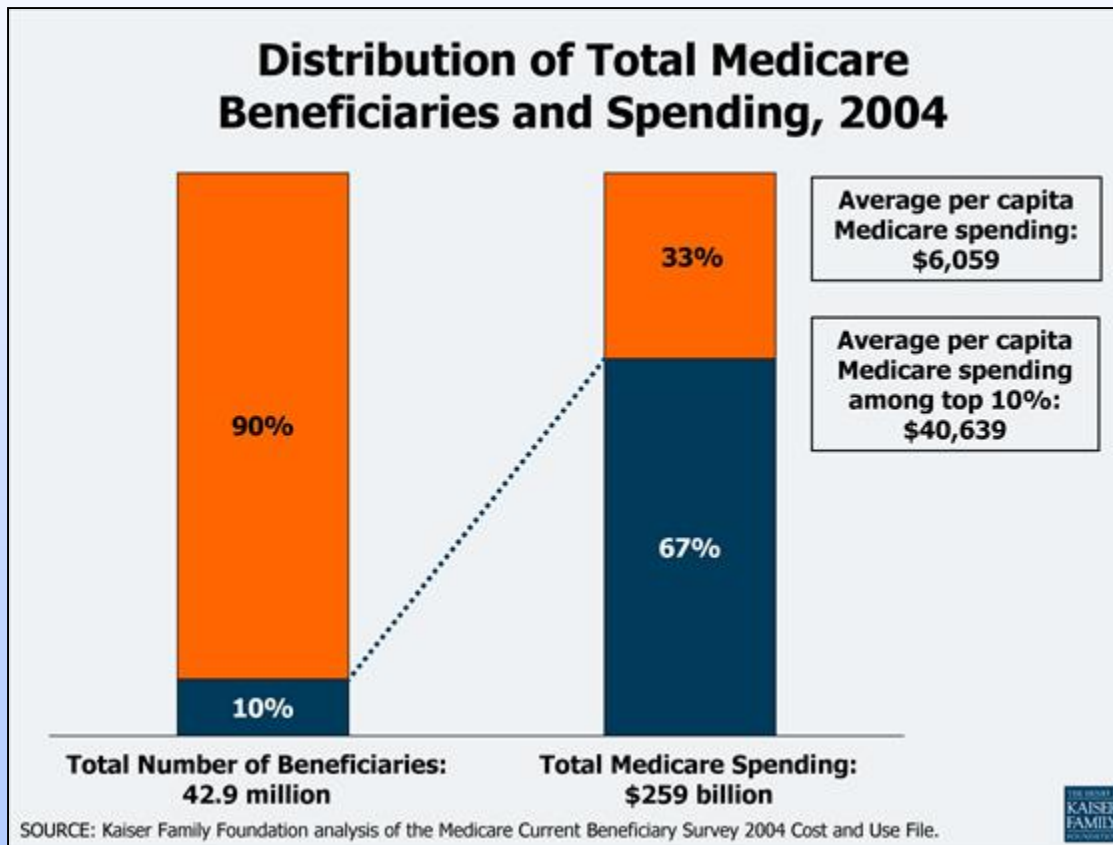
MASSACHUSETTS  
GENERAL HOSPITAL

# Improving the Delivery of Care in a High Risk Population

## The MassGeneral Care Management Program

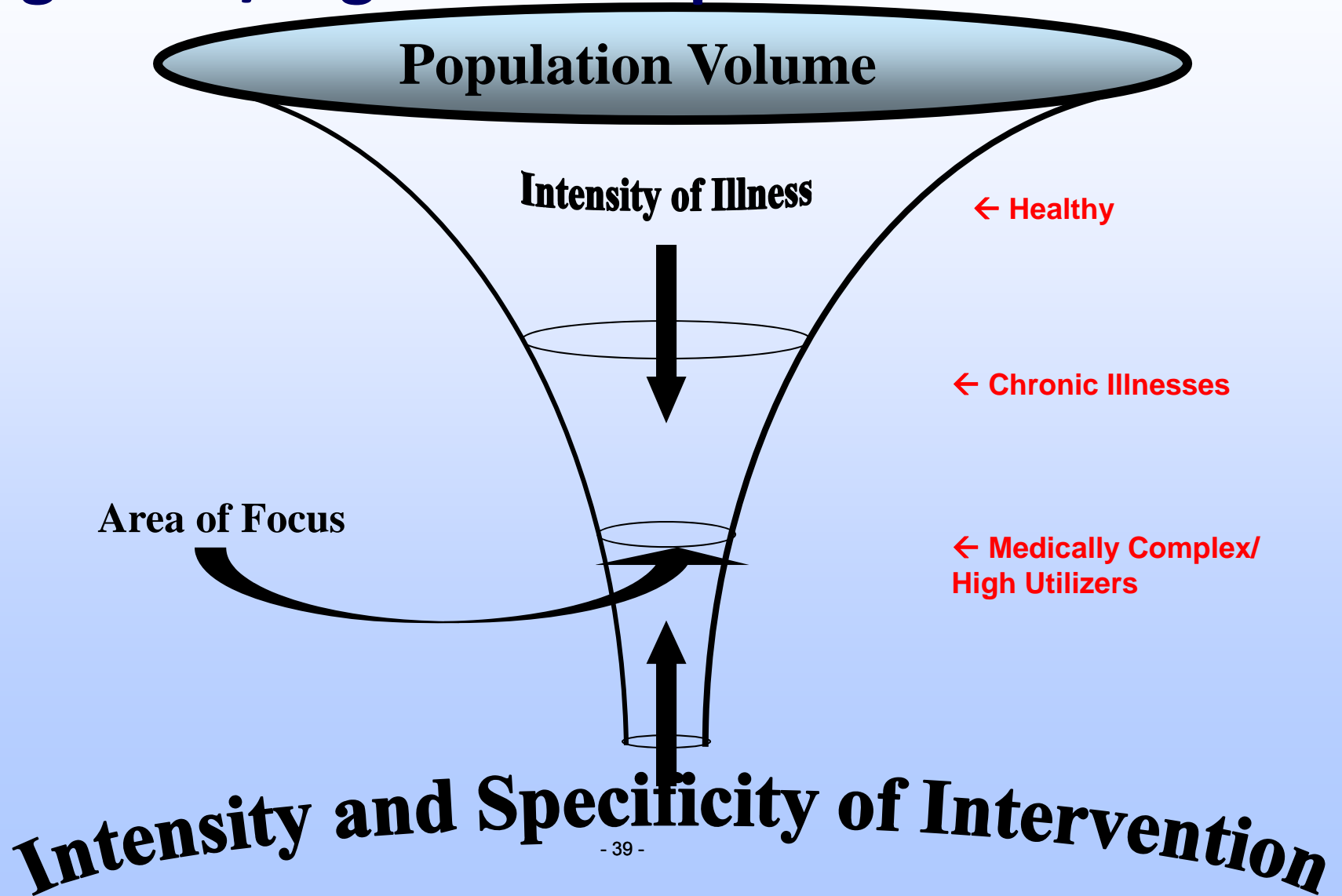


# High Cost/High Risk: Population in Concept



20% of Medicare beneficiaries have > 5 chronic conditions

# High Risk/High Cost: Population in Context



# High Cost/High Risk: Population in Reality

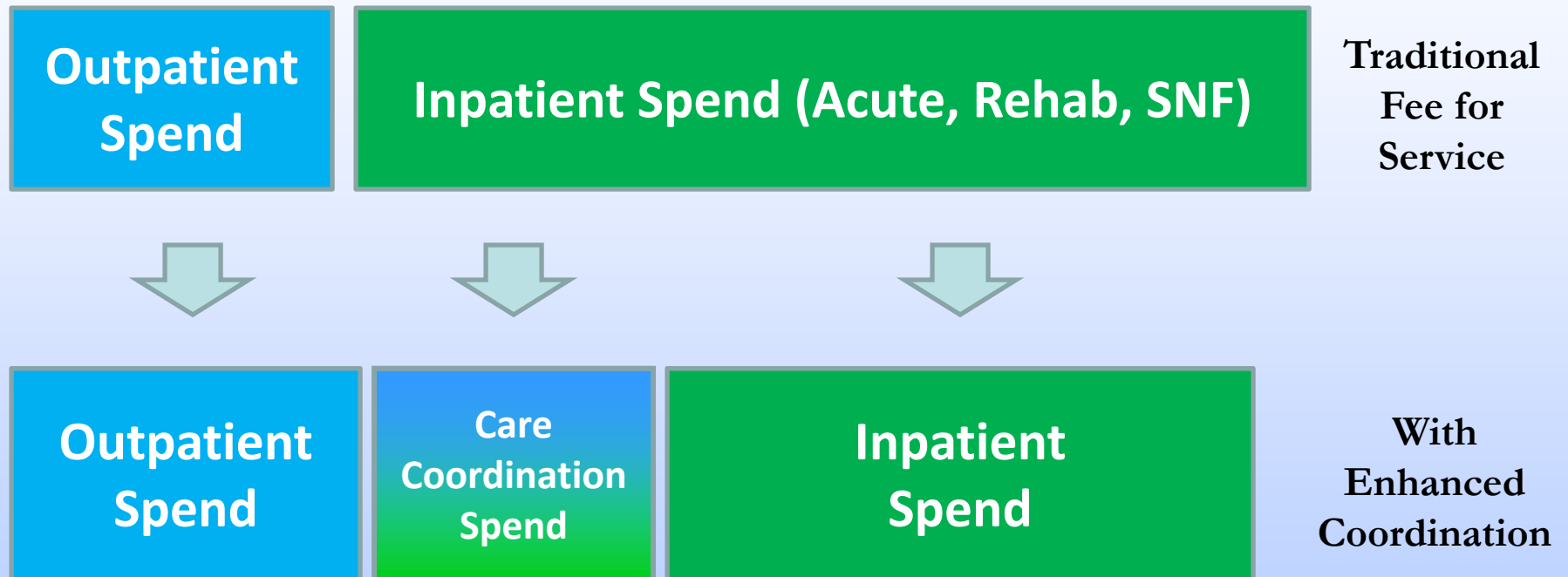
- Selection
  - All Primary Care practices (19) with (190+ PCPs)
  - Risk and Cost criteria applied to their claims
  - Inclusion: chronic illnesses
  - Exclusions: ESRD, HMO, geography
- 2500 patients (top 2.5%)
  - Average # Meds = 12.6
  - Average age ~75
  - Average # hospitalizations/year = 3.4
  - Average annual costs = \$24,000
- Total annual cost of enrolled patients = \$60M/year



- Burden of behavioral health: 56%



# Care Management Program: Conceptual Strategy



SCHMATIC: NOT DRAWN TO SCALE

# Care Management Program: Design

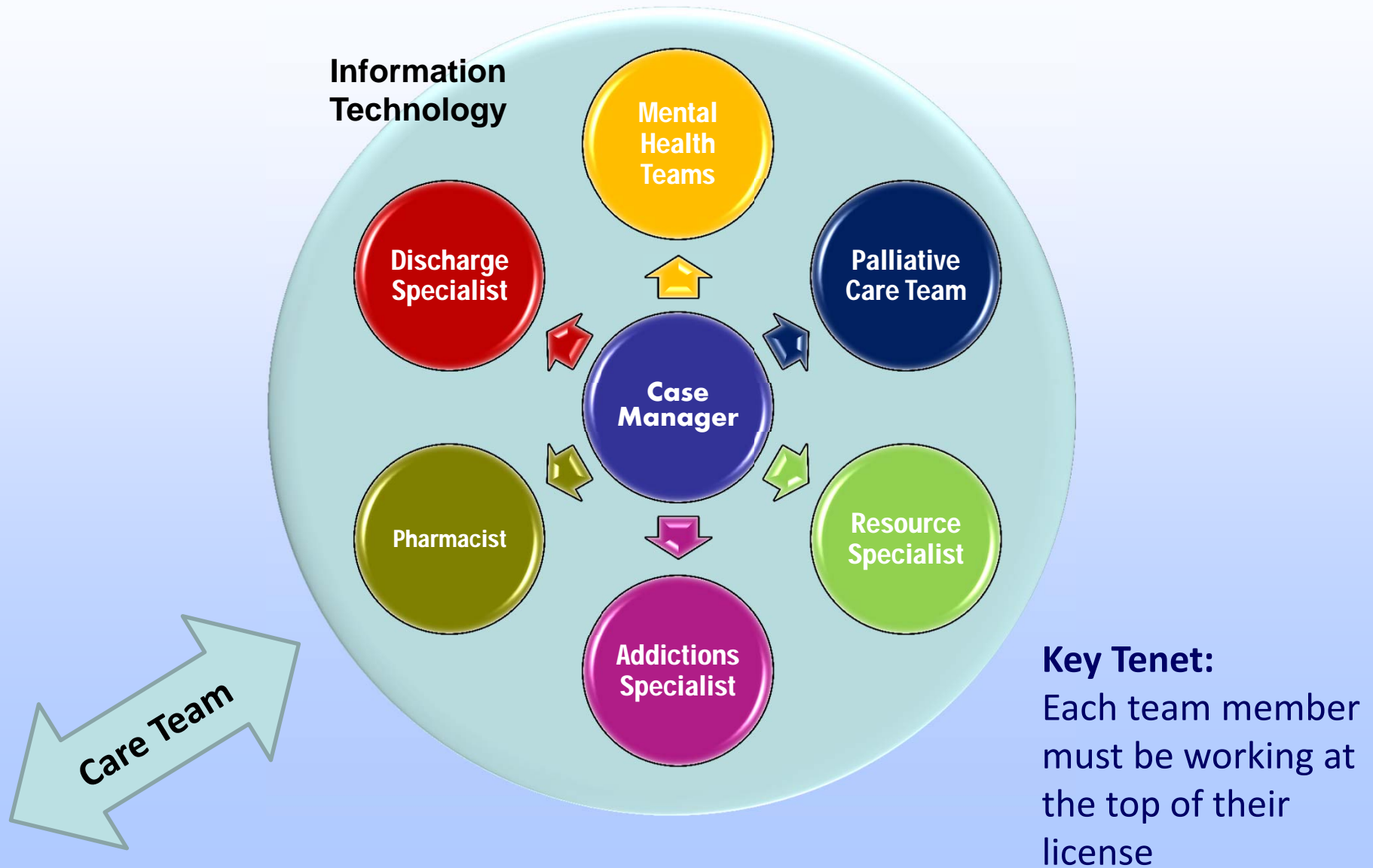
- **Embedded in Primary Care Practice**
- **Emphasizes Longitudinal Relationships**
- **Mass customization: configuring services to fit patient needs**
  - End-of-life management
  - Psych/social evaluations and interventions
  - Transition Management
  - Discretionary funds for non-covered services
  - Iterative: modifications based on experience
- **Heavy reliance on IT/real time data**

## Care managers are integrated into all Primary Care Practices

- 12 Care Managers (approx 200 patients/Care Manager)
- Assess Patients - Identifying 'gaps: 'risks for poor outcome.
- Coordinate care between providers, services
- Facilitate better communication/transitions
- Specialized training and ongoing team based learning

**Key Adjectives: Proactive, Assertive, Empowered, Well-Trained**

# Delivery model incorporates other specialized services to manage specific needs



# Outcomes

## Qualitative

- Physician Satisfaction
  - Patient Care
  - Work-life
  - Time
- Staff Satisfaction
- Patient Quality of Life
- Communication

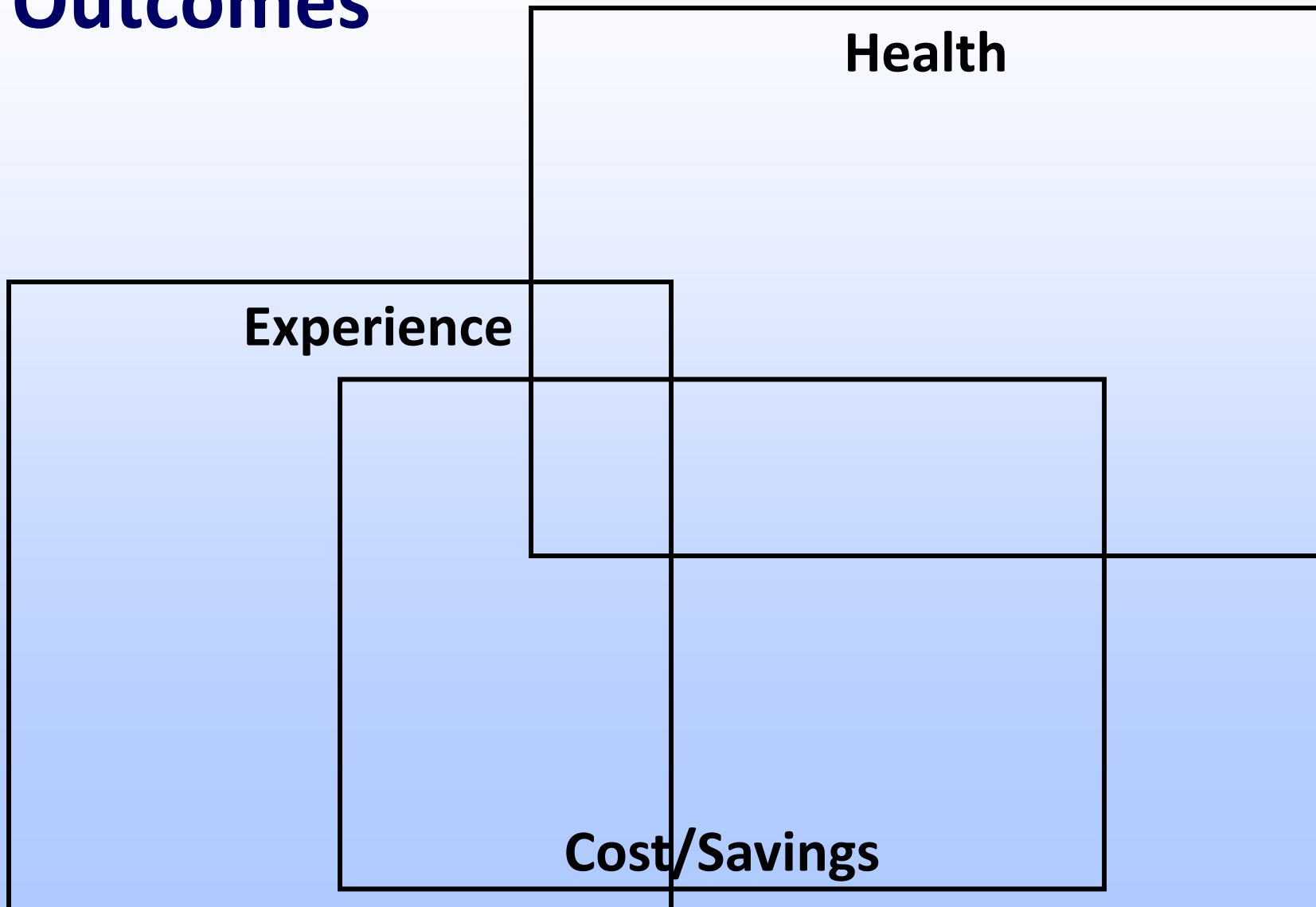
## Clinical

- Hospitalization rate/1000 was 20% lower than in comparison group
- Emergency department visit rates were 13% lower for enrolled patients
- Annual mortality 16% among enrolled versus 20% among comparison group

## Cost/Savings

- 12.1% in gross savings among enrolled patients
- 7% in annual net savings among enrolled patients after management fee paid by CMS to MGH
- Return on investment - for every \$1 spent, the program saved at least \$2.65

# Outcomes



# Care Management Program: Challenges

- **Patients**
  - **Behavioral Health**
  - End of life care
- **Care managers**
  - Patient load
  - Depth vs. breadth
  - Central support/management
  - Local patient and MD contact
  - Workflow software/EMR Integration
- **Physicians**
  - Specialty Engagement
  - Inpatient collaboration

## Broader Questions

- Replicability
- How will this work in Medicaid?  
Commercial?
- Future Funding



If I were President of the  
United States I would

make healthca  
re better.



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## CareMore: Improving Care Delivery for Seniors

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**January 10, 2013**  
**NEHI Policymaker Roundtable**  
**Washington, D.C.**

Sam Nussbaum, M.D.  
Executive Vice President, Clinical Health Policy and Chief Medical Officer



# Challenges in the U.S. Health Care System

Country Rankings	
1.00-2.33	
2.34-4.66	
4.67-7.00	



	AUS	CAN	GER	NETH	NZ	UK	US
OVERALL RANKING (2010)	3	6	4	1	5	2	7
Quality Care	4	7	5	2	1	3	6
Effective Care	2	7	6	3	5	1	4
Safe Care	6	5	3	1	4	2	7
Coordinated Care	4	5	7	2	1	3	6
Patient-Centered Care	2	5	3	6	1	7	4
Access	6.5	5	3	1	4	2	6.5
Cost-Related Problem	6	3.5	3.5	2	5	1	7
Timeliness of Care	6	7	2	1	3	4	5
Efficiency	2	6	5	3	4	1	7
Equity	4	5	3	1	6	2	7
Long, Healthy, Productive Lives	1	2	3	4	5	6	7
Health Expenditures/Capita, 2007	\$3,357	\$3,895	\$3,588	\$3,837*	\$2,454	\$2,992	\$7,290

- Ranks last or next-to-last on:
  - Quality
  - Access
  - Efficiency
  - Equity
  - Healthy lives\*

\*The Commonwealth Fund – June 2010

- Variation in quality, safety, outcomes and cost
- Escalating costs/technology advancements
- Aging population and increased chronic diseases
- Lack of information and infrastructure for optimal care
- Fragmented system: coordination of care; health professional roles

# Estimated Sources of Excess Costs in Health Care

Category	Sources	Estimate of Excess Costs
Unnecessary Services	<ul style="list-style-type: none"> <li>• Overuse—beyond evidence-established levels</li> <li>• Discretionary use beyond benchmarks</li> <li>• Unnecessary choice of higher-cost services</li> </ul>	\$210 billion
Inefficiently Delivered Services	<ul style="list-style-type: none"> <li>• Mistakes—errors, preventable complications</li> <li>• Care fragmentation</li> <li>• Unnecessary use of higher-cost providers</li> <li>• Operational inefficiencies at care delivery sites</li> </ul>	\$130 billion
Excess Administrative Costs	<ul style="list-style-type: none"> <li>• Insurance paperwork costs beyond benchmarks</li> <li>• Insurers' administrative inefficiencies</li> <li>• Inefficiencies due to care documentation requirements</li> </ul>	\$190 billion
Prices That Are Too High	<ul style="list-style-type: none"> <li>• Service prices beyond competitive benchmarks</li> <li>• Product prices beyond competitive benchmarks</li> </ul>	\$105 billion
Missed Prevention Opportunities	<ul style="list-style-type: none"> <li>• Primary prevention</li> <li>• Secondary prevention</li> <li>• Tertiary prevention</li> </ul>	\$55 billion
Fraud	<ul style="list-style-type: none"> <li>• All sources—payers, clinicians, patients</li> </ul>	\$75 billion

Source: Institute of Medicine; "Better Care at Lower Cost: The Path to Continuously Learning Health Care in America"

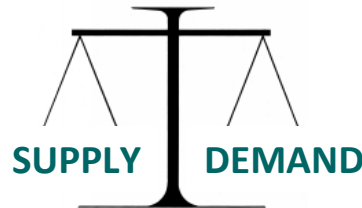
# Key Drivers in Variation of Care

**Reimbursement System**



Rewards volume over quality or outcomes

**Expanding Capacity**



Increased supply triggers increased demand

**Patient "Preference"**



Lack of information on effectiveness or alternatives

**Clinical Decision-Making**



Poor integration and coordination across delivery system

# Insurers and Providers: An Evolving Landscape

 HIGHMARK

 HUMANA®

  
UnitedHealth Group

  
WELLPOINT®



- \$475M contribution to 5-hospital West Penn Allegheny
- This “affiliation” will enable West Penn to move from fee for service to salaries for physicians and offer incentives for quality and efficiency goals



- 300 medical centers in 42 states; 240 worksite health-care facilities
- Will provide urgent care, wellness programs, and physical and occupational therapy to 3 million Humana members near a Concentra center

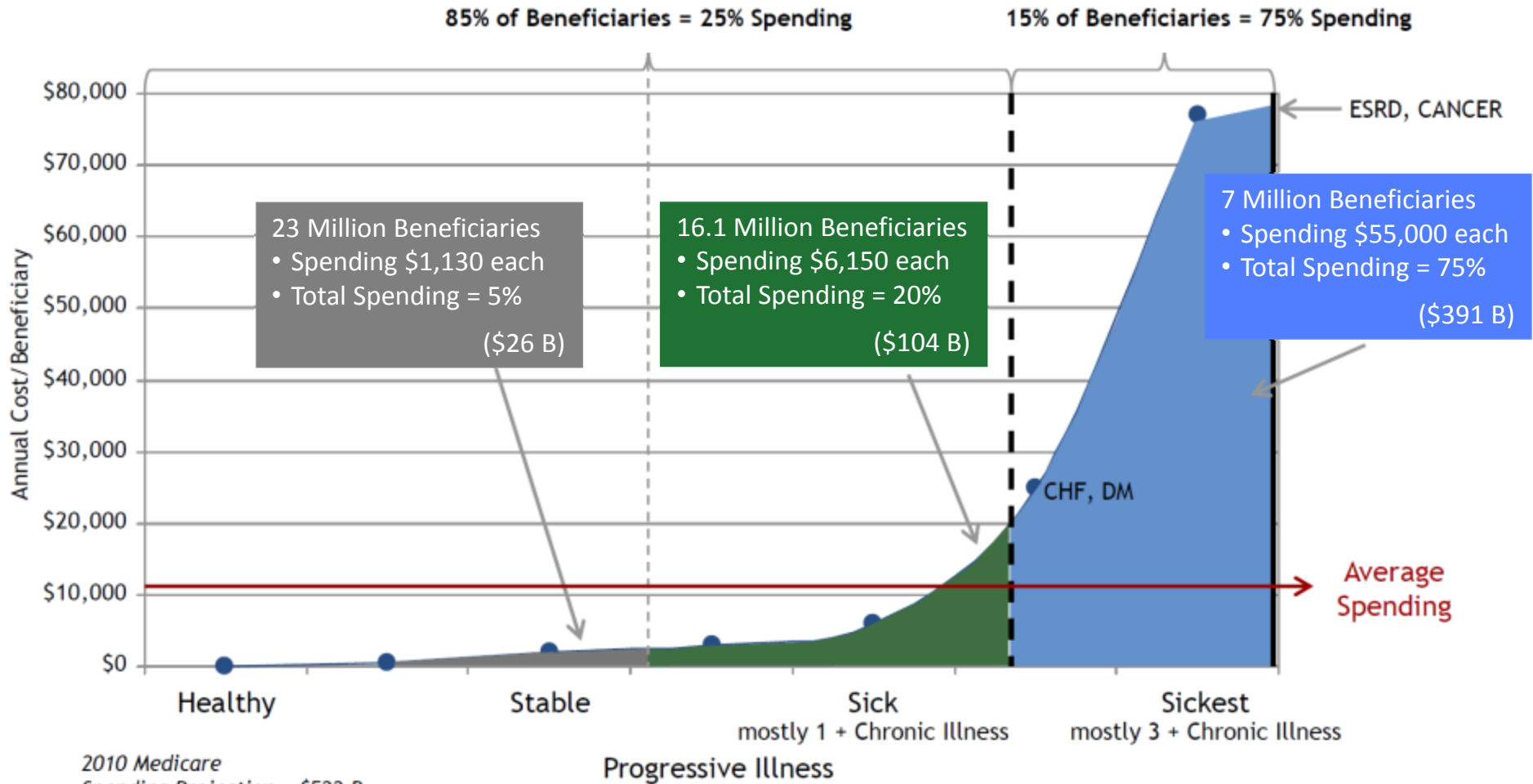


- United’s OptumHealth services unit acquires Monarch: 2300 doctors; 30+ urgent care centers; and NAMM, a Southern California IPA affiliated with 600 PCPs and 1200 specialists
- Previously entered into management agreements with AppleCare Medical Group and Memorial HealthCare IPA



- Provides Medicare Advantage coverage and coordinated care for 54,000 people in California, Arizona and Nevada
- CareMore’s 41 Care Centers are models for integrated health care and include a variety of services including medical evaluations and diabetes care

# Healthcare Costs are Concentrated



2010 Medicare  
 Spending Projection = \$522 B  
 46 Million Beneficiaries  
 Spending Per Beneficiary = \$11,347



## Our Mission

To address the complex problems of aging while protecting the precious financial resources of our members and the federal government



# Our Philosophy of Health Care

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- Older patients require coordinated care with a care path that takes into account their multiple conditions.
- A physical and human locus of care is required to create care coordination.
- Clinicians in key roles must be confident generalists, persistent and deliberate, with competence as clinical decision makers, communicators and team players.
- All providers have a buy-in for the system of care, not just their individual capabilities.
- A complete care continuum requires equal attention to medical, social, psychological and pharmacological needs of the patient.
- An explicit approach to care is required for each chronic condition, for high-frequency acute episodes, and for end-of-life.
- An obsessive attention to detail in both micro matters (individual care) and macro matters (care programs) permits optimal outcomes.
- A willingness to thoughtfully challenge the status quo provides windows of insight into clinical innovation and care pattern redesign which can optimize patient health and comfort, and conserve financial resources.

# The Essentials of CareMore's Model

Chronic Care Management

Acute Care Management

Predictive Modeling & Early Intervention

## Operating Principals

- **Clinical Control** – CareMore extensivists determine when a patient requires care services and programs
- **Speedy Deployment** – Services and programs can be deployed within minutes
- **Efficient Allocation of Clinical Resources** – The model replaces physician labor with skilled, allied health professionals such as NPs, MAs, therapists and dieticians
- **Early Intervention** – Predictive modeling allow for early intervention to prevent acute episodes

Redefining Primary Care

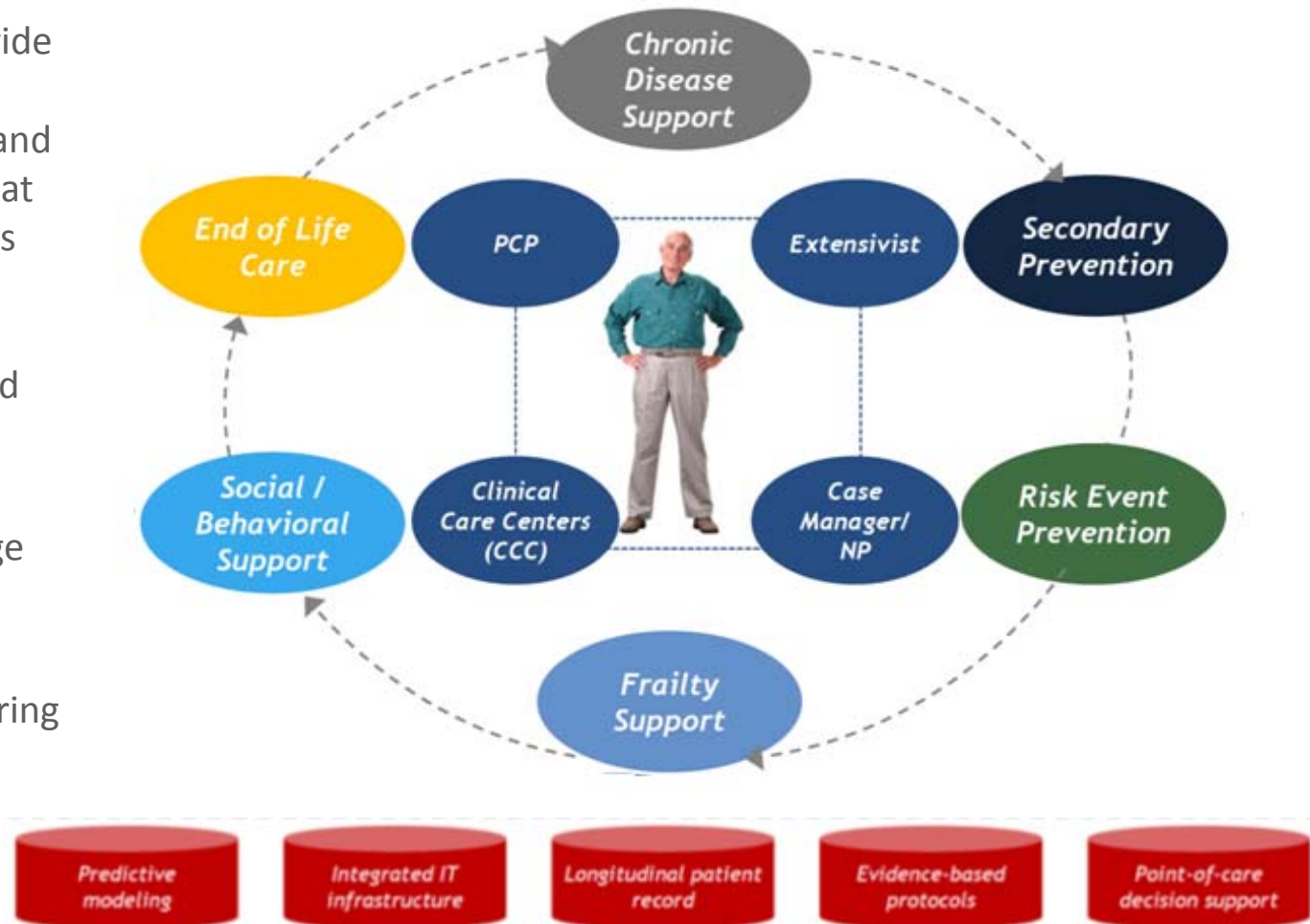
Secondary Prevention

Redefined Acute Care Episode

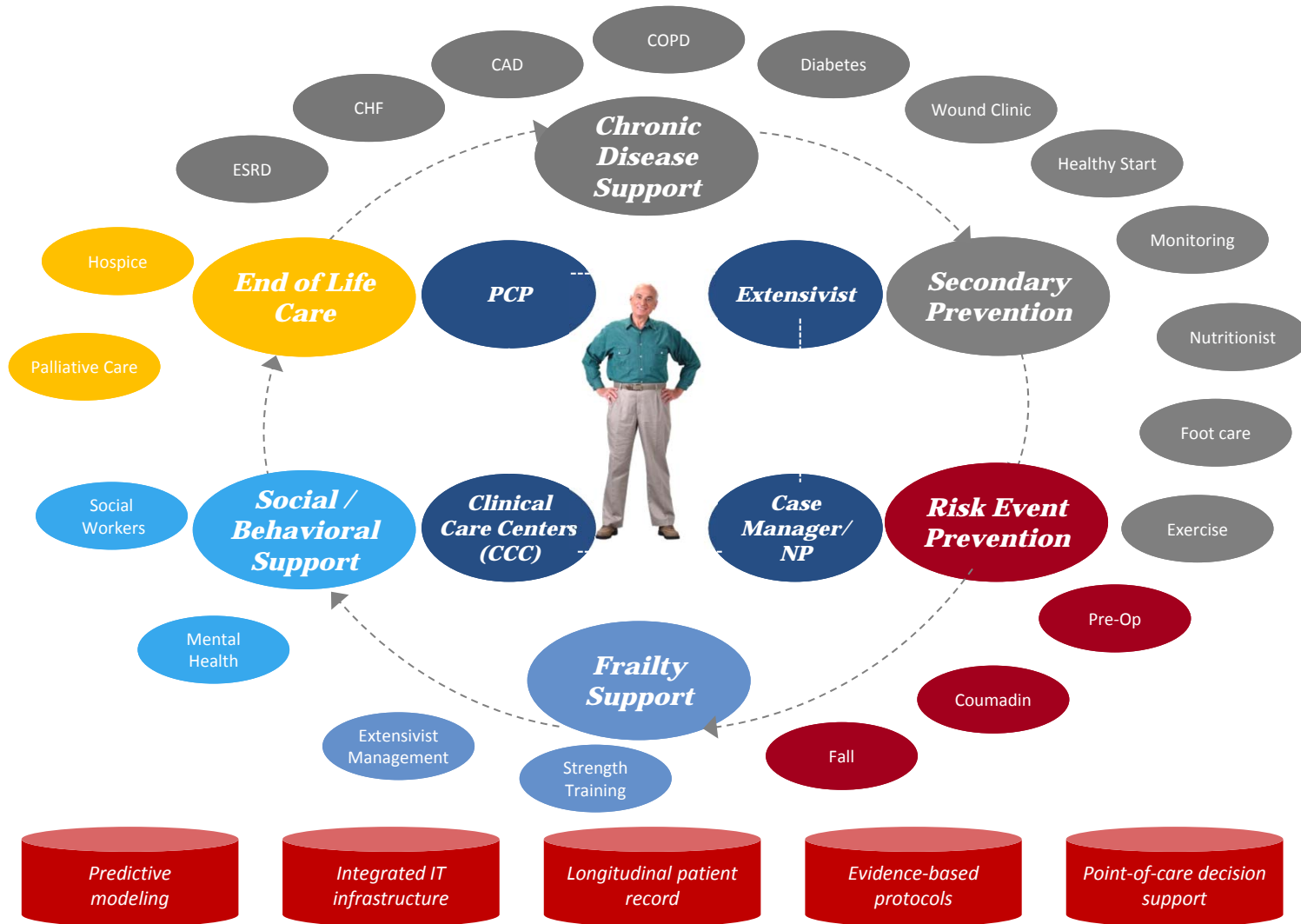


# CareMore: Care Innovation

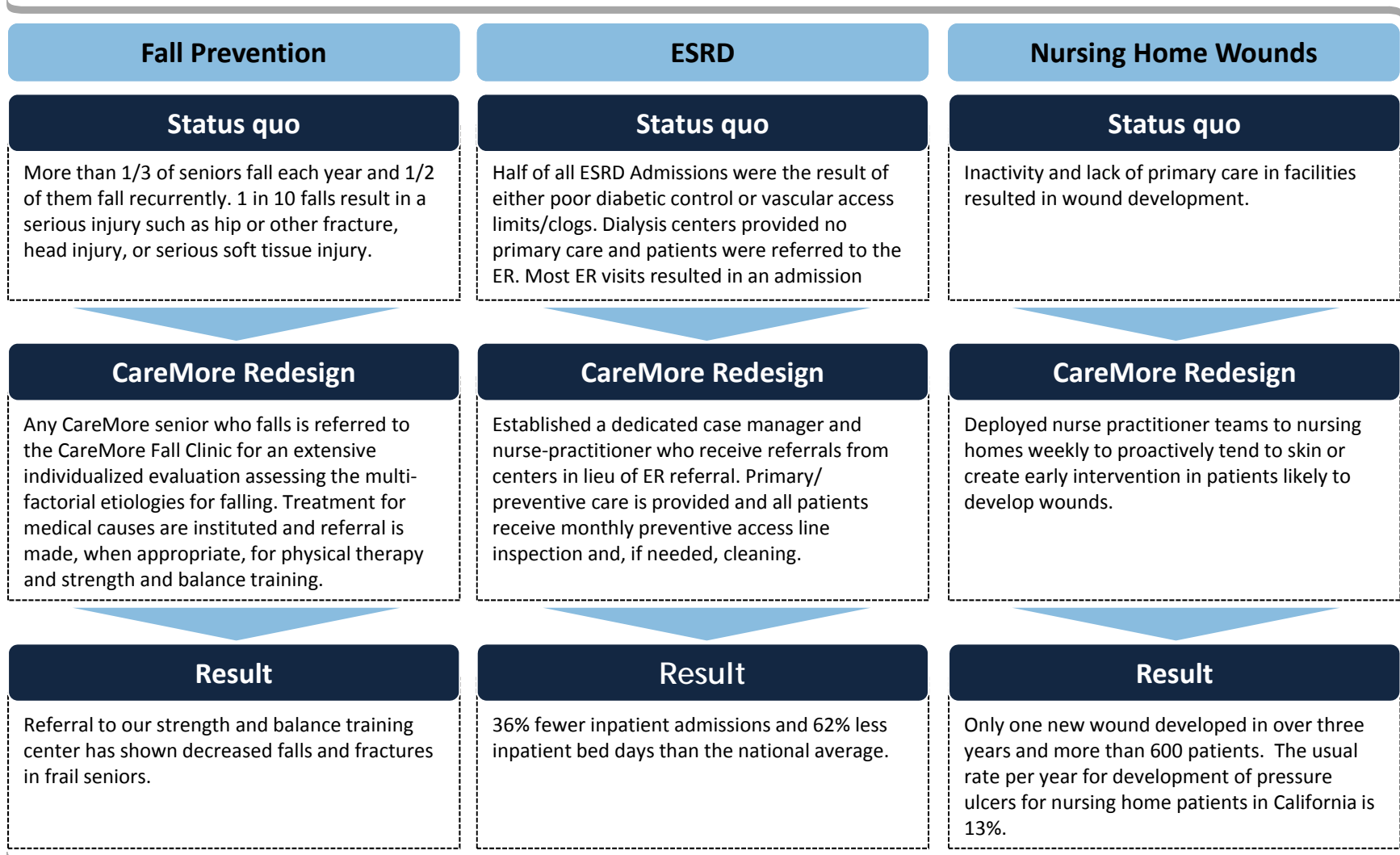
- Care Centers provide a “Healthy Start” initial evaluation and integrated care that combines wellness and medical supervision and offers personalized health planning
- Extensivists intensively manage chronically ill members
- Biometric monitoring applied to care management



# CareMore Solution – New Model of Care



# CareMore Improves Clinical Outcomes For Costly Chronic Conditions



# Dramatically Improved Outcomes for Chronic Diseases

## Diabetes



### Result

**7.07 average HbA1c for those attending our diabetic clinic and 60% lower amputation rate**

## End Stage Renal Disease



### Result

**36% fewer inpatient admissions and 62% less inpatient bed days than the national average**

## Congestive Heart Failure



### Result

**56% reduction in hospital admission rate in 3 months**

# Superior Clinical Outcomes

	ALOS	Bed Days / 1,000	Admit Rate / 1,000	Readmission Rate <sup>2</sup>
	3.7 days <sup>1</sup>	967	261	14.1%
National Medicare FFS	5.4 days	1,868	344	19.6%

<sup>1</sup> With contracted facilities

<sup>2</sup> Excluding ESRD

# Challenging the Status Quo

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- At least 35% of health care costs for the chronically ill can be avoided
- Prepayment (Capitation) is freedom, not risk
- Primary Care is a “team sport” not an “individual sport”
- For aging adults, Primary Care should be an outbound activity, not an inbound activity
- A high percentage of physician services can be provided by non-physician clinicians
- Patient compliance is more our problem than the patient’s
- Health care systems can and must be replicable; we must create a learning health care system

# Break

10:40 – 10:55

NEHI

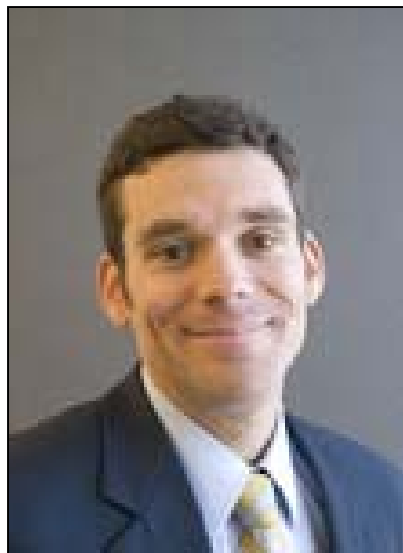
BEND THE  
CURVE

Made possible through support from:



*Learn more about ways to Bend the Curve in health care costs at: [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)*

# Moving from Policy to Practice



**Michael Kelleher**  
NEHI



# Moving from Policy to Practice



Joe Antos, PhD

Helen Darling

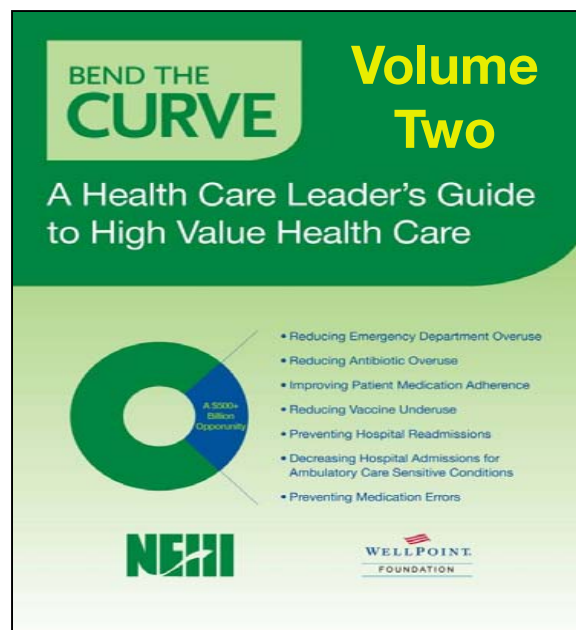
William Shrank, MD

Daniel Wolfson

# Bend the Curve: Next Steps



BEND THE  
CURVE



Learn more about ways to Bend the Curve at:

[www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)

# BEND THE CURVE

## Striving for High Value Health Care: Lessons Learned Across the Country

*Case Interviews from the Field*



# BEND THE CURVE

Dear Health Care Leader,

As part of its Bend the Curve campaign, NEHI published *A Health Care Leader's Guide to High Value Health Care*, identifying specific actions for reducing \$521 billion in wasteful health care spending in seven critical areas: medication errors, hospital admissions for ambulatory care sensitive conditions, patient medication adherence, emergency department overuse, hospital readmissions, antibiotic overuse and vaccine underuse. This research uncovered best practices from those who are successfully reducing costs by eliminating waste and showing us what is possible.

Supporting this effort, these new case interviews highlight important wins across the country for reducing avoidable health care spending and serve as evidence for a national conversation centered on identifying cost-cutting innovations that can be scaled and replicated. Although each health care leader's story is different, the challenges they face are strikingly similar. We must learn from each other's shared experiences and work together to achieve a more efficient health care system.

Along with the Guide, the case interviews are intended to help drive change at other organizations. More information and tools are available on the Bend the Curve website, [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve). These tools can be used to identify, promote and implement successful solutions to the very real problem of health care waste nationally.

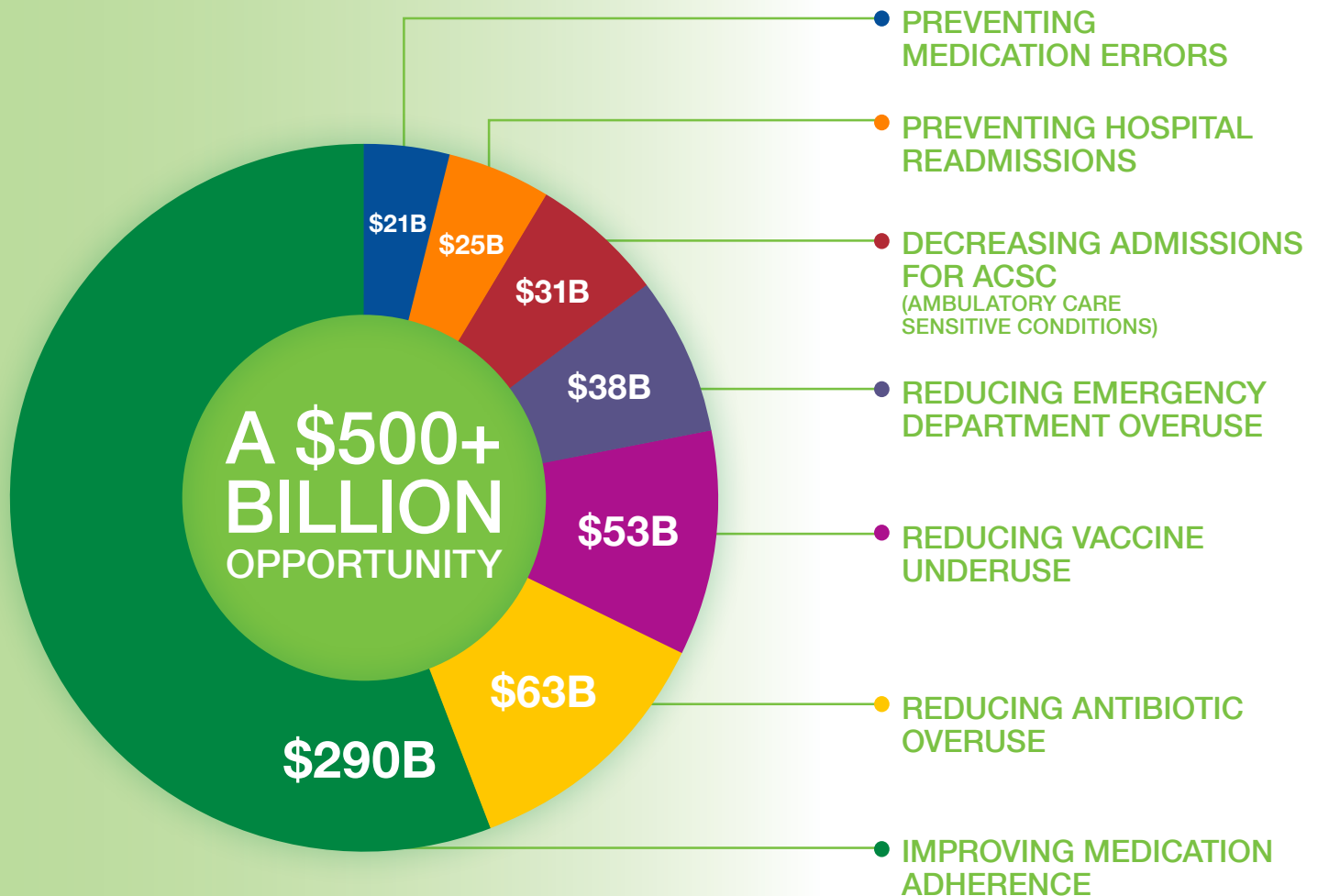
As health care leaders and policymakers, we need to approach the conversation about improving our health care system in a new way. There is an alternative approach to cutting services and imposing fees. Let's reduce the waste and inefficiencies that are occurring every day in our institutions. Change will not happen overnight, but now is the time to begin our shared work to create high value health care in our country.



Wendy Everett, ScD  
President, NEHI

# REDUCING WASTE AND INEFFICIENCY

A Common Sense Approach to Achieving High Value Health Care



## SOLUTIONS

Improve Care Coordination

Facilitate Patient and Provider Engagement

Enhance Technology Interventions and HIT Infrastructure Investment

Improve Discharge and Follow-up Procedures

Promote Patient Education and Medical Leadership

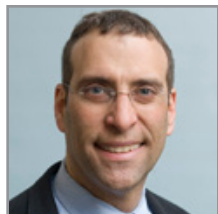
Develop and Align Financial Incentives for Patients

Increase Access to Primary Care Services

Improve Chronic Disease Management

Learn more about ways to Bend the Curve in health care costs at:  
[www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)





## Case Interview

Eric Weil, MD

Associate Chief for Clinical Affairs, Division of General Medicine, Massachusetts General Hospital, and Associate Medical Director, Primary Care, Massachusetts General Physicians Organization

### What issue within reducing ED overuse were you trying to address?

A long-standing cost driver for the medical system has been “frequent-flyer” hospital users. These patients tend to have multiple visits to the emergency room and repeated hospital admissions. Massachusetts General Hospital launched in August 2006 the Care Management Program (CMP), a 3-year CMS demonstration project. The goal was to provide practice-based care management services to high-cost Medicare beneficiaries, and in return, CMS would supplement their members’ monthly payments.

The more than 2,500 Medicare patients enrolled in the demonstration program accounted for over \$60 million in expenses, or three times the average. Generally, these patients were 75 years of age, had 10 prescriptions and visited the hospital three times annually.

### What was the solution you decided upon to address the issue and why?

The CMP had a two-fold purpose: create a more developed role for nurse case managers within the hospital system and create a human connection to facilitate patient care across the entire continuum of health care services.

We decided that the development of a one-on-one relationship between patients and nurse case managers was the most effective way to reduce emergency department use and unnecessary hospitalizations. We also felt this created a more rewarding environment for physicians.

A “team-based model” for care coordination was implemented to achieve these goals. For example:

- Nurse care managers were given the freedom to work at the peak of their license
- A care team was created that consisted of a pharmacist, social workers and a psychiatrist
- A series of IT tools was developed to facilitate the process; in particular, when a patient entered the ED, a page was sent to their nurse case manager and primary care physician giving them to the power to intervene when appropriate
- Nurse case managers called their patients on Monday to remind them of upcoming appointments and followed up later in the week if any appointments were missed
- A post-discharge nurse was hired whose sole job was to follow up with patients

### What were the barriers you faced in the implementation of your solution?

Initially, providers and patients alike were skeptical about whether this program would improve the coordination of care or simply add another layer onto already limited resources. Patients needed to be convinced that the involvement of a nurse case manager would help and not hinder their access to care and some physicians wondered whether the program would divert already strained resources from other patients within the practice.

We also faced different IT systems that were in use throughout the CMP participating physician group practices, making it difficult to modify the systems to support the program.

### How did you overcome these barriers?

These concerns were overcome by conducting a series of focus groups with physicians and clinical staff. The goal of these discussions was to understand how best to integrate an external nurse case manager into the practice-based team and educate them on how the program would add value to their practices. Significant time was spent with the practice-based nurses to make them comfortable with their roles and explain how the external nurse case manager was there to augment not duplicate their efforts. In total, 19 practitioner focus groups were held over the development of the program.

To address the practice-based IT infrastructure challenges, a yellow “care management” icon was built into the practice-based systems allowing the practice-based team to contact the nurse case manager easily.

### What were the critical success factors in the implementation of your solution?

Our success was a result of a confluence of factors including:

- Well-managed implementation
- Strong support from senior leadership and the Board of Trustees
- Buy-in from participating primary care physicians
- Comprehensive IT infrastructure that supported timely notifications and robust data collection
- Optimally utilized care team that was empowered to execute at the top of their license

### What specific clinical and financial results have you experienced?

We were able to clearly demonstrate to CMS the value of the program so much so that in 2009, CMS renewed the CMP for an additional three years and increased the number of enrolled patients to more than 8,300 – including several hundred from the commercial population. The program achieved a 20 percent reduction in hospitalizations and 13 percent reduction in ER visits compared to the control group. Overall, it was determined that for every \$1 spent on the program, we saved \$2.65. This represented a 12.1 percent gross savings and 7 percent annual net savings after removing the managed fee – making it one of the few successful CMS demonstration projects to date.

While we expected to see positive clinical results for the enrolled patients, we were surprised at the impact the program had on provider satisfaction. Over the initial 3-year demonstration project we had 100 percent physician and clinical staff retention.

### What is one piece of advice you would offer to another organization trying to “reduce ED overuse”?

Actively and consistently engage all stakeholders throughout the process. By doing this, we were able to maximize the skills of the entire care team, ensuring each could use their specific training in full. Also realize that it’s not a sprint to the finish line. By periodically reassessing progress against our stated goals, we were able to implement small process improvements along the way.



## Case Interview

Ramanan Laxminarayan PhD, MPH, *Director,*  
and Nikolay Braykov, *Senior Research Analyst,*  
*Extending the Cure, Washington, D.C.*

### What issue within reducing antibiotic overuse were you trying to address?

Our ability to treat common bacterial infections with antibiotics goes back only 65 years. Yet increasing resistance to these wonder drugs has already returned us to an era when many strains of bacteria cannot be easily treated. While the development of resistance is an inevitable biological process, the rate at which antibiotics are overused is dramatically shortening their useful life span. To compound the problem, fewer new antibiotics are in development to replace drugs that have become ineffective, in part because pharmaceutical companies lack the regulatory incentives to invest in the discovery of new antibiotic classes. However, even if such incentives were in place, there are currently no mechanisms to protect new antibiotics from overuse.

### What was the solution you used to address the issue, and why?

Extending the Cure (ETC) was conceived as a research and consultative effort to frame the problem of antibiotic resistance as a challenge in managing a shared societal resource – much like fisheries, oil or forests. We published an inaugural report in 2007 that provided an evaluation of a number of policies to encourage patients, health care providers and managed care organizations to make better use of existing antibiotics, and to give pharmaceutical firms greater incentives to develop new antibiotics while caring about resistance to existing ones. Since then, ETC has been releasing policy briefs, technical papers, and web tools on a number of topics relative to antibiotic resistance.

### What barriers did you face in the implementation of your solution?

A critical challenge has been the lack of national and local surveillance information on antibiotic use and resistance trends. In the U.S., information on antibiotic use in the community is generally collected by private companies for purposes of business intelligence rather than disease surveillance. Furthermore, acquisition costs and data quality can get in the way of epidemiological analysis. Additionally, information about antibiotic use in hospitals or in agriculture is deficient, especially compared to the reporting systems in place in some European countries. Another barrier lies in the difficulty of translating scientific concepts and technical subject matter to a lay audience, as media coverage on antibiotic resistance is often superficial, focusing solely on “superbugs” instead of viewing the issue through a broader, “natural resource” lens.

### How did you overcome these barriers?

One of our primary goals has been to produce evidence-based research to support the policies laid out in the founding report. As a result, most of our publications rely on large data sets and use advanced statistical or mathematical modeling techniques. We also devote a lot of attention to making our findings more accessible through data visualization and online media. Specifically, we have developed two innovative tools to communicate the resistance problem: a ResistanceMap and the Drug Resistance Index (DRI).

ResistanceMap is a collection of interactive, web-based visualizations of antibiotic use and resistance in North America and Europe.

Researchers, media, policymakers and the public can use the maps and tools to compare resistance levels and trends across time and regions, and share them to illustrate the magnitude of the resistance problem to a broader audience. The Drug Resistance Index (DRI) is a composite measure that aggregates information about bacterial resistance and levels of antibiotic use into a single metric of drug effectiveness over time. It is intended to serve as a “Dow Jones for Drug Resistance” aimed at both non-expert audiences and clinicians.

### What were the critical success factors in the implementation of your solution?

We collaborate with experts of diverse backgrounds – health economists, clinicians and epidemiologists – to bring interdisciplinary viewpoints to our research. We reach out to these communities by publishing in high-impact medical and health policy journals. In addition, we make sure that the messages behind these technical pieces reach a broader audience by leveraging social media and other web tools.

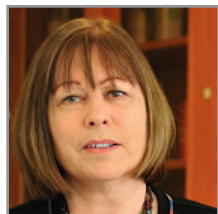
### What specific clinical and financial results have you experienced as a result?

We have seen some favorable trends emerge since the early 2000s. Members of the infectious disease community have begun to acknowledge the need for federal stewardship over antibiotic conservation and development, more hospitals are implementing interventions to reduce inappropriate prescribing and Medicare reimbursement is increasingly tied to infection control performance metrics. While we cannot unilaterally take credit for this, ETC researchers have contributed much to the background research to inform and support these changes.

### What is one piece of advice you would offer to another organization trying to reduce antibiotic overuse?

In the current doctor-patient paradigm, asking physicians to prescribe antibiotics even when they are not indicated is a widespread social norm. To that end, it is essential to strengthen dialogue around rational antibiotic use by involving stakeholders from a range of human health fields – primary care physicians, insurance providers, pharmaceutical companies and public health officials – and making sure the need to conserve antibiotic effectiveness becomes clear to consumers. Only through obtaining everyone’s buy-in can a cultural shift around the perception of antibiotics occur.

For more information on antibiotic overuse and antibiotic resistance, visit the *Extending the Cure* website:  
<http://www.extendingthecure.org/>



## Case Interview

Marie Smith, PhD

*Professor and Assistant Dean for Practice and Public Policy Partnerships, University of Connecticut School of Pharmacy Hospital to Home Care Transition MTM Program*

### What issue within improving patient medication adherence were you trying to address?

We were focused specifically on two types of medication management issues: medication discrepancies and drug-therapy problems. Medication discrepancies are defined as inconsistencies in the drug, dose, frequency, route, quantity dispensed or current medication use by the patient between insurance claims, the medical chart or the patient's report of actual medication use at home. Drug therapy problems (DTPs) include: inappropriate choice of a medication; the omission or duplication of a medication; dosages that are too low or too high; drug interactions; adverse reactions to medications; a patient's difficulty adhering to the treatment regimen or issues relating to health literacy; and prohibitive costs for patients.

### What was the solution you decided upon to address the issue and why?

Our solution was pharmacist-provided medication therapy management (MTM) services, which involved pharmacists having face-to-face discussions with patients in their primary care physician's office to build a complete, active medication profile. Our research has shown us that with a complete profile of how the patient is taking medications at home, a pharmacist can identify and resolve drug therapy issues in collaboration with the patient, caregivers and the patient's providers.

Today, there is no one complete, consolidated and coordinated list of a patient's current medications across all prescribers and pharmacies. Medication discrepancies are a result of fragmented, incomplete and sometimes inaccurate medication lists that exist in medical charts and pharmacy systems. Most lists do not include non-prescription medications (for example, over-the-counter medications, herbals and nutritional supplements), medications that the patient pays cash for (for example, some lifestyle medications or medications for depression or other mental health diseases) or free medications (for example, physician samples, free antibiotics or drugs obtained in patient assistance programs). In addition, the most important source of medication information – dialogue with the patient about all the medications they use at home – is not recorded in many of the data sources we capture in medical or pharmacy records.

### What were the barriers you faced in the implementation of your solution?

At the beginning of the project, many patients and providers were not aware of the pharmacist's training and clinical expertise to provide direct patient care (non-dispensing role). Other barriers included a lack of ongoing funds beyond a demonstration project and a lack of commercial payers incorporating MTM services in covered benefit design.

### How did you overcome these barriers?

Once a complete and accurate medication list was developed, the pharmacist gave the patient an updated medication record to share with caregivers, prescribers and new sites of care, such as hospitals or emergency departments. The patient also received a medication action plan to help him or her work on medication self-

management goals and shared decision-making with prescribers. Pharmacists also collaborated with the patient's primary care provider to optimize the use of medications and achieve treatment goals, and coordinated the patient's medication across multiple prescribers and pharmacies. The pharmacist would then send a report to the patient's care provider with evidence-based recommendations to resolve drug therapy problems. After the provider reviewed the report and took any necessary action, the report was added to the patient's medical record.

### What were the critical success factors in the implementation of your solution?

It was vitally important to develop a complete and updated medication list to assess for any discrepancies or drug therapy problems. The pharmacists needed access to medical and medication data from multiple sources – pharmacy claims, medical records and talking to patients about their use of medications at home. Another success factor was having multiple face-to-face encounters with the patient (and sometimes their caregivers) to build a trusting relationship. Once patients had worked with the pharmacist in 3-4 visits, they opened up and were comfortable talking about medication problems, barriers and self-management goals. Lastly, it was helpful to meet with the patient in their primary care provider's office so that the pharmacist was seen as a member of the health care team.

### What specific clinical and financial results have you experienced?

Our program found a number of important clinical and financial results. Fifty percent of medication discrepancies were found to be due to medications being discontinued by the prescriber or patient, and 39% of discrepancies were due to the drug name or dose being omitted. Problems in drug therapy were found to be due to: inappropriate/unnecessary medications (30% of the time); non-adherence (26%); adverse events (21%); and ineffective drugs or doses (16%). Relative to gaps in care, 74% DTPs were found to relate to "upstream factors," such as clinical decision-making and/or team-based care and coordination. In contrast, 26% of DTPs were found to relate to "downstream factors," such as patients' beliefs, preferences and adherence behaviors. Furthermore, 80% of DTPs were resolved in only four patient-pharmacist encounters. Lastly, we estimated annual savings of \$1,123 per patient on medication claims and \$472 per patient on medical, hospital and emergency department expenses.

### What is one piece of advice you would offer to another organization trying to improve patient medication adherence?

Teamwork among health care professionals is crucial for optimizing outcomes for patients with chronic diseases, promoting medication safety and ensuring cost-effective therapy regimens.





## Case Interview

Christine Finley

Vermont Immunization Program Manager, Vermont Department of Public Health

### What issue within reducing vaccine underuse were you trying to address?

This pilot project was created in response to concerns about the increased cost of immunizations for children, adolescents and adults, as well as low statewide immunization rates and the desire to support continuity of care in medical homes. Vermont had one of the lowest rates of fully vaccinated children in the nation. We saw an opportunity to bring all the major payers together in order to come up with a solution.

We based the pilot program's infrastructure on the Federal Vaccines for Children Program and the Vermont Vaccines for Adult Program which started in 2007. Additional funding was necessary because state and federal funding had been reduced, the number of vaccines recommended had increased, and overall costs were increasing. In 2011, the Association of State and Territorial Health Officers showed that the cost to vaccinate a child from birth to 18 years had increased over 500 percent since 2000.

### What was the solution you decided upon to address the issue and why?

In order to address the underuse of vaccines for children as well as the adult population, the Vermont Legislature passed legislation in May 2009 directing the Vermont Department of Health to establish an Immunization Pilot Program with two primary goals: 1) ensure universal access to vaccines for all Vermonters at no charge; and 2) reduce the state's overall cost for purchasing vaccinations.

This legislation also established an advisory committee with representation from the three largest health insurers, the Department of Vermont Health Access and the chief of the Immunization Program at the Department of Health.

Through this Immunization Pilot Program, insurer fees were assessed based on market share to supplement federal funding and allow for the universal purchase of vaccines for children, adolescents and adults from the federal contract at a discounted rate (15-30 percent or more). The ability to purchase adult vaccines from the federal contract was a part of the Affordable Care Act which became effective in March 2010.

### What were the barriers you faced in the implementation of your solution?

The advisory committee faced several barriers. First, we had to determine how to fairly assess fees on insurers. As a requirement of the authorizing statute, insurers needed to reimburse the Vermont Department of Health for the cost of the vaccine and an administrative fee. The working group spent over a year reviewing methods for appropriate insurer reimbursement and found that the coding process for reimbursements was incomplete for many practices. After consultation with insurers and other stakeholders, the use of market-share data was determined by the Health Department to be the best options to allow the Pilot Program to move forward.

The second barrier was unfamiliarity with state regulations. Many of the adult primary care providers in Vermont were not familiar with regulations for vaccine management and use associated with a vaccination program. The Health Department did not want to require participation from health care professionals. Insurers were

concerned they would be paying for bulk purchase of vaccines by the state and reimbursing providers for adult vaccines privately purchased. Also, many providers were concerned about the sustainability of the Pilot Program, questioning whether they should make the investment that meeting state regulations required.

### How did you overcome these barriers?

To determine the market-share data, the Department of Health worked with the Department of Financial Regulation (DFR) to determine the availability of data from a newly required reporting mechanism developed by the Vermont Healthcare Claims Uniform Reporting & Evaluation System. The DFR also conducted a periodic survey to determine the percentage of children and adults who were privately insured. Working with these two agencies, we were able to assure all participants that dividing program costs via market share made sense and was based on sound evidence.

In addition, we held a series of discussions with insurer representatives, our team and representatives from the DFR to provide input and have 100 percent transparency throughout the process. A key area of success was that the Department of Health Commissioner was able to work directly with each insurer participating in the pilot program to ensure full access and cooperation with all aspects of the organization.

### What were the critical success factors in the implementation of your solution?

We were able to establish a transparent billing process based on many conversations with the four major insurers in Vermont. This process was successful because we had a transparent and consistent decision-making approach, and insurers were informed in advance of their annual contributions and of how pricing would be apportioned.

Also, critical to our success was the senior-level cooperation between the DOH and each insurer. We even were able to sustain support of the program through a shift in governors.

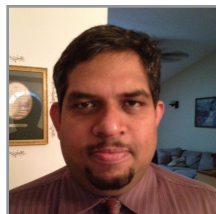
### What specific clinical and financial results have you experienced?

As of December 2011, the Immunization Pilot Program was working with 209 providers. Currently, the Immunization Pilot Program is engaged with the Vermont Program for Quality in Health Care to conduct a review of the program's impact.

We have seen a general increase in adult vaccine use across the state. We are providing more than 200 providers access to all recommended vaccines for children and adults (except for adult flu). The number of internal medicine practices that have signed onto the program has increased. These practices are going through the process (and making the investment) to have vaccines on site and available to their patients.

### What is one piece of advice you would offer to another organization trying to reduce vaccine underuse?

Create a sustainable program from the beginning through adequate and sustained funding. Health reform efforts require a long view and the challenge is to find sustainable funding.



## Case Interview

Christopher Manasseh, MD

Discharge Intervention Director, Boston Medical Center

### What issue within preventing hospital readmissions were you trying to address?

Project RED (Re-Engineered Discharge) is the product of five years of work supported with over \$7.5 million of federal funding from the Agency for Healthcare Research and Quality and the National Heart, Lung and Blood Institute. The initial focus of Project RED was to develop a deep understanding of the complex, multi-step process of hospital discharges and to implement a set of mutually reinforcing steps that contribute to higher quality discharges and reduced rehospitalizations.

### What was the solution you decided upon to address the issue and why?

To best understand the issues at hand, we spent significant time and resources understanding the current discharge process. To do this, we created process maps, examined the consequences of failed discharge processes, conducted qualitative interviews to better understand risk factors, examined risk factors prospectively and completed a root cause analysis for several readmissions.

Project RED differentiates itself from other discharge programming in three concrete, significant ways: through: 1) the use of a checklist, 2) an "After Hospital Care Plan" and 3) a Nurse Discharge Educator (NDE).

The checklist includes 11 mutually reinforcing components that are consistently applied for every patient and are endorsed by the National Quality Forum:

1. Educate the patient about diagnosis through the hospital stay
2. Make appointments for follow-up and post discharge testing, with input from the patient about time and date
3. Discuss with the patient any tests not completed in the hospital
4. Organize post-discharge services
5. Confirm the medication plan
6. Reconcile the discharge plan with national guidelines and critical pathways
7. Review with the patient appropriate steps of what to do if a problem arises
8. Expedite transmission of the discharge summary to clinicians accepting care of the patient
9. Assess the patient's understanding of this plan
10. Give the patient a written discharge plan
11. Call the patient 2-3 days after discharge to reinforce the discharge plan and help with problem-solving

Project RED has its own version of a robust discharge plan calling it the "After Hospital Care Plan" (AHCP). Working with design and health literacy consultants, Project RED created a spiral-bound, color booklet that simply and clearly prepares patients for the days between discharge and the first visit with their physician. The booklet presents medications, upcoming appointments and tests, includes a color-coded calendar of upcoming appointments, and helps the patient prepare for his/her upcoming appointment.

Lastly and perhaps most importantly, Project RED assigned a new role to the care team, a nurse discharge educator (NDE). The NDE is the central person responsible for coordinating the patient's discharge from the moment the patient is admitted. The NDE's duties include educating the patient throughout the hospital stay, reconciling

medications with the treatment team and coordinating follow-up care with community-based providers, which includes ensuring the patient's provider receives the discharge summary.

### What were the barriers you faced in the implementation of your solutions?

The biggest barriers to implementation were time and resources. Unfortunately, given the complexity of adequate discharge planning, we are unable to provide RED to every patient.

### How did you overcome these barriers?

To overcome these challenges, we targeted the program to 50 percent of patients admitted to a single unit, our family medicine unit. It's important to note that RED is only given to those patients who have been admitted to the hospital for greater than 48 hours. We have been able to successfully negotiate reimbursement with a private insurer for these patients, though ideally, we would like to be able to provide RED to every patient.

### What were the critical success factors in the implementation of your solution?

There were several keys to success for Project RED, which included:

- Attaining buy-in from organizational leadership
- Identifying a champion to lead the effort
- Scheduling weekly meetings to review data and design fixes to achieve our goal
- Ensuring all caregivers were fully engaged and aware of the process

### What specific clinical and financial results have you experienced?

Project RED has demonstrated strong success. In 2008, Project RED completed a randomized controlled trial (RCT) of 749 subjects (randomized at the time of hospital admission), comparing the impact of the RED process delivered by a nurse compared with usual care. The results showed a 30 percent lower rate of hospital utilization in the intervention group compared to usual care in 30 days of discharge. Furthermore, the difference between the intervention and study groups in total cost savings was \$149,995 – an average of \$412 per person who received the intervention.

Additionally, the RED tools and the nurse training manual have been downloaded by over 500 hospitals in 49 states. The U.S. Center for Medicaid and Medicare Services (CMS) recently awarded 14 grants to quality improvement organizations to improve hospital transitions, and 8 of them are using the RED methodology as part of their intervention.

### What is one piece of advice you would offer to another organization trying to prevent hospital readmissions?

Select a target population that would benefit the most from a comprehensive discharge process with the goal of reducing preventable hospitalizations for the target population.

*For more information, see: Boston University School of Medicine, Project RED. The Re-Engineered Hospital Discharge Program to Decrease Rehospitalization; Hennessey and Suter, P. (2011). The Community-Based Transitions Model: One Agency's Experience. Vol. 29, No. 4, April 2011.*



# Case Interview

Henry Do, MD  
Senior Medical Officer, CareMore

BEND THE  
**CURVE**

### What issue were you trying to address?

The CareMore model was created to address the lack of care coordination for Medicare patients, in addition to providing appropriate preventive services. The model was specifically designed for patients with multiple conditions, specialists and medications. CareMore created the infrastructure that was lacking in the current model to pull these pieces together.

### What was the solution you decided upon to address the issue and why?

CareMore is a Medicare Advantage plan designed with seniors' needs at the forefront. Unlike a typical managed care plan, CareMore has strived to act as a healthcare delivery system would, building brick-and-mortar care centers that are staffed with physicians, nurses, pharmacists, podiatrists and case managers. The providers at the care centers are all in addition to the primary care physicians.

At the core of the CareMore model is the "extensivist," the physician assigned to monitor a patient both within and outside of the care center. Unlike a hospitalist, the extensivist thinks about the patient beyond the care center walls and monitors their post-acute care whether it be at a skilled nursing facility or at home. They partner with the patient's primary care physician (PCP) and have open discussions with the PCP while in the hospital. Depending on the patient's needs, the extensivist will determine the level of involvement in ongoing patient care. The relationship could last one visit to as many as several years, though on average the relationship lasts a few months.

In addition to the extensivist, CareMore employs nurse practitioners (NP) to lead their chronic disease management programs. NPs will meet with patients in-person, allowing them to intervene in real time. During these visits, the NP may adjust or prescribe new medications and educate the patient on other aspects of their disease and care regimen. CareMore has many chronic disease management programs that range from diabetes, wound care, COPD, CHF, anticoagulation clinics and Healthy Start programs.

Finally, the CareMore model includes case managers who will meet and intervene with patients with complex needs. These case managers are at the front line dealing with the social needs of the patient. They will monitor the care of patients at nursing homes, hospitals and elsewhere in the community to ensure their care is seamlessly coordinated.

### What were the barriers you faced in the implementation of your solution?

First, we needed to build trust within the community and particularly with primary care physicians. In every new market we enter, we must demonstrate our value and build trust within the surrounding community.

Second, it is quite costly to build and staff our care centers. Each center is built in the absence of new members requiring significant upfront capital investments.

### How did you overcome these barriers?

We build trust in every community by demonstrating our value by providing the high quality of care to every single patient we interact with, which generally takes 12 to 18 months. Similarly, to overcome the large capital investment required to build our care centers, we need to build relationships with physicians in the surrounding community to build our membership. The primary way we are able to build our membership is through word of mouth.

### What were the critical success factors in the implementation of your solution?

Critical to our success is the quality of people we hire and train. Our physicians, nurse practitioners and case managers are ambassadors of our model. Patients experience CareMore through the clinicians they interact with and it's critically important that they have a positive experience with everyone they interact with in our centers.

### What specific clinical and financial results have you experienced?

At CareMore, clinical quality is very important; measuring it, though, is sometimes difficult. The positive clinical results we have achieved include:

- 78 percent lower than national average amputation rates in the wound care program
- 50 percent reduction in readmissions for congestive heart failure patients
- Average controlled hemoglobin A1c rates of 7.08 for diabetes patients

The financial savings associated with these clinical improvements have not been measured to date. It has not been a priority for us because we work under the belief that improved clinical outcomes will lead to financial savings. Quite frankly, the financial results would not change what we do.

### What is one piece of advice you would offer to another organization trying to coordinate care for patients?

Identify a problem in your market that you believe can be done better from the patient's perspective. We believe that if you do the right thing for the patient, the rest will follow naturally.



## Case Interview

J. Emilio Carrillo

Vice President, Community Health, New York-Presbyterian Hospital

### What issue within reducing hospital admissions for ACSCs were you trying to address?

New York-Presbyterian Hospital (NYPH), in partnership with the Columbia University Medical Center, created the Regional Health Collaborative to improve the health and health care for the surrounding community of Washington Heights-Inwood. The population is comprised largely of low-income Hispanic immigrants and has high rates of asthma, diabetes, heart disease and depression. For many in the area, the hospital is their sole provider of care due to the community's geographic location and resource limitations.

### What was the solution you decided upon to address the issue and why?

NYPH created a Regional Health Collaborative to deal with the special needs of the surrounding community of Washington Heights-Inwood. Given the high rates of asthma, diabetes, heart disease and depression, these conditions became the primary focus. To create the collaborative, the hospital executed a multi-phase plan to assess the needs of the community, develop specific recommendations, implement the solution, and finally, monitor the results. Leadership and front-line workers worked side-by-side at every stage.

The needs assessment revealed several deficiencies which became the design tenets for the Regional Health Collaborative. They included:

- **Creating Patient-Centered Medical Homes:** Local ambulatory clinics in the surrounding area were transformed into patient-centered medical homes. NYPH worked with individual primary care clinics to enhance the exchange of health information between clinicians and to patients. At this point, all of these clinics have been designated Level 3 patient-centered medical homes by the National Committee for Quality Assurance.
- **Developing Information Technology Infrastructure:** To create these patient-centered medical homes, NYPH invested significant resources to develop the information technology infrastructure for the hospital and ambulatory clinics. The new infrastructure includes personal health records for each patient, patient-specific disease dashboards, and a population-based disease registry. In this new environment, clinicians now receive clinical guidance and alerts from the dashboards and can conduct longitudinal trend analysis for individual patients or specific populations.
- **Expanding Access to Care:** Given the resource constraints of the surrounding community, expanding access was identified as another priority. The hospital disbanded its decentralized call centers and created a centralized contact center where patients could call for information and to obtain appointments. In addition, community health workers were trained to identify and enroll uninsured patients who may be eligible for Medicaid or the Children's Health Insurance Program.
- **Improving Cultural Competency:** Another goal for the collaborative was to improve the cultural competency of hospital staff and community health workers. To achieve this, the

hospital implemented a half-day training program to build a workforce that could address the linguistic, cultural and health literacy needs of the patients. To date, the hospital has trained over a thousand employees.

### What were the barriers you faced in the implementation of your solutions?

The largest barrier to our success was shifting from a physician-centric care model to a team-based care model. The new model of care within the Regional Health Collaborative remains physician led, but involves the whole team including the nurse care coordinator, nurses, social workers, pharmacists and event front-desk staff.

### How did you overcome these barriers?

The shift in culture to a team-based model required significant time and resources. Each stakeholder was involved from the beginning including two years of planning prior to implementation. Bringing stakeholders together and giving them a role in the initial planning stage generated the needed buy-in for the Regional Health Collaborative to be successful.

A specific example of this was the creation of new HIT tools to support the collaborative. By engaging physicians and nurses in the initial design, they were much more willing to adopt the tools in their daily routines.

### What were the critical success factors in the implementation of your solution?

Transforming each clinical practice into a patient-centered medical home was really at the root of our success. By standardizing procedures in the ambulatory care clinics and coordinating care with community-based resources, we were able to create a "medical village" where the patient's needs were at the center.

### What specific clinical and financial results have you experienced?

Emergency department use for ambulatory care sensitive conditions was reduced by 8.8 percent and hospitalizations by 5.6 percent after one year, though only the reduction in emergency department use was statistically significant. These results were consistent with six-month results published in *Health Affairs* (see below).

### What is one piece of advice you would offer to another organization trying to prevent hospital admissions for ACSCs?

Engaging frontline stakeholders like nurses, social workers and front-end clerks, who often do not have a voice in these initiatives, is critical to making a major initiative like this one stick.

For more information, see:

Carrillo, E., et al. (2011). *A Regional Health Collaborative Formed By New York-Presbyterian Aims To Improve The Health Of A Large-Ly Hispanic Community*. *Health Affairs*, 30(10): 1955-64.

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## About NEHI

NEHI is a national health policy institute focused on enabling innovation to improve health care quality and lower health care costs. In partnership with members from all across the health care system, NEHI conducts evidence-based research and stimulates policy change to improve the quality and the value of health care. Together with this unparalleled network of committed health care leaders, NEHI brings an objective, collaborative and fresh voice to health policy. For more information, visit [www.nehi.net](http://www.nehi.net).

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## About Bend the Curve

Bend the Curve, an educational campaign launched by NEHI with support from WellPoint, has identified specific policy actions for reducing \$521 billion in wasteful health care spending in seven critical areas. The opportunities are detailed in *A Health Care Leader's Guide to High Value Health Care*, a timely resource for health care leaders seeking new ways to improve the quality and lower the cost of health care. For more information, visit [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve).

For more information on how to Bend the Curve in health care costs, visit:  
**[www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)**



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BEND THE  
**CURVE**

# Striving for High Value Health Care: Lessons Learned in California

*Case Interviews from the Field*



Anthem Blue Cross Foundation

# BEND THE CURVE

Dear Health Care Leader,

As part of its Bend the Curve campaign, NEHI published *A Health Care Leader's Guide to High Value Health Care*, identifying specific actions for reducing \$521 billion in wasteful health care spending in seven critical areas: medication errors, hospital admissions for ambulatory care sensitive conditions, patient medication adherence, emergency department overuse, hospital readmissions, antibiotic overuse and vaccine underuse. This research uncovered best practices from those who are successfully reducing costs by eliminating waste and showing us what is possible.

Supporting this effort, these new California-specific case interviews highlight important wins for reducing avoidable health care spending and serve as evidence for a national debate centered on identifying cost-cutting innovations that can be scaled and replicated. Although each health care leader's story is different, the challenges they face are strikingly similar. We must learn from each other's shared experiences and work together to achieve a more efficient health care system.

Along with the Guide, the case interviews are intended to help drive change at other organizations. More information and tools are available on the Bend the Curve website, [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve). These tools can be used to identify, promote and implement successful solutions to the very real problem of health care waste here in California and nationally.

As health care leaders and policymakers, we need to approach the conversation about improving our health care system differently. There is an alternative approach to cutting services and imposing fees. Let's reduce the waste and inefficiencies that are occurring every day in our institutions. Change will not happen overnight, but now is the time to begin our shared work to create high value health care in California.

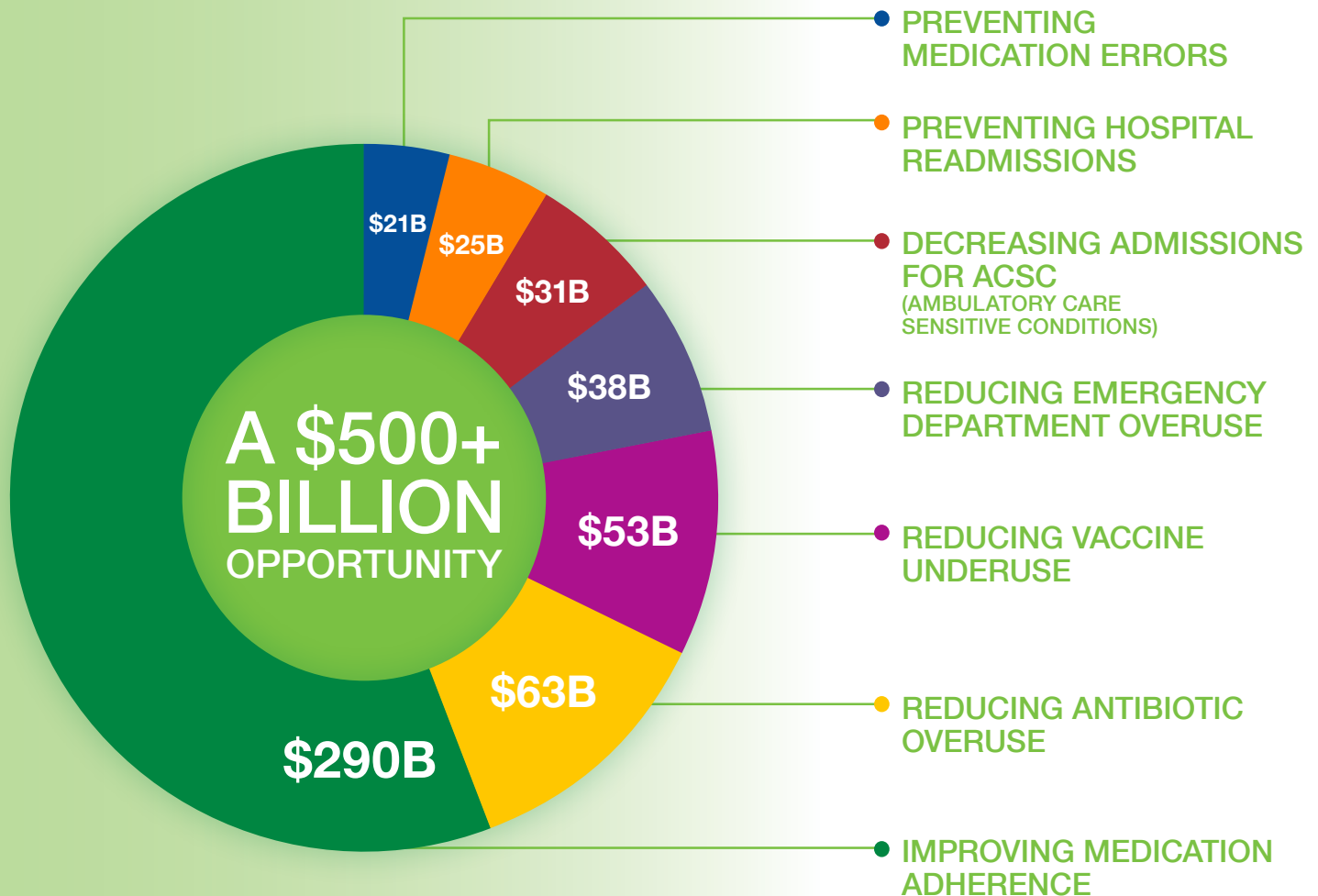


Wendy Everett, ScD  
President, NEHI



# REDUCING WASTE AND INEFFICIENCY

A Common Sense Approach to Achieving High Value Health Care



## SOLUTIONS

Improve Care Coordination

Facilitate Patient and Provider Engagement

Enhance Technology Interventions and HIT Infrastructure Investment

Improve Discharge and Follow-up Procedures

Promote Patient Education and Medical Leadership

Develop and Align Financial Incentives for Patients

Increase Access to Primary Care Services

Improve Chronic Disease Management

Learn more about ways to Bend the Curve in health care costs at:  
[www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)





## Case Interview

Jane Garcia  
Chief Executive Officer, La Clinica de la Raza  
“Right Care, Right Place” Project

### What issue regarding reducing ED overuse were you trying to address?

The “Right Care Right Place” Project was created to address the growing use of Sutter Solano Medical Center’s emergency department for primary care services. The hospital is located in the greater Vallejo area, which is an ethnically diverse community in Northern California. The region has among the highest rates in the state of asthma, diabetes, stroke, cancer and obesity. Further complicating the issue, access challenges were growing because many primary care practices in the area were closing due to a variety of factors.

### What was the solution you decided upon to address the issue and why?

To address the issue, we created a federally qualified health center, La Clinica, across the street from the hospital’s ED. The goal was to create a medical home for patients in the community, where they could access primary care services rather than visit the ED.

We received a three year, \$1.2 million grant to renovate and cover initial operating costs for the new health center. To redirect patients from the hospital to the health center, we implemented several strategies:

- Negotiated with local health plans to become their default after-hours urgent care facility and secured reimbursement for these services;
- Referred ED patients for follow-up services at the health center; and
- Coordinated with other physicians in the area to exchange patient health information for the patients who were under their care. By providing information back to these physicians when we saw their patients, we avoided (or at least lessened) any reservations they may have had about us seeing their patients.

### What were the barriers you faced in the implementation of your solution?

One significant barrier we faced was complying with the Emergency Medical Treatment and Active Labor Act (EMTALA), which requires medical screening exams for all patients in the ED. The national regulation created additional complexity for our goal of directing non-urgent patients to the health center rather than treating them in the ED. Another barrier we faced was generating buy-in from physicians and nurses at the hospital. We needed them to support the project’s goals in order for it to be successful.

### How did you overcome these barriers?

Working within the boundaries of EMTALA continues to be a challenge for us. Our focus quickly shifted to referral services for follow-up visits rather than triaging patients directly from the ED to the health center. In terms of generating internal support for the venture, we spent significant time and resources building partnerships with physicians and nurses. We invited all hospital stakeholders to regular meetings; simultaneously, our clinic’s management participated in hospital meetings to promote information exchange and coordination.

### What were the critical success factors in the implementation of your solution?

Our success stemmed from early identification of champions who promoted the program and facilitated relationships throughout the community and hospital. The program’s success is due in large part to the strong internal leadership of the nurse care coordinator, who was able to own the program and drive it forward over the years. We were also able to identify a physician with lots of experience and credibility with other emergency medicine physicians. This helped facilitate collaboration and communication between the hospital and the health center.

### What specific clinical and financial results have you experienced?

The California HealthCare Foundation and the University of Southern California completed a 20-month evaluation of the project. The project was able to redirect patients from the emergency department to the health center. On average, 52 patients per month were redirected from the hospital with some being referred from the ED for follow-up visits, while others were referred directly from the hospital without an ED visit. Over the study period, 4,600 ED visits were avoided.

The project also had a positive financial impact on the hospital. Visits classified as avoidable emergency visits are the lowest paying for the hospital; therefore shifting these to the healthcenter was beneficial for the hospital. Patients and health plans financially benefited, too. Payments made by patients and health plans for clinic visits were three to four times lower than those made for hospital visits, making the health center a cost effective solution.

### What is one piece of advice you would offer to another organization trying to reduce ED overuse?

There were two keys to success: our physical location across the street from the hospital and building a mutually beneficial partnership between the hospital and the health center.

*For more information, see: Green, L., Melnick, G. (2011). North Vallego Patient Access Partnership: Right Care, Right Place Project Evaluation. California HealthCare Foundation.*



## Case Interview

Elizabeth Oyekan, PharmD  
*Pharmacy Quality, Medication and Patient Safety Leader,  
 National Pharmacy Program and Services, Kaiser Permanente*

### What issue regarding improving patient medication adherence were you trying to address?

Improving appropriate medication use can positively affect patient care and health care outcomes, as well as significantly reduce costs for patients and the health care industry. However, patient adherence to medication use is difficult to achieve because patients are nonadherent for many reasons. Multifaceted and consistent solutions must be found and implemented, as studies have shown that they improve medication use and achieve better therapeutic outcomes than single, ongoing interventions or a one-time approach.

### What was the solution you used to address the issue and why?

Traditionally, there have been various approaches to improving patient medication adherence in all eight Kaiser Permanente (KP) regions in the U.S. Our goal was to develop a multifaceted and consistent medication adherence strategy and framework. Specifically, this strategy and framework aims to measurably improve medication adherence outcomes and enable all eight regions to improve patient health outcomes, reduce the progression of disease over time, reduce total health care costs, make it easier for providers to do the right thing, and consistently achieve Medicare 5-star ratings in these measures.

### What barriers did you face in the implementation of your solution?

Based on KP's research, there are myriad barriers to medication adherence. However, we did identify three critical barriers. First, many patients with concerns about the medications or questions about the necessity of taking medications need both of these aspects addressed. In turn, the benefit-to-risk ratio must be emphasized at all points of care. Second, cost is always a factor to consider, especially for patients on multiple medications. Lastly, forgetfulness – for a variety of reasons – is a third critical barrier. For example, some patients take their medications while others stop taking their medications altogether because they start to feel better. Furthermore, some patients have limited understanding of their medications and their use, so they forget when and how long they need to take them as well as what the medications they are taking are actually meant to accomplish.

### How did you overcome these barriers?

KP's medication adherence strategy and framework attempts to improve medication adherence at every point of contact – the hospital, the provider's office, the pharmacy and at home – through a focus on five key drivers:

1) Educating and engaging patients and caregivers appropriately, through tools and support. For example, patients are now able to access and print their prescription records through KP's website.

2) Educating primary care providers and pharmacists on the B-SMART (Barriers, Solutions, Motivation, Adherence Tools, Relationships, and Triage). Appropriate Medication Use Checklist, as well as on other toolkits and models, has been tremendously successful.

3) Technology is essential to reaching all populations and areas, such as through the use of the electronic medical record system, KP's website for prescription records, and primary and secondary outreach through automated refill reminders.

4) Support systems and resources are critical. Health education, medical financial assistance and care management are some of the ways KP augments the physician and provider practice to support and activate patients in their medication adherence efforts.

5) Collaborations occur through local and regional leadership. Leaders in communities and all eight regions are able to learn from each other, collaborate and develop strategic alliances and projects to optimize patient health outcomes.

### What were the critical success factors in the implementation of your solution?

The strategy and framework resulted in early successes because of the thoughtful development of programs and processes related to each of the five key drivers. Moving forward depends on successfully accomplishing initiatives in each of those categories and expanding the focus of those areas in the future.

### What specific clinical and financial results have you experienced as a result?

We have seen significant improvements in patients picking up refills from our outreach calls. In a pilot study where pharmacists used the B-SMART Checklist to address medication adherence challenges, about 88 percent of patients agreed to restart their medications and 52 percent of those patients refilled their prescription in a timely fashion. More importantly, the study showed improved outcomes in their A1C and LDL clinical goals, as well as an increase in their screening rates.

### What is one piece of advice you would offer to another organization trying to improve patient medication adherence?

Although KP is a fully integrated delivery system, many of the components that make up the medication adherence strategy and framework can be replicated in most organizations, whether it is technology and tools, educational infrastructure, engagement of patients, support resources or leadership. All of these can make a difference in patients' health outcomes and will lead to better health, better care and better costs.



## Case Interview

Carol Lee, President & CEO, and Elissa Maas, Consultant, California Medical Association Foundation

### What issue regarding reducing antibiotic overuse were you trying to address?

The California Medical Association Foundation created a coalition called the Alliance Working for Antibiotic Resistance Education (AWARE) to reduce the inappropriate use of antibiotics for respiratory tract infections and inhibit the spread of antibiotic resistance through patient, consumer and provider education. The reality is that most physicians understand appropriate prescribing guidelines, but continue to face pressure from patients to prescribe antibiotics.

### What was the solution you decided upon to address the issue and why?

The CMA Foundation executed a multi-pronged strategy that included patient and physician education and coordination of resources across health plans. Initial efforts centered on building a multi-stakeholder coalition to educate as many consumers as possible on appropriate antibiotic use. The coalition included physicians, nurses, pharmacists, the California Department of Health, AARP, daycare providers, Girl Scouts, ethnic physician organizations, health plans, the California Parent Teacher Association (CAPTA), the American Medical Association, medical and pharmacy school students, school nurses, long-term care facilities, and the Centers for Disease Control and Prevention (CDC). To engage each member of the coalition, groups were asked to contribute their own resources. For example, graduate medical education programs and pharmacy programs enlisted students to perform community projects where they would educate parent groups in their community on appropriate antibiotic use.

We started with a public education campaign which included PSAs featuring Dick Van Dyke and Bill Nye “the Science Guy.” In addition, we conducted an aggressive media campaign which resulted in dozens of articles in print, TV and radio.

The Foundation’s efforts quickly broadened to physician education and particularly to the volume of antibiotic toolkits mailed on behalf of health plans. Some physicians reported receiving as many as 12 different toolkits annually. Due to the sheer volume, these toolkits were often overlooked. Adding to the problem, many physicians were skeptical of the content due to their inherent mistrust of health plans. To remedy the issue, the CMA Foundation created a single toolkit that was endorsed by a large number of health plans, but sent by the CMA Foundation. With the new branding, physicians were more receptive to the content.

### What were the barriers you faced in the implementation of your solutions?

The project has been in continuous operation for over 13 years and funding has always been a challenge. The CMA Foundation is a small organization with limited resources. To achieve such a large scale campaign, we had to work with a variety of funding sources and be creative. Creating a coalition of community organizations to deliver our message is a perfect example.

### How did you overcome these barriers?

Partnering with health plans proved to be a sustainable funding model that was a win-win for us and the health plans. It was more cost effective from the health plan’s perspective to have the Foundation develop and distribute the toolkit, and in the end, physicians were more receptive to the guidelines.

### What were the critical success factors in the implementation of your solution?

Forming mutually beneficial and respectful partnerships was critical to our success. Our priority was to create an open environment where stakeholders were free to discuss their ideas and concerns. Everyone who participated understood that they were taking on an issue that was greater than their individual interests. They understood that the end result would be broader reaching.

### What specific clinical and financial results have you experienced?

The “AWARE Data Project” was created to measure the statewide success of the AWARE educational campaign between 2000 and 2003. There was a steady decrease in the frequency of antibiotic prescribing for both adults and children for the five respiratory conditions examined—upper respiratory infections (URI), acute otitis media (AOM), sinusitis, pharyngitis and bronchitis—with only a few exceptions. For example, over the study period, prescribing antibiotics for pharyngitis decreased from 42 percent to 37 percent of cases. However, the results still suggest substantial overprescribing as only 25 percent of cases are bacterial.

Health plans have not shared their financial savings resulting from the project, though we can assume financial savings were achieved through the reduction of antibiotic prescriptions.

### What is one piece of advice you would offer to another organization trying to reduce antibiotic overuse?

Create broad reaching partnerships with other stakeholders interested in achieving similar goals. The sum of your efforts will be much greater than your own. It’s also important to be clear about the issue you are trying to address and collect data to demonstrate your impact to funders.

For more information visit [www.aware.md](http://www.aware.md).



## Case Interview

Kavita K. Trivedi, MD

*Public Health Medical Officer, California Antimicrobial Stewardship Program Initiative, Healthcare-Associated Infections Program, California Department of Public Health*

### What issue regarding reducing antibiotic overuse were you trying to address?

Inappropriate use of antibiotics and other antimicrobial agents can lead to antimicrobial resistance, drug-related adverse effects and higher costs. Antimicrobial stewardship programs can improve the use of antimicrobials by promoting the appropriate selection of agents (when indicated), dose, duration and method of administration. Even though guidelines for developing such programs exist, many hospitals do not have these programs in place.

### What was the solution you used to address the issue and why?

In 2006, California legislators passed Senate Bill 739, which stipulated that, as of January 1, 2008, the California Department of Public Health (CDPH) requires all general acute care hospitals to evaluate antibiotic use with oversight by a quality improvement committee. Senate Bill 739 also required CDPH to implement a program for the education, surveillance and prevention of health care-associated infections in acute care hospitals statewide. Although hospitals were generally aware of this unfunded mandate, they had little guidance on how to comply with it. As a result, CDPH's Healthcare-Associated Infections Program created this statewide initiative to offer implementation guidance to health care facilities across the state.

The Healthcare-Associated Infections Program provides education, guidance and other support to hospitals and long-term care facilities that are creating antimicrobial stewardship programs focused on the appropriate use of antimicrobials. Support includes recommendations on program elements based on best practices, consultations and education, hospital collaboratives to facilitate sharing of ideas across similar organizations and the creation of common metrics to track and benchmark performance.

### What barriers did you face in the implementation of your solution?

The California Antimicrobial Stewardship Program Initiative faced a number of barriers. Funding from hospitals for these stewardship programs was limited, as was buy-in from some hospitals and providers. In addition, it was clear that in the beginning stages of implementation, a limited number of individuals were taking the lead at their institutions and pushing the process forward. Furthermore, a lack of specialized personnel to design and run these programs was seen as a major issue. Lastly, adequately promoting measurement, of both process and outcomes, was also an issue.

### How did you overcome these barriers?

A combination of legislation and assistance provided through the statewide antimicrobial stewardship initiative have been instrumental in arming hospital-based advocates with the tools to convince senior leaders of the merits of supporting and sustaining these programs. Education, guidance and other support to hospitals and long-term care facilities has been particularly helpful in not only educating institutions regarding the importance of these initiatives, but also in showing them on how simple and realistic it can be to address antibiotic overuse.

### What were the critical success factors in the implementation of your solution?

Legislation was absolutely critical in ensuring the implementation of antimicrobial stewardship programs in acute care hospitals across the state. As of April 2012, California was the only state to require general acute care hospitals to evaluate and oversee the appropriate use of antibiotics. It is also the only state to have launched a statewide antimicrobial stewardship program initiative. This legislation truly helped to create critical buy-in from hospitals and providers.

### What specific clinical and financial results have you experienced as a result?

This initiative has played an important role in convincing many California hospitals to develop antimicrobial stewardship programs. Specifically, the program has received inquiries from more than 100 hospitals and long-term care facilities to provide them with assistance. Some of these hospitals already had programs and were trying to improve their implementation and success, while others were attempting to launch new antimicrobial stewardship programs. In addition, the Healthcare-Associated Infections Program found that about one-fourth of California hospitals created an antimicrobial stewardship program due to the passage of the law.

### What is one piece of advice you would offer to another organization trying to reduce antibiotic overuse?

Start simple and keep your focus narrow, particularly in the beginning. Look at your own data and identify the specific issues your institution is having around antibiotic overuse. From there, target one antibiotic to focus on. Finally, remember that everyone can be effective in reducing antibiotic overuse, including administrators, clinicians, nurses and patients. The tools are simple and just need to be properly communicated.



## Case Interview

**Karen Rago**  
*Former Executive Director of Service Lines,  
University of California San Francisco*

### **What issue regarding reducing hospital readmission were you trying to address?**

The initial focus of the Heart Failure Program was inspired by a grant the hospital received from the Gordon and Betty Moore Foundation. The goal of the program was to reduce the 30- and 90-day readmission rate by 30 percent per year over a two-year period for patients 65-years-of-age or older with primary or secondary heart failure. Since the initial grant, the target population has expanded to patients 45-years-of-age or older.

### **What was the solution you decided upon to address the issue and why?**

The Heart Failure Program was shaped first by understanding the systems and processes we had in place for these patients. With this baseline understanding in hand, we were able to implement a multi-pronged solution. We implemented the following components:

- Hired nurse coordinators whose primary focus was to coordinate and manage the care for each patient.
- Assigned care teams comprised of physicians, home care nurses and nurse practitioners. The team was managed by the nurse coordinators.
- Created an email record to which every clinician in the care team could contribute and refer.
- Implemented teach back that began on day one of admission. We found that the earlier and more often we engaged with the patient, the better. Greater than 40 minutes of cumulative teach back resulted in greater retention and reduced readmissions.
- Adjusted educational and discharge materials to a fifth- or sixth-grade reading level.
- Implemented medication reconciliation at admission and discharge.
- Added palliative care counseling to prepare patients for the progression of their condition.
- Followed-up with patients within 7- and 14-days of discharge given that this is when most readmissions happen.
- Scheduled home health visits that would occur within 1- to 2-days of discharge.
- Scheduled an appointment with the primary care physician, cardiologist or heart failure nurse practitioner.

### **What were the barriers you faced in the implementation of your solutions?**

We faced several barriers when implementing the program. First, we needed to raise awareness of our program and the nurse coordinator's role. The clinicians needed to understand the nurse coordinator role and its importance. Second, we continue to need to identify funding streams both internally and externally to ensure continuation of the program given the initial funding was through a grant. Finally, a more tactical challenge we faced was ensuring that home health visits were part of the standard of care rather than an additional service that required a referral.

### **How did you overcome these barriers?**

To raise awareness and credibility for the program, the nurse coordinators took every opportunity to speak about the program,

including attending cardiology faculty meetings and senior leadership meetings. Funding continues to be a challenge; however, we were able to make the case internally for financial support given our success to date and the impending Medicare reimbursement reductions. To supplement this funding, we have also been able to secure additional grants. Finally, because we felt that home visits were so critical, we decided to make home care the default setting on the discharge form to eliminate the need for a referral.

### **What were the critical success factors in the implementation of your solution?**

Enhancing physician's understanding of the nurse coordinator role was essential to the program's success. We worked hard to create an environment where physicians would view their role as collaborative and not competitive. Another critical success factor was the incorporation of palliative care counseling. By preparing patients for the progression of their disease, they are able to make informed choices about their end-of-life care.

### **What specific clinical and financial results have you experienced?**

Since the program's inception in 2009, we have steadily reduced the heart failure all-cause readmission rate from 24 percent to where it is today at 9 percent. For the past 11 months, we have successfully achieved our 30-percent-reduction goal by maintaining a readmission rate below 16 percent.

### **What is one piece of advice you would offer to another organization trying to prevent hospital readmissions?**

Start with the Institute for Healthcare Improvement toolkit when implementing your own readmissions program. Learn from what others have done, and pick and choose what will work best in your organization. There is no need to start from scratch.



## Case Interview

Jeffrey Guterman, MD  
 Chief Research & Innovation Officer,  
 Los Angeles County Department of Health Services

### What issue regarding decreasing hospital admissions for ACSCs were you trying to address?

People with chronic diseases, particularly the uninsured from low socio-economic backgrounds, are frequently managed in episodic, reactive bursts of care in response to bothersome symptoms. This results in poor ongoing control of their conditions and inefficient use of inpatient and emergency services. For example, patients with hypertension and dyslipidemia often have no symptoms until the preventable complications of these primary risk factors cause a devastating event, such as a heart attack or stroke. For the Disease Management Program of the Los Angeles County Department of Health Services (LAC DHS), we targeted patients with diabetes mellitus, asthma and heart failure who had the highest burden of illness and rescue care resource utilization. The LAC DHS specifically implemented comprehensive disease management programs for uninsured and underinsured low-income patients with diabetes, asthma and heart failure who have historically not had access to this type of care and support.

### What was the solution you used to address the issue and why?

The LAC DHS disease management program consists of an initial assessment and risk-stratification of patients, along with tailored interventions suitable for each group based on the degree of risk. Specifically, patients are stratified along two dimensions of risk through retrospective data review and prospective interviews that assess their illness burden (e.g., physiologic variables, laboratory results, functional status, etc.) and unscheduled use of rescue care resources, such as ED visits and hospitalizations. For these high risk groups, the program emphasizes proactive monitoring and treatment of patients in the outpatient and home care environments to avoid exacerbations that require expensive ED visits or inpatient admission. Care processes are structured to improve coordination of services and to increase efficiency, with more than one-half of patient contacts taking place over the phone or through remote monitoring. Providers use protocols and other support mechanisms that have been developed via collaborative efforts to manage ongoing care.

### What barriers did you face in the implementation of your solution?

Funding constraints, culture change and the role of the nurse practitioner (NP) have been major issues for our programs. Due to funding constraints, patients have time-limited access to the programs (e.g. diabetes patients for six to nine months, asthma patients seasonally, etc.) Additionally, some providers have been resistant to refer their patients into the program and out of their care. The last and most difficult barrier we have seen has been trying to move the role of the nurse into one of a real decision-maker. Although this is a protocol-based, nurse-driven program, nurses who are not NP's cannot initiate new medications for patients, although they can adjust current medications.

### How did you overcome these barriers?

We still have not yet completely figured out the funding piece. Our programs have been shown to be clinically efficacious and cost positive. However, in a county with a large safety net population of more than 2 million uninsured residents, there is always a waiting

list for transfers of medically indigent patients into our hospitals. Thus, even when we reduce patient stays by 100 days, new transfers to these now "empty" beds appear. So for now, LAC DHS bears the cost of the program and the cost of maintaining the inpatient beds. In addition, top-level commitment from senior leadership has helped most providers to overcome reluctance to change, though there is still room for improvement. Lastly, these programs have been moving towards a nurse practitioner-focused model, as some nurses are unable to make the conceptual leap needed to successfully drive forward these programs.

### What were the critical success factors in the implementation of your solution?

A burning platform was essential to our success. The Medicaid 1115 Waiver provided a significant funding boon to a safety net system nearing collapse, with specific requirements for chronic disease management. Senior-level involvement and program promotion was also critical, as it helped to ensure buy-in from staff. Selecting dedicated staff, not just for their clinical competence, but also for their belief in the value and vision of the program, was paramount to our success.

### What specific clinical and financial results have you experienced as a result?

These disease management programs have resulted in a significant improvement in the ongoing management of diabetes and significant reductions in ED and inpatient visits as well as missed school days for children with asthma. A review of more than 3,060 patients with diabetes managed in five sites found that HbA1c and LDL levels fell dramatically, and systolic blood pressure fell by 7 mm Hg on average. Furthermore, a review of 7,324 patients managed in 93 school-based sites found the following results: more than 90 percent of enrolled patients achieved control of their asthma within six visits; ED and inpatient visits fell by more than 70 percent; and missed school days fell by more than 90 percent. Finally, a pilot study of 77 patients with heart failure showed a combination of lower cost and high patient satisfaction.

### What is one piece of advice you would offer to another organization trying to decrease hospital admissions for ACSCs?

First, align clinical and financial incentives so that you reward the desired outcomes, not just the volume of patients that are seen. Second, ensure that leadership is fully engaged and that everyone is open and honest about intended and unintended consequences of the programs. Third, hire individuals who truly understand disease management, as it is a fundamentally different model of care. Finally, capture adequate and appropriate data to measure progress.



## Case Interview

Michael Belman, MD, *Medical Director, Anthem Blue Cross*, and J. Eugene Grigsby, III, PhD, *President & CEO, National Health Foundation*

### What issue regarding preventing errors were you trying to address?

The three regional hospital associations (Southern California; San Diego and Imperial Counties; and Northern and Central California) approached Anthem Blue Cross to address patient safety. Hospitals within each regional association were seeking to apply their investment in patient safety more broadly. The hospitals knew their patient safety interventions were impactful on the local level but they also understood that by engaging with the broader health care community in California through Anthem they could have a far greater impact on the entire system.

### What was the solution you decided upon to address the issue and why?

Anthem embarked on a three-year, \$6 million effort to build and recruit a hospital peer-to-peer learning network. To date, we have enrolled over 170 hospitals into the Patient Safety First Initiative. The initiative focused on three areas: Perinatal Care, Sepsis and Hospital Acquired Infections.

### What were the barriers you faced in the implementation of your solution?

We viewed this as a unique opportunity to collaborate with hospitals and collectively continue to improve the safety of patients. However, we also recognized that convening a group of hospitals and payers inherently meant we had to overcome perceptions of one another to effectively collaborate.

### How did you overcome these barriers?

The commitment by senior leadership of Anthem and the three regional hospital associations was a key factor in the success of the initiative. Additionally, the use of a third-party data evaluator helped to provide a collaborative effort that was truly transparent. This group (the National Health Foundation) provided a layer of transparency and legitimacy that made all parties comfortable in putting their proprietary data into a larger dataset. Lastly, the Initiative was able to build upon existing learning networks and benefited from ongoing day-to-day project management.

### What were the critical success factors in the implementation of your solution?

One critical success factor was to provide solid evidence that these interventions increased patient safety while also proving to be worth the investment. Working with the third-party evaluator, we were able to put together a robust methodology for calculating the impact on outcomes and value to the system. Also, getting each participating hospital out of the competitive mindset and into a collaborative discussion was important. Through the process we found that hospitals wanted to share their “best practices” and “lessons learned” with their colleagues.

### What specific clinical and financial results have you experienced?

The two-year clinical results were finalized in May 2012 and they have been remarkable. It has been estimated that the Patient Safety First Initiative has contributed to statewide cost savings of over \$19 million of our 973 lives saved. Some of the improvements

demonstrated by hospitals participating in the Initiative were:

- 21 percent reduction in sepsis deaths per 100 sepsis cases;
- 65 percent reduction in elective deliveries prior to 39 gestational weeks;
- 39 percent reduction in central line blood stream infections cases per 1,000 central line days;
- 2 percent reduction in catheter associated urinary tract infections cases per 1,000 patient days; and
- 48 percent reduction in ventilator associated pneumonia cases per 1,000 ventilator days.

### What is one piece of advice you would offer to another organization trying to improve patient medication adherence?

Address governance, infrastructure and data-sharing arrangements such as requirements and standards up front. This is what will allow a similar coalition to build a sense of trust. Identify the key members of the working group and invite senior leadership to champion the engagement internally. Lastly, put teeth in the program. Initially, we had over 160 hospitals engaged but it wasn't until they agreed to share their individual data that the group made real progress. For example, the use of a third-party data evaluator and program manager focus on measurement allowed the hospitals to dedicate more resources to improvement efforts.



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## About NEHI

NEHI is a national health policy institute focused on enabling innovation to improve health care quality and lower health care costs. In partnership with members from all across the health care system, NEHI conducts evidence-based research and stimulates policy change to improve the quality and the value of health care. Together with this unparalleled network of committed health care leaders, NEHI brings an objective, collaborative and fresh voice to health policy. For more information, visit [www.nehi.net](http://www.nehi.net).

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## About Bend the Curve

Bend the Curve, an educational campaign created by NEHI with support from Anthem Blue Cross' corporate foundation, has identified specific policy actions for reducing \$521 billion in wasteful health care spending in seven critical areas. The opportunities are detailed in *Striving for High Value Health Care: Lessons Learned in California*, a timely resource for health care leaders seeking new ways to improve the quality and lower the cost of health care. For more information, visit [www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve).

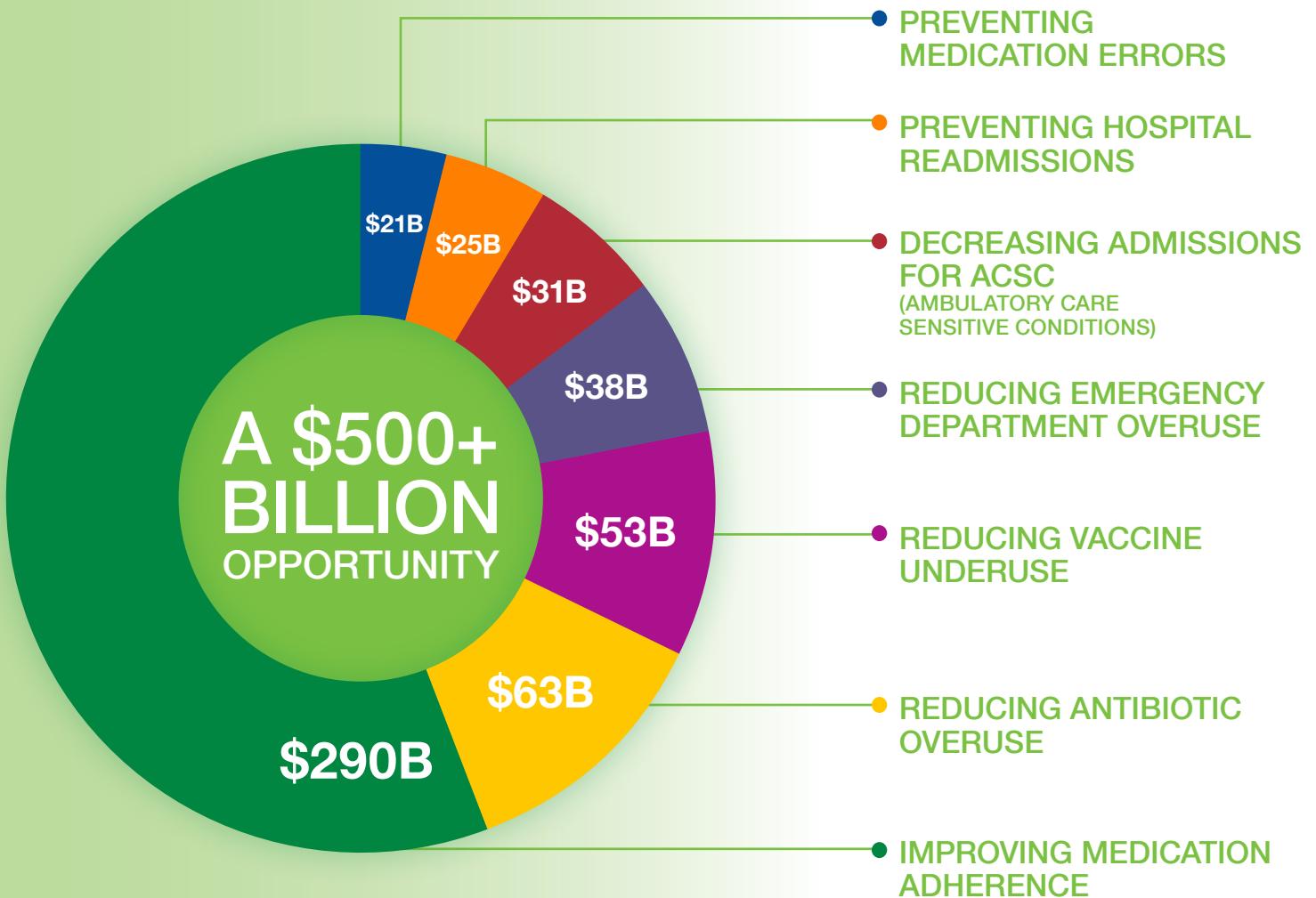
For more information on how to Bend the Curve in health care costs, visit:  
**[www.nehi.net/bendthecurve](http://www.nehi.net/bendthecurve)**



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