

*Clinical Management:
A Review of the Evidence and Policy
Recommendations*

PREPARED FOR THE
MARYLAND HEALTH SERVICES COST REVIEW COMMISSION

BY
JACK MEYER
HEALTH MANAGEMENT ASSOCIATES

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Executive Summary

The purpose of this report is to provide a review of evidence about care management initiatives, and a guide to setting priorities, to the Maryland Health Services Cost Review Commission (HSCRC) as it implements the new All-Payer model.

The focus is on identifying promising strategies for improving health outcomes and lowering total spending through improved care management for patients with complex medical needs. The goal is to reduce avoidable ER use, inpatient admissions, readmissions, and hospital outpatient care through better management of these patients, both in primary care settings and through various transitions in care.

This report begins with a review of the evidence about what types of care management initiatives actually lead to savings. The report summarizes evidence from all of the many Medicare demonstrations over the past twelve years, as well as other evidence emerging from the literature. The next part of the report provides examples of promising strategies both within Maryland and in other states. Many of the strategies and programs highlighted here are evidence-based, and have been shown to reduce hospital use and lower health care spending. A few other programs are too new to have this evidence, but employ the same ingredients for success that emerge from the findings reported here.

This is followed by a section that sets clear priorities regarding the investments in care management that HSCRC may want to support. Which types of strategies and initiatives would HSCRC want to encourage first? The intent is not to create a list of programs that HSCRC would *conduct*. Instead, the idea is to identify strategies that are the “best bets,” in terms of having a strong evidence base, with HSCRC then *encouraging* hospitals, medical groups, and payers to adopt them.

The final section presents conclusions and policy implications.

The research evidence shows mixed results. A number of chronic care management programs have not shown savings. Dissecting the body of evidence, however, reveals that a number of interventions do work—they reduce ER use, hospital admissions and readmissions, and lower total spending compared to what would occur in regular care delivery and payment settings. This report draws on both individual studies and various summaries of the evidence to pull out the essential ingredients of promising approaches.

This is important because the literature seems quite clear on one point: unless those designing care management programs pay careful attention to identifying these ingredients and building in lessons learned about what works, the odds of achieving noteworthy results are rather low.

Key Elements of Successful Approaches

Three crucial and sequential steps up front

1. **The identification of the patients with the most complex medical needs.** This can be done in two ways. First, the use of data, particularly from Medicare, can help program managers *predict* which people are most likely to be high-cost users of the system. Second, program managers can determine from their own experience which patients *already are* high-cost users. By disease, this is

likely to include patients with congestive heart failure, coronary artery disease, chronic obstructive pulmonary disease, serious mental illnesses, ESRD patients, and women with high-risk pregnancies. People with five or more chronic conditions are also likely to be high users of care. Diabetes, hypertension, and asthma are also amenable to good management through proper care management and self-care.

2. **The development of patient-centric health risk assessments using face-to-face, in-depth interviews**
3. **The early development of customized, individualized care management plans. Some key elements of these plans are:**
 - a. **Medication management**
 - b. **Effective discharge planning and strong follow-up**
 - c. **Good nutrition and oral health**
 - d. **Strong linkage between somatic and behavioral health**
 - e. **Inclusion of social services as needed** e.g. transportation assistance, transitional housing, language services, family preservation, counseling for young parents, and employment assistance, where appropriate.
 - f. **Addressing the “social determinants of health” (e.g. smoking, obesity, environmental hazards) and low socioeconomic status**
 - g. **Regular face-to-face interaction between care managers and patients.** Direct interaction can be augmented by telephonic contacts occurring between face-to-face meetings. But telephonic interventions, per se, may frequently not suffice.
 - h. **Patient and family involvement in the care plan**

Important reforms in the delivery system

1. **The assurance that care managers have direct interaction and develop a strong rapport with their patients’ physicians through in-person contact with the physicians’ offices and the hospital.** Care managers should act as a communications hub across providers, and between patients and their providers. They should also ensure that PCPs have all relevant external data on their patients.
2. **Care managers embedded in – or staff members of – primary care practices and with access to patients’ electronic medical records.** Hospitals must notify the care managers when patients they work with visit the emergency department or are hospitalized. Care managers should interact directly with patients during their hospital stays and physician office visits, and have access to a pharmacist who can assist with medication management.
3. **Carefully and comprehensively planned transitions of care, prepared by multi-disciplinary teams, particularly following hospital discharge.** Discharge planning should start well before

discharge, and follow-up should include educating patients about early symptom spotting, dietary advice, appropriate medication use, social services, and self-management.

4. **Strong linkages between behavioral health and somatic health.** Particular emphasis should be placed on making primary care physicians aware of danger signals and the need for referrals to behavioral health specialists, as well as encouraging behavioral health providers to ensure that their patients are getting proper treatment for physical conditions that are prevalent in individuals with serious mental illness.
5. **Long-term care facilities that treat many changes in patient conditions on-site.** These facilities can make use of a number of innovative programs that help them address minor patient health problems and avoid unnecessary trips to the emergency department, from which the patient will almost always be admitted to the hospital. Many such admissions are avoidable.

Complementary reforms

1. **Health information technology that is frequent, and highly interactive with patients.** HIT should also facilitate contact with clinicians, and provide information support to clinicians in real time as they are seeing patients.
2. **Care management fees that are at risk, depending on outcomes.** Care management costs should be controlled to the extent possible, through such strategies as ensuring that staff work at the top of their training, and incorporating the services of non-RN and non-LSW staff.

Setting priorities

1. **The first priority in Maryland is to reduce hospital admissions.** Following the key elements of effective care management just described should help achieve that reduction. Too many people in the US are “medically homeless,” lack a regular source of care, see many different physicians in various settings, use large numbers of prescription drugs, all in an unmanaged environment. Proper management of their care can reduce admissions.
2. **A second priority could be an all-out effort to reduce readmissions.** Here the focus is on reducing hospital-acquired conditions, following evidence-based practices in surgery and other medical procedures, proper discharge planning, and strong post-discharge monitoring and education.
3. **A third priority is better management of patients in long-term care facilities to avoid unnecessary visits to ERs, and thereby reduce avoidable hospital admissions.**

Introduction

The purpose of this report is to identify the features of care coordination/care management programs that have been shown to be successful in reducing hospital admissions, readmissions, and total health care spending. The report presents a set of specific care management program models that can reduce hospital admissions and smooth transitions of care from the hospital to other settings to reduce readmissions. Priorities are also established based on the interventions that seem like the “best bets” to yield near-term savings.

The goal is to provide guidance to health care providers and public and private payers in Maryland as they design interventions to improve clinical management, particularly for patients with complex medical needs.

The All-Payer model establishes tight targets for the annual per capita growth in total hospital expenditures and for Medicare savings. Because of the importance of demonstrating Medicare savings, this report focuses particular attention on the results of demonstrations and programs related to care management under Medicare.

Background

Patients with multiple chronic illnesses comprise a disproportionate share of health spending, and this is a particular challenge in Medicare. Chronic medical conditions account for more than 75% of total health spending. One quarter of US adults have multiple chronic conditions. Among people 65 years of age and older, 43% have three or more chronic illnesses, and 23% have more than five. In fact, chronic medical conditions associated with modifiable risk factors such as smoking, nutrition, weight, and physical activity represent six of the ten costliest medical conditions in the US, with a combined medical expenditure of \$338 billion in 2008.¹

Just looking at readmissions, we see that Medicare is spending \$18 billion annually on 30-day re-hospitalizations. For all US patients, this figure is \$25 billion.² Citing the HSCRC, Dr. Amy Boutwell notes that Maryland had the highest readmission rate in the US in 2010 among Medicare-eligible patients. Maryland had nearly 16,000 readmissions statewide in 2012. The diagnoses that most frequently lead to readmissions in Maryland include heart failure, sepsis, COPD, pneumonia, renal failure, bipolar disorder, and kidney and urinary tract infections.³

Over the past twelve years, Medicare has conducted six major demonstrations testing a variety of approaches to care management and care coordination.⁴ A total of 34 care management programs have

¹ Soni, A. 2011. “Top 10 most costly conditions among men and women, 2008: estimates for the U.S. civilian, non-institutionalized adult population, age 18 and older.” Statistical Brief # 331. Washington, DC. HHS.

² Amy E. Boutwell. “Reducing Readmissions: A Quality Effort at the Heart of System Redesign.” Collaborative Healthcare Strategies. Lexington, MA

³ Boutwell, supra.

⁴ The demonstrations are: Demonstration of Care Management for High-Cost Beneficiaries; Medicare Coordinated Care Demonstration; Medicare Health Support Pilot Program; Demonstration of Disease Management for Dual Eligible Beneficiaries; Demonstration of Informatics for Diabetes Education and Telemedicine; and Demonstration of Disease Management for Severely Chronically Ill Beneficiaries.

been studied under these six demonstration programs. The goal of these demonstrations was to reduce hospital admissions by maintaining or improving patients' health and produce savings for Medicare, net of the program costs. CMS paid for providing disease management and care coordination under these programs and in four demonstrations, care management fees were at risk, so that they are retained only if they are offset by reductions in Medicare expenditures.

This report relies strongly on the findings from these demonstrations. It also draws upon the author's earlier synthesis of studies, mostly published in medical journals, focusing on the impact of care management interventions across six chronic illnesses. This study included but was not limited to Medicare.

Findings

The key to understanding how to approach care management designed to reduce ambulatory-sensitive care in high-cost settings is to carefully review the large body of research and many demonstration projects to determine what elements are essential to success. The hard fact is that many of the programs and demonstrations show little or no reduction in hospital admissions, and no net savings. A careful look at a large set of studies, however, reveals nuggets of success amid considerable disappointment. Assembling those nuggets reveals promising approaches that can improve health outcomes and reduce the growth of spending.

Medicare Demonstrations

According to an in-depth review by the Congressional Budget Office of all 34 care management programs established under the six Medicare demonstrations, "On average, the 34 programs had no effect on hospital admissions or *regular* Medicare expenditures (that is, expenditures before accounting for the programs' fees). There was considerable variation in the estimated effects among programs, however. Programs in which care managers had substantial direct interactions with physicians and significant in-person interaction with patients were more likely to reduce hospital admissions than programs without those features. After accounting for the fees that Medicare paid to the programs, however, Medicare spending was either unchanged or was higher in nearly all of the programs."⁵

A cautionary note

The Medicare care management demonstrations provide useful guidance. But it is important to note that these demonstration projects focus heavily on Medicare patients in the fee-for-service portion of the program. More than one of four Medicare enrollees is enrolled in Medicare Advantage programs. In these cases, managed care organizations may be in a position to implement population-wide care

⁵ Lyle Nelson, "Lessons from Medicare's Demonstration Projects on Disease Management and Care Coordination." January 2012. Congressional Budget Office. Working Paper 2012-01. January 2012. These results should be interpreted with the understanding that estimated program impacts for some projects have relatively wide confidence intervals, indicating that they could have reduced or increased hospital admissions and expenditures by a sizeable amount. This means that an actual favorable impact under some programs might not have been detected, and vice versa.

management strategies that are more difficult for individual providers or clusters of providers to accomplish. For this reason, examples of programs involving MCOs are included later in this report.

The Medicare demonstration programs typically included various combinations of the following elements:

- Educating patients about their chronic conditions
- Helping patients monitor their symptoms and follow self-care regimens
- Motivating patients to make beneficial behavioral changes
- Monitoring patients' symptoms and adherence to treatment recommendations
- Adhering to evidence-based practice guidelines
- Providing feedback to patients' primary care physicians
- Having nurses provide key services
- Classifying patients by severity of illness and customizing services accordingly
- Targeting beneficiaries with one or more chronic conditions
- The most commonly targeted conditions were congestive heart failure, coronary artery disease, and chronic obstructive pulmonary disease.
- Ten programs restricted eligibility to patients who had been hospitalized in the previous year.
- In five of the six demonstrations, Medicare paid the programs a monthly fee per beneficiary. The fees were at risk in four of these five programs.⁶

Program Impact

The main findings from the study of the Medicare demonstrations conducted by CBO are as follows:

1. Looking across all 34 programs, the average impact was a 1% decrease in hospital admissions and zero impact on regular Medicare expenditures. For this full set of programs in the six demonstrations, it would have taken a reduction in regular Medicare expenditures of 11% to offset program fees.
2. In programs where care managers had substantial direct access to their patients' physicians, hospital admissions dropped by an average of 7% and regular Medicare expenditures dropped by an average of 6%. Programs that did not do this had zero impact on both hospital admissions and regular Medicare expenditures.
3. The programs in which care managers had significant in-person interaction with patients, plus telephonic interactions, reduced hospital admissions by an average of 7% and reduced regular Medicare expenditures by an average of 3%. In programs in which care managers interacted with patients primarily by telephone, hospital admissions increased by 1% and regular Medicare expenditures were unchanged.
4. In order to offset their fees, however, those two groups of programs would have had to reduce regular Medicare expenditures by an average of 13%.

⁶ Lyle Nelson, CBO. *supra*. pp. 8-9.

5. The programs in which care managers did not have substantial direct interaction with their patients' physicians and those in which care managers interacted with patients primarily by telephone had, on average, no effect on hospital admissions or regular Medicare expenditures.⁷

Five of the programs studied by CBO reduced hospital admissions by at least 10%. Here are some of these programs and their key features:

- Massachusetts General Hospital and its affiliated physician group participated in the Care Management for High-Cost Beneficiaries demonstration. This program reduced admissions by 19-24%. It stood out among all others as being the most closely coordinated with the health delivery system, and featured extensive physician input in the program's initial design and evolution and support from the hospital's senior management. *The care managers are staff members of primary care physician practices and have access to EMRs.* Patients receive the vast majority of their care within the integrated delivery system and the hospital notifies care managers when their patients are hospitalized or admitted to the ER. *Care managers interact with patients by telephone and in person during physician office visits and hospital stays, and have access to pharmacists to address potential problems with medications.*⁸ *Eligibility for the program is directed to patients whose Hierarchical Condition Categories (HCC) scores and past Medicare expenditures exceed specified amounts.*⁹
- The Health Buddy program tries to demonstrate that two multi-specialty medical groups in the Northwest, applying a consistent model of care management augmented by an integrated technology solution, can improve the lives and reduce the costs associated with high-cost Medicare beneficiaries in the fee-for-service part of the program. Care managers used the Health Buddy device—a small table-top computer placed in participants' homes and connected to a server via Ethernet, cellular modem, or a telephone land line. This device provides education and coaching to patients with chronic conditions and enables patients to transmit information on their symptoms and physiological measurements electronically to care managers. In the Wenatchee Valley Medical Center (WVMC) program in Washington State, Phase I focused on patients with diabetes, heart failure, and COPD, with coronary artery disease and hypertension as co-morbidities. In an extension of the program, asthma, chronic pain, and depression were added.
- Results were mixed: An evaluation of the Health Buddy program conducted by RTI showed that costs rose slightly slower in the intervention group in Phase 1 than in the control group, and Medicare's ROI appeared to be \$0.54 for each dollar invested. In a supplemental sample that was still part of Phase 1,¹⁰ the slowdown in costs in the intervention group was somewhat greater, resulting in an ROI of \$1.92 per dollar invested, and in Phase 2, the savings per dollar

⁷ Lyle Nelson, CBO. Supra. p. 12.

⁸ Lyle Nelson, CBO. Supra. pp. 14, 17.

⁹ HCC scores of at least 2.0 and Medicare expenditures of at least \$2,000 per month during a specified baseline period or HCC scores of at least 3.0 and baseline Medicare expenditures of at least \$1,000 a month.

¹⁰ The supplemental sample placed greater emphasis on targeting patients that were believed to benefit from the intervention.

invested fell back to \$0.48. *None of the differences between intervention and control groups, however, were statistically significant.*¹¹ The RTI evaluation also found that:

- Less than a third of the intervention group actually used the new device.
 - A lower rate of mortality was found, but only among the patients who used the device.
 - Hospital readmissions within 90 days and ER visits rose over the course of the demonstration for both the intervention and control groups.
 - Survival increased as the medical device gave care managers important information on clinical deterioration allowing for timely intervention to prevent a catastrophic event.¹²
- The CBO conclusions about the Health Buddy program were more positive. While they found no effect of the intervention in the first phase, CBO reports that in the second phase (months 27-38), the intervention was associated with a 12 percent reduction in hospital admissions, and for the supplemental sample added in year two of phase 1, the reduction in hospital admissions associated with the intervention was 26%.¹³
 - A care management program run by Mercy Medical Center in Mason City, Iowa located care managers in physicians' offices or the program's main or satellite offices. The care managers accompanied some of their patients on their physician visits, and they used both face-to-face visits and telephonic communication. This program targeted patients who had been hospitalized or treated at an ED at one of its own facilities in the year before the demonstration and had one of the following conditions: CHF, COPD, liver disease, stroke, vascular disease, and renal failure. This program reduced hospital admissions by 17%.¹⁴
 - A review of eleven care management programs participating in the Medicare Coordinated Care Demonstration found that four of them reduced hospitalizations by 8-33% among enrollees who had a high risk of near-term hospitalizations. These programs were run by Washington University of St. Louis; Mercy Medical Center (noted above); Hospice of the Valley in the Phoenix, AZ area; and Health Quality Partners in southeastern Pennsylvania. The other seven care management programs studied by Mathematica did not reduce hospitalizations or regular Medicare expenditures for the high-risk group, and one actually increased expenditures. To take one example of a successful program, Health Quality Partners care managers have substantial in-person interaction with their patients and meet them at the physicians' offices at the time of their appointments. The program was targeted to patients with CHF, CAD, COPD and at least one hospitalization in the prior year, or two hospitalizations in the prior two years and at least

¹¹ Carol Urato, Nancy McCall, et al. "Evaluation of the Extended Medicare Care Management for High Cost Beneficiaries (CMHCB) Demonstration: Health Buddy West Program, Final report." RTI International. Submitted to CMS. October 2013. p. 133.

¹² Urato et al. supra. pp. 135-139.

¹³ Lyle Nelson. CBO. Supra. p. 17.

¹⁴ Deborah Peikes et al. "The Effects of Care Coordination on Hospitalization, Quality of Care, and Health Care Expenditures Among Medicare Beneficiaries: 15 Randomized Trials." *JAMA* vol. 301, no. 6 (Feb 11, 2009):603-618.

one of 12 chronic conditions.¹⁵ This program reduced hospital admissions by 11%. The Mathematica findings also suggested that to generate net Medicare savings for the high-risk population, *care management programs must keep intervention costs to about \$125 to \$150 per member per month and continually seek ways to increase the effectiveness of the intervention.*¹⁶

- A study published in *JAMA* in February 2014 presents the results of a three-year evaluation of a patient-centered medical home program in which 32 primary care practices in southeastern Pennsylvania participated. The study found huge increases in both the use of clinical registries (from 30% in 2008 to 85% in 2011) and electronic prescribing (38% to 86%). But the results were very disappointing. A statistically significant increase in performance was found for only one of eleven performance measures: nephropathy screening for patients with diabetes (82.7% vs. 71.7%, treatment vs. control). The intervention was not associated with reductions in hospital admissions, emergency department use, or ambulatory care services over the three years. There was no net impact on spending.¹⁷ A critique of this evaluation contends that blood pressure, LDL, and blood sugar control in patients with diabetes participating in this evaluation far exceeded comparable results from conventional interventions; and that the evaluators reported on only a small percentage of the diabetes measures tracked by the medical practices participating in the program and none of the clinical data-based outcome measures. On one key matter, both the evaluators and the critics note that the program failed in its early phases to identify and focus the interventions on patients with the highest risk of hospitalizations and ED use, and this may have limited the impact of the interventions.¹⁸
- A review of over 60 evaluations of care management programs conducted by Jack Meyer and Barbara Smith reached conclusions that are consistent with the results presented above. The authors divided the studies by disease category and then dissected the types of interventions according to intensity and frequency of contact, source of intervention (e.g. provider vs. contractor), duration of intervention, degree of engagement with the patient, degree of integration with the care process, patient targeting criteria, and the length of the evaluation window. Some key findings were:
 - Care management programs aimed at CHF yielded consistently positive results. When patients were targeted based on prior hospitalization, reductions in inpatient admissions were most pronounced. Hospital readmissions rates for CHF patients were reduced by 35-45%. Techniques such as weight management, intensive telephone contact supplemented by an in-person meeting in the first few days after hospital

¹⁵ Such patients accounted for 15% of total program enrollment.

¹⁶ Randall S. Brown, Deborah Peikes, Greg Peterson, Jennifer Schore, and Carol M. Razafindrakoto. "Six Features of Medicare Coordinated Care Demonstration Programs That Cut Hospital Admissions of High-Risk Patients." *Health Affairs* June 2012. Vol. 31. No. 6:1156-1166.

¹⁷ Mark W. Friedberg, Eric C. Schneider, Meredith Rosenthal, Kevin G. Volpp, and Rachel M. Werner. "Association between participation in a multi-payer medical home intervention and changes in quality, utilization, and costs of care." *JAMA* February 26, 2014.

¹⁸ Allan Crimm and Don Liss. "Patient Centered Medical Home Evaluations: Let's Keep Them All in Context." *Health Affairs blog*. May 21, 2014.

discharge, titrating medications, and daily automated monitoring were shown to decrease the likelihood of expensive readmissions.

- Interventions aimed at the elderly with multiple chronic conditions are amenable to good care management outcomes.
- Care management aimed at women with high-risk pregnancies yielded a positive ROI. Intensive, individualized pre-natal and post-natal care should be provided to pregnant women with specified clinical presentations placing them at high risk, or who are adolescents and/or unmarried.
- Intensive home environmental assessments and amelioration are helpful for patients with asthma.
- Targeting patients according to predictors of continued high utilization is critical (e.g. recent hospitalizations, multiple chronic conditions). Patients targeted for care management should quickly receive comprehensive health risk assessments. This should be followed by developing individualized care plans for these patients, including self-monitoring, adherence to medication regimens, reporting on conditions, and learning to recognize and act on danger signals.
- In many studies that separately identified pharmaceutical costs, total health spending declined after care management while medication costs increased. Dietician-based management of diabetes can reduce prescription drug costs.
- Depression management may increase total spending initially, in part because of the substantial under-use of mental health services. If investments are made to achieve more intensive care management for people with serious mental illness (SMI), with narrowly targeted populations, potential savings can be achieved. Primary care physicians can be helpful by recognizing the symptoms of SMI and making quick and appropriate referrals.¹⁹

Addressing the social determinants of health and low socio-economic status

An effective long-term strategy for improving population health and lowering total health care spending requires addressing the “social determinants of health.”

As stated by Richard Wilkinson and Michael Marmot:

Life contains a series of critical transitions: emotional and material changes in early childhood, the move from primary to secondary education, starting work, leaving home and starting a family, changing jobs and facing possible redundancy, and eventually, retirement. Each of these changes affects health by pushing people onto a more or less advantaged path. Because people who have been disadvantaged in the past are at greatest risk in each subsequent transition, welfare policies need to provide not only safety nets but also springboards to offset earlier disadvantage. Good health involves reducing levels of educational failure, reducing insecurity and unemployment and improving housing standards. Societies

¹⁹ Jack Meyer and Barbara Markham Smith. “Chronic Disease Management: Evidence of Predictable Savings.” Health Management Associates. November 2008.

that enable all citizens to play a useful role in the social, economic, and cultural life of their societies will be healthier than those where people face insecurity, exclusion, and deprivation.²⁰

Thus, an element of good care management is to move “upstream” from the health care delivery system and make sensible investments to reduce poverty, improve early childhood education, reduce unemployment, promote a healthier environment, and strengthen the public health system. Even as the US continues to over-invest in expensive technologies that lack an evidence base and permits over-building and excess capacity inside the health care system, we frequently fail to make well-targeted investments in efforts such as family preservation initiatives, promoting healthy diets, home visits to identify asthma triggers, and removing lead-based paint.

We also know that many people, particularly those with lower incomes, lack transportation to gain access to health care, and face language barriers.

We need delivery and payment system reforms that reimburse and encourage initiatives addressing these problems even though the savings they will generate are usually not realized quickly.²¹

While the health care spending juggernaut rolls on, the forces that feed it are frequently overlooked. Some 88% of adult regular smokers started smoking by age 18. About 1,000 new children become regular, daily smokers each day while another 4,000 kids try their first cigarette each day.²² A new report by the United States Surgeon General concludes that if current trends continue, 5.6 million American youth currently less than 18 years of age will die prematurely from smoking during their adult lives.²³

According to the Centers for Disease Control, the proportion of adults 20 years of age and older with Grade 1 obesity (body mass index [BMI] of 30.0-34.9) increased from 14% to 20% from 1988 through 2007-2010. The corresponding jump over this time span for those with Grade 2 obesity (BMI of 35.0-39.9) was from 5% to 9%, and the proportion with Grade 3 or higher obesity (BMI of 40 or higher) doubled from 3% to 6%.²⁴ There is clear evidence that the sharp increase in obesity is connected to the rise in the incidence of diabetes and other chronic illnesses. High concentrations of polluted air may lead to and exacerbate children’s asthma. Homeless people cycle through ERs and are frequently admitted to hospitals, then returned to the streets with no transitional housing assistance, and little, if any, resolution of the forces in their lives such as diabetes, mental illness, and substance use conditions that lead to the ambulance calls.

²⁰ Richard Wilkinson and Michael Marmot. “Social Determinants of Health: the Solid Facts.” 2nd Edition. International Center for Health and Society.

http://www.euro.who.int/_data/assets/pdf_file/0005/98438/e81384.pdf

²¹ Jack Meyer “Investing in Public Health: A Life-Cycle Approach.” Health Management Associates. April 2014.

²² Centers for Disease Control and Prevention “Smoking and Tobacco Use”

http://www.cdc.gov/tobacco/data_statistics/fact_sheets/youth_data/tobacco_use/

²³ <http://www.surgeongeneral.gov/library/reports/50-years-of-progress/exec-summary.pdf>

²⁴ National Center for Health Statistics. *supra*. p. 5.

Promising program designs and models of clinical management

INTERACT

The INTERACT (Interventions to Reduce Acute Care Transfers) program is a quality improvement strategy focusing on the management of changes in conditions of patients who are residents in long-term care facilities. Interact provides clinical and education tools and strategies for use in everyday practice in these facilities.²⁵

The INTERACT program is one of several types of newer interventions with an evidence base showing an impact on reducing hospitalizations and spending.²⁶ Others include the Transitions in Care Clinical and long-term care facilities such as the Transitional Care Model (discussed below), and efforts led by teams such as Evercare.²⁷

INTERACT was originally developed in a CMS-supported contract to the Georgia Medical Foundation, the Medical Care Quality Improvement Organization in Georgia. A detailed analysis of the frequency, causes, and factors associated with hospitalizations of Georgia nursing home residents and an expert panel, were used to develop a toolkit that was pilot-tested in three nursing homes with high hospital admission rates.²⁸ The toolkit implementation was accepted well, and with the regular guidance of a project nurse practitioner, was associated with a 50% reduction in hospitalization rates, as well as a 36% reduction in the proportion of hospitalizations rated as avoidable through systematic record review by an expert physician panel. With the support of the Commonwealth Fund, the INTERACT toolkit was refined and reviewed by many experts and also informed by the results of focus groups. It was then tested in a collaborative quality improvement project involving 30 nursing homes in three states: Florida, New York, and Massachusetts. In the 25 nursing homes that completed the project and for which baseline and intervention rate data were available, there was a 17% reduction in the rate of all-cause hospitalizations; among the 17 homes rated as “engaged,” there was a 24% reduction in hospitalizations.²⁹

The INTERACT website includes announcements and articles, an Implementation Guide, an Implementation Checklist that can help nursing homes get started and monitor progress, and a “Contact Us” section for assistance with questions. The INTERACT tools are designed for incorporation into an HIT system.

Dr. Amy Boutwell notes that with a system such as INTERACT, nursing homes can frequently treat such conditions such as a fever, a cough, or similar conditions at their own sites rather than following the

²⁵ <http://interact2.net/index.aspx>

²⁶ Joseph G Ouslander, Alice Bonner, Laurie Herndon, and Jill Shutes. The Interventions to Reduce Acute Care Transfers (iINTERACT) quality improvement program: An overview for medical directors and primary care clinicians in long-term care. *JAMDA* 15 (2014):162-170.
<http://interact2.net/docs/publications/Overview%20of%20INTERACT%20JAMDA%202014.pdf>

²⁷ Naylor, MD, Brooten, DA, Campbell RI et al. Transitional care of older adults hospitalized with heart failure: A randomized controlled trial. *J Am Geriatr Soc* 2004; 52:675-684; Kane RI, Keckhafer G, Flood S, et al. The Effect of Evercare on hospital use. *J Am Geriatr Soc* 2003; 51

²⁸ Ouslander JG, Lamb G, Perloe M et al. Potentially avoidable hospitalizations of nursing home residents: frequency, causes, and costs. *J Am Geriatr Soc* 2010; 58:627-635.

²⁹ Ouslander, Bonner, Herndon, Shutes et al. supra. p. 163.

instinct to send all such situations right to the ER, which, she observes, almost always results in an admission, and very frequently, an avoidable one.

The tools help distinguish the real emergencies from the common fluctuations in a patient's condition that can be managed, treated, and evaluated on site. Dr. Boutwell also reports that the people inside the long-term facility with no medical training but frequent patient contact, such as those who deliver meals or clean the rooms, can report apparent changes in a patient's condition, such as if the patient seems confused, has developed a cough, etc. These staff can sometimes be the "eyes and ears" for spotting problems early and reporting them to nurses, helping to ensure that the conditions do not become more serious. In addition, when a patient is sent to an emergency room for a condition such as a urinary tract infection or an upper respiratory infection, frequently that patient could be put on a course of an antibiotic and returned to the long-term care facility for monitoring, rather than be admitted to the hospital.³⁰

Clearly, part of the answer to reducing avoidable hospitalizations is to change the way that physicians in the ED are trained, and the ways that they think and act. These physicians may frequently have a bias toward admitting the patient, rather than asking themselves if this patient could be safely returned to their homes, or have their needs met through a short-term stay of two or three days in a skilled nursing facility. This clearly involves a change in mindset and cannot occur overnight, but it will be important to achieving future breakthroughs in reducing avoidable admissions.

Project RED (Re-Engineered Discharge)

Project RED was launched by researchers at Boston University. It reduces quality and safety problems in hospitals and also reduces readmissions while leading to increased patient satisfaction. This initiative is supported by grants from AHRQ and NIH.³¹ Project RED has been adapted for use in Skilled Nursing Facilities (SNFs), and has been shown to reduce hospital readmissions in these settings.³²

The essential components of the RED model are as follows:

1. Ascertain the need for and obtain language assistance.
2. Make follow-up medical appointments and post-discharge tests and labs.
3. Plan for follow-up of results from lab tests or studies that are pending at hospital discharge.
4. Organize post-discharge outpatient services and medical equipment.
5. Identify the correct medications and a plan for the patient to obtain and take them.
6. Reconcile the discharge plan with national guidelines.
7. Teach a written discharge plan that the patient can understand.
8. Educate patients about their diagnoses.

³⁰ Personal communication with Dr. Amy Boutwell.

³¹ <http://www.bu.edu/fammed/projectred/>

³² Berkowitz RE, Fang Z, Helfand BKI et al. Project Reengineering Discharge (RED) lowers readmissions of patients discharged from a skilled nursing facility. *J Am Med Dir Assn* 2013; 14:736-740

9. Assess the degree of the patient's understanding of the discharge plan.
10. Review with the patient what to do if a problem arises.
11. Expedite the transmission of the discharge summary to clinicians accepting care of the patient.
12. Provide telephone reinforcement of the discharge plan.³³

The Bridge Model

The Bridge Program is a transitional care model that employs Master's-level social workers – called “Bridge Care Coordinators” (BCCs) – to provide support to patients from the hospital to home. The Bridge Program focuses on the social roots of many problems which lead to patients' readmissions, assessing the psychosocial elements of poor health and identifying existing community resources to ensure they are supported and can remain out of the hospital. An estimated 40-50% of hospital readmissions are linked to social problems and a lack of access to community resources.³⁴

Utilization of the Bridge Program begins in the hospital pre-discharge, when the BCC reviews the discharge instructions and completes an assessment of the patient's needs, including any health complications. This includes evaluating emotional and psychological needs, as well as identifying available supports like family, friends, and community resources. Post-discharge, the BCC will call the patient within 48 hours, and make second contact – either by phone or in person – within 30 days.³⁵

An important advantage of the Bridge program, according to Dr. Boutwell, is that social workers frequently have skill sets that are superior to nurses and other clinicians for this particular set of challenges. The social workers are more adept at taking a comprehensive, holistic look at the “whole person,” in the context of available family support. Social workers also are more aware than others of the full range of community services. This includes many social services that are not in the medical model, generally not expensive and frequently central to improving the patient's health outcomes and avoiding future ER use and hospital admissions. While home health nurses can also be important, Boutwell cautions that they frequently escalate the case to a higher level of medical care i.e. by bringing in a physician, who then sends the patient to the ER; from there, the patient is frequently admitted to the hospital. All this occurs in the “medicalized” model of care for patients whose needs in many cases could be served through an array of “low-tech” social and support services in the community.

Bridge in Practice

The Illinois Transitional Care Consortium (ITCC) was formed with several organizations in the field of aging. Bringing together medical providers and community organizations, ITCC sought to employ the best practices in transitional care in the community. ITCC staffed social workers as care coordinators at

³³ Boston Medical Center. Components of Re-engineered Discharge (RED).
<http://www.bu.edu/fammed/projectred/components.html>

³⁴ www.transitionalcare.org.

³⁵ The Aging Network and Care Transitions,
http://aoa.gov/AoARoot/AoA_Programs/HCLTC/ADRC_CareTransitions/toolkit/docs/AOA_080_Chart6_ExEvidBase dCare.pdf

area hospitals, and used research services from the University of Illinois at Chicago's School of Public Health to track outcomes.³⁶

Coleman Care Transitions Intervention (CTI)

The Coleman Care Transitions Intervention (CTI) is a 4 week transitional care program that seeks to support patients to be more active in their care.³⁷ With help from a "transitional coach," patients receive medication reinforcement, education about their health records, connection to a primary care provider and/or specialist for follow up, and information on their individual "red flags" – to know when their condition is worsening and how to respond. The model promotes patients' self-management of their conditions, but provides consistent support from the transitional coach – via a series of telephone calls and home-visits – to help navigate the various care systems and their challenges.³⁸

CTI in Practice

In Maryland, The Coordinating Center³⁹ is a community coalition that brings together several Baltimore-area hospitals and care providers to provide a comprehensive care transition program called GET WELL. The GET WELL Program focuses on patients with chronic illnesses living in the medically underserved region of West Baltimore, supporting them as they move out of hospitals and return home. Following the CTI model, a GET WELL Transition Coach meets with patients before they are discharged from the hospital. The patient and their caregivers (family, friends) are coached on how to recognize the patient's "red flags," receive detailed information on medication and health records, and are assisted in connecting with important community resources. Post-discharge, the coach will stay in contact with the patient for the next 30 days.⁴⁰

Naylor Transitional Care Model (TCM)

The Naylor Transitional Care Model (TCM) is a longer-term transitional care program that includes comprehensive discharge planning and extensive at-home follow up. TCM employs a Transitional Care Nurse (TCN) to provide a comprehensive assessment of the patient's needs and coordinate care across the spectrum of service.⁴¹ The TCN makes contact with the patient in the hospital, working with care providers and clinical staff to create a care plan, including medication and symptom management. The TCN conducts a home visit within 24 hours of discharge to evaluate the plan of care at home, and works with the patient and family to adjust its goals as needed. Weekly home visits continue for the first month post-discharge, during which time the TCN will accompany the patient to their first follow-up

³⁶ <http://asaging.org/blog/integrating-care-across-settings-illinois-transitional-care-consortium%E2%80%99s-bridge-model>

³⁷ The Aging Network and Care Transitions, http://aoa.gov/AoARoot/AoA_Programs/HCLTC/ADRC_CareTransitions/toolkit/docs/AOA_080_Chart6_ExEvidBase dCare.pdf

³⁸ Care Transitions Program, <http://www.caretransitions.org/structure.asp>

³⁹ The Coordinating Center is a partner in CMS's Community-based Care Transitions Program (CCTP), http://innovation.cms.gov/initiatives/CCTP/CCTP-Site-Summaries.html?_sm_au_=iVVkrjQJrRWFjW4P

⁴⁰ <http://www.coordinatingcenter.org/featured-programs/community-care-transitions/>

⁴¹ The Aging Network and Care Transitions, http://aoa.gov/AoARoot/AoA_Programs/HCLTC/ADRC_CareTransitions/toolkit/docs/AOA_080_Chart6_ExEvidBase dCare.pdf

appointment, assess any other unmet or unanticipated needs, and facilitate communication among all of the patient's caregivers.⁴²

TCM in Practice

Three Kaiser Permanente sites in California implemented TCM pilot programs. Advance practice nurses met daily with patients while hospitalized, and scheduled a home visit within 48 hours of discharge. The nurses' interventions sought to manage and monitor the patient's symptoms, provide health care information and training, and assist the patient with medication management. TCM provides longer opportunities for patients to develop self-management skills, increasing confidence in their ability to manage their own conditions over the long term.⁴³

Chronic Condition Special Needs Plans (C-SNPs)

C-SNPs provide coordinated care to patients with chronic conditions, tailored to the specific needs of the disease and for patients with only that condition. Care Improvement Plus is an example of a C-SNP, which focuses on Medicare beneficiaries with diabetes. In 2010 Care Improvement Plus had 79,000 Medicare Advantage enrollees in five states.⁴⁴

C-SNPs such as Care Improvement Plus focus on direct patient contact, including home visits, tailored care plans, and patient education and empowerment, to avoid hospital readmissions. The HouseCalls program, for example, sends nurse practitioners to visit the enrollees in their homes. There they can review the patient's care plans, do a comprehensive health risk assessment, identify issues for discussion with the primary care provider or make necessary referrals, and even provide preventive care at that time – such as a physical exam, blood pressure monitoring, and depression screening (among many others). HouseCalls provide a key support for patients as they make the transition from hospital to home, and help educate them on warning signs and what they need to avoid readmission.

In addition to the HouseCalls program, Care Improvement Plus provides an array of supplementary services designed to support and manage the patient's care plan. These services include a nurse care management system which includes an all-hours nurse line; the PharmAssist program which provides direct pharmacist support to patients on medication adherence; social service support, connecting patients to community resources and benefits such as Medicaid; and Transitions of Care, which uses an interdisciplinary team of clinicians and social workers to bridge the gaps in the patient's treatment across the care continuum. The Advanced Illness Program also provides in-home support from nurse care managers on end of life care.

An evaluation of Care Improvement Plus found that it lowered hospital days and readmissions while increasing primary care physician visits for diabetes patients, relative to similar patients in the standard Medicare fee-for-service model. Risk-adjusted hospital days were 19% lower for the C-SNP patients than

⁴² <http://www.transitionalcare.info/essential-elements>

⁴³ http://www.caretransitions.org/documents/CA_Two_Models.pdf

⁴⁴ Robb Cohen, Jeff Lemieux, Jeff Schoenborn, and Teresa Mulligan. Medicare Advantage Chronic Special Needs Plan Boosted Primary Care, Reduced Hospital Use Among Diabetes Patients. 2012. *Health Affairs* Vol. 31, No. 1.

their fee-for-service counterparts (27% for nonwhites). The same-quarter hospital readmission rate for diabetes patients in the five states combined was 21.1 for the C-SNP patients, compared to 26.7 for the FFS patients. Primary care physician office visits were 7% higher for C-SNP enrollees than among those in FFS (20% higher for nonwhites). The research also suggests that there are substantial cost savings from this reduced hospitalization, enough to more than offset the costs of additional primary care services. Overall, these results speak to the program's central aim: connecting patients with the primary care, education and support services they need to better manage their conditions and avoid unnecessary and costly hospital readmissions.⁴⁵

Maryland Hospital Initiatives

Johns Hopkins Medicine, Washington Adventist Hospital, Western Maryland Hospital, and Frederick Memorial Hospital have developed and implemented innovative transitional care programs. These plans tend to be newer than some of the Medicare demonstrations and other care management initiatives discussed earlier, and so do not yet have an evidence base. But they include some of the ingredients of programs that have been shown to be effective, and merit close attention.

Johns Hopkins Community Health Partnership (J-CHiP) program

Johns Hopkins Medicine (JHM) has developed J-CHiP, a community program focusing on care coordination serving 1,000 Priority Partners MCO patients and 2,000 fee-for-service Medicare patients at high-risk for emergency department use and inpatient hospital admissions. The hospital system works with its ambulatory and community care clinics within seven zip codes around Johns Hopkins Hospital (JHH) and Johns Hopkins Bayview Medical Center (JHBMC).

A key focus of the program is on care coordination in primary care settings for patients with chronic diseases and behavioral health conditions. Components include medication management, patient-family education, and post-acute transitions. JHM has also formed partnerships with skilled nursing facilities.⁴⁶

JHM received a three-year, \$19.9 million grant from the Center for Medicare and Medicaid Innovation (CMMI) to support this community program.⁴⁷

The target population is patients who are under-served and high-risk in East Baltimore. An estimated 46% of the patients had one or more inpatient admission in 2011 and 30% have six or more chronic conditions.

Predictive modeling uses statistical techniques to project the impact of co-morbidities and other factors on an individual's use of health care resources in the future, which can then be converted to a predicted dollar amount of future spending.⁴⁸

⁴⁵ Robb Cohen, Jeff Lemieux et al. *Supra*.

⁴⁶

http://www.hopkinsmedicine.org/news/media/releases/johns_hopkins_medicine_awarded_199m_innovation_grant_from_cms_for_its_j_chip_program

⁴⁷ <http://urbanhealth.jhu.edu/J-CHIP/>

Washington Adventist Hospital

Washington Adventist Hospital has formed a partnership with a local FQHC, Community Clinic, Inc., to provide on-site primary care. This partnership recognizes the importance of linking patients directly to follow-up care, in order to monitor their conditions so that hospital readmission is avoided. Connecting patients to a primary care provider, when many may not have one, is likewise vital to ensure that patients receive the long-term support needed to avoid future acute episodes.⁴⁹

Washington Adventist is also identifying patients at high risk of hospital admissions. They target patients for assistance such as those who are seniors with congestive heart failure, and may be living alone. There are three levels of intensity of care needs, and care plans reflect those differences. It is important to note that care management programs can be overly targeted to just the sickest patients. While some targeting is needed, particularly to ensure a positive “ROI,” many other patients with somewhat less complex medical needs may still benefit from care management and social services. Such patients may have limited language proficiency. They may also have active co-morbid substance use conditions. These needs should not be forgotten in the broader drive toward targeting the highest-need patients noted earlier.

Western Maryland Hospital

Western Maryland Hospital formed a partnership with PharmaCare, a community pharmacy, to provide “bedside pharmacy” services to patients while in the hospital. Services include patient education on medication adherence, comprehensive discharge planning, and easy, direct access to pharmacy services in the hospital. Direct connection to the pharmacists before discharge helps ensure that patients are fully informed before leaving, and have an established relationship on which to rely in case of future questions or concerns. Patients also leave the hospital with a full 30-day supply of their medications.⁵⁰

Frederick Memorial Hospital

Frederick Memorial Hospital offers a Coordinated Care team that assists patients with the transition from the hospital to the next phase of their care. The hospital staff remains connected with the patient after discharge, and they strive to connect the patients with an array of community resources such as home health agencies, the Department of Aging, or hospice care.⁵¹

The Coordinated Care team makes appointments for patients considered at risk after discharge. This could include appointments at primary care clinics and community mental health centers. Nurse case managers stay in touch with patients over the first thirty days after discharge. Community health workers (CHWs) may also be called upon for help.

Transitional care programs such as Maryland’s find inspiration from models like The Bridge, CTI, and TCM. While the models vary in process, they uniformly speak to the importance of providing direct support to patients during hospitalization and throughout the discharge process, linking them with

⁴⁸ <http://www.xchange-events.com/newsletter-articles/johns-hopkins-medicines-j-chip-program-for-accountable-care-breaks-boundaries/>

⁴⁹ <http://www.adventisthealthcare.com/about/news/2014/washington-adventist-hospital-welcomes-community-clinic/>

⁵⁰ <http://www.cardinal.com/us/en/essential-insights/best-practices/community-hospital-pharmacy>

⁵¹ <http://blog.fmh.org/index.php/2014/06/20/coordinated-care-offering-support-every-step-of-the-way/>

primary care and support services outside the hospital, and providing extensive information on care and medication management. What each makes clear is that best outcomes for patients with chronic care needs occur when they are educated, empowered, and supported across the care continuum.

Management of chronic disease outside the hospital

Geisinger Health System and Geisinger Health Plan: Strong Care Management for Patients with Diabetes

Geisinger uses an “all-or-none bundle approach” to assess and track performance. Under this model, only full compliance with all individual performance metrics is scored a success. Geisinger has been working on improving care management for patients with diabetes for about a decade. For treating these patients, the bundle consists of nine discrete evidence-based care elements, including HbA1c, low-density lipoprotein (LDL), and blood pressure testing and target levels; nonsmoking status; urine protein measurement; and influenza and pneumococcal vaccinations. Diabetic patients are automatically identified prior to their arrival at the clinic. A patient-specific, evidence-informed order entry set is generated (including standing orders for routine testing such as for HbA1c and LDL) that can be accepted by the physician with a single click.

Some key features of the model are:

- Automated reminders are provided to both the clinical team and the patient.
- A self-scheduling option is available for more than 100,000 patients using the Geisinger EHR.
- An after-visit summary is provided to each patient showing results compared to individualized goals
- The risk of failing to achieve the goals is explained to each patient.
- Performance reports are sent to each practice, detailing both individual physician and practice-site performance in comparison to the historical trend and peer sites; patients receive their own performance “report card.”
- Financial incentives of up to 20 percent of total cash compensation per physician are linked to patient satisfaction, quality, and value goals, including overall bundle-score improvements.
- Initial results from more than 20,000 diabetic patients were promising, including statistically significant increases in overall diabetic bundle performance, glucose control, blood pressure control, and vaccination rates. Long-term patient health status, population health metrics, and efficiency are being tracked.⁵²
- More recent findings show impressive accomplishments. In findings just published, Geisinger calculated “hazard ratios” for 4,095 patients enrolled in the Diabetes System of Care, and compared them to 4,095 similarly situated patients not enrolled. Adjusted hazard ratios for

⁵² Ronald A. Paulus, Karen Davis, and Glenn D. Steele. “Continuous Innovation in Health Care: Implications of the Geisinger Experience. *Health Affairs* September 2008:1235-45.
<http://content.healthaffairs.org/content/27/5/1235.long>

myocardial infarction (0.77), stroke (0.79), and retinopathy (0.81) were all significantly lower among patients in the care group compared to the control group. Most of the gains came in the first year.⁵³

San Francisco: Department of Health Leads City-wide Delivery System Reform

The San Francisco Department of Public Health (SFDPH) is one of the few large urban health and hospital systems in the nation in which the medical delivery system operated by local government (hospital, clinics, skilled nursing facilities), behavioral health services (inpatient, outpatient, care management, residential mental health, and addiction programs), and population/public health are all under one department. SFDPH is coordinating their service delivery programs (both medical and behavioral health) into one integrated delivery system through the creation of the SF Health Network.

San Francisco presents a good guide for Maryland in terms of setting priorities among immediate, short-term challenges, and longer-term system reform toward a population health approach, that will take a number of years to build.

A key component San Francisco's first step—the complete redesign of the delivery system—involved building a working collaborative comprised of all the major hospitals in the city and a large number of FQHCs. Some 30 clinics in all participate, many of which are affiliated with the San Francisco Community Clinic Consortium (SFCCC). One important component of the reforms was the establishment of a system for immediate, on-site referrals of people who presented in the emergency room with non-emergent situations. Each patient is directed to a community health center or other primary care site that is convenient for them, i.e. easily accessible from where they live. ED staff members set up an initial appointment at this primary care site. This might be in the evening or weekend if that synchronizes more with the patient's work schedule. A reminder call to the patient is placed the day before the appointment. The records from the ED visit are sent to the clinic, electronically in most cases.

This is an example of creating a smooth hand-off from ED to PCP, a different type of transition than the post-hospital discharge transitions presented in earlier examples.

Future efforts will be aimed at collaborations with other providers of care and with non-health elements within the City and County of San Francisco (i.e. education, economic development, housing). It was seen as critical, however, for the department to get its own "house in order" before involving the broader community. Several of the traditional public health categorical programs (maternal and child health, tuberculosis, and STD clinics) are being integrated into the delivery system network. There is interest in pairing the surveillance role of the public health unit (i.e. identifying problem areas for certain conditions) with delivery system interventions targeting these problems. The public health unit also offers the ability to better monitor overall health status impacts and provide feedback to the delivery system. Finally, the ability of the public health unit to address environmental health regulations offers

⁵³ <http://www.xghealth.com/xg-health-press-releases/geisinger-study-finds-diabetes-care-bundle-produces-better-health-outcomes>

further opportunities to collaborate, and this will be part of a longer-term agenda to tackle the “social determinants” of health.⁵⁴

Hennepin County, Minnesota

In Hennepin County, Minnesota (Minneapolis, St. Paul area), the Department of Health and Hennepin Health, a managed care organization serving poor childless adults in Medicaid, have formed a partnership with the North Point Health and Wellness Center, the County Human Services Department, and the Hennepin County Medical Center, to address forces that fall outside of the medical model and involve the socioeconomic factors that contribute to poor health.⁵⁵

The county conducted a survey of 1,200 people who are high-utilizers of care in high-cost settings such as emergency departments and inpatient hospital stays in order to ascertain the “social determinants” of their health problems. *The survey revealed that the leading causes of high health care utilization are hunger and food inadequacy, persistent unemployment, a lack of access to medications, and complete social isolation.*

The county is responding to these needs by taking a portion of the savings from its ER diversion and other successful care management initiatives that are lowering hospital admissions and readmissions, and reinvesting them in supportive services that are rarely included in the medical model, including employment, nutrition, and housing services. Using a very innovative program called “Employment Pays,” Hennepin Health has formed partnerships with local employers to provide job opportunities for poor childless adults. Many participants have not worked in years and need mentoring and skill development to learn how to navigate the world of work. Once placed in a job, the person receives ongoing support from Hennepin Health.⁵⁶

Frequently, people using the Employment Pays initiative have utilized the chemical dependency treatment program at Hennepin Health to address addiction to drugs and alcohol. In addition, transitional housing services that help people find supported housing if they are either homeless, or on the edge of becoming homeless, are available. The county has also hired community health workers and placed them in “Health Care for the Homeless” locations, the county hospital, and clinics. Hennepin County’s strategy is to go to the roots of the problems that are driving low-income adults into repeated encounters with the health care system—inadequate housing, long-term joblessness, substance use, and mental illness. Medicaid spending will also be reduced as fewer people cycle repeatedly through emergency department visits and hospital stays.⁵⁷

⁵⁴ Dawn Hamilton, Margaret Kirkegaard, Jack Meyer, et al. “The Evolving Role of Public Health: New Approaches to Health Care Delivery.” Health Management Associates. April 2014.

⁵⁵ <http://www.hennepin.us/healthcare>

⁵⁶ <http://www.hennepin.us/healthcare>

⁵⁷ <http://www.hennepin.us/healthcare>

Setting Priorities

Many promising care management strategies are available, some based on long-term investments that will improve population health. These investments are encouraging, and it is important that planning on them proceed. Maryland has a number of such initiatives underway to engage in a community-based approach to public health.

These initiatives, however important, will take years to produce savings; over the long term, they may be the most important key to better health and lower overall spending. In the meantime, Maryland needs to reduce hospital use, and this will require quicker results.

The findings from this paper lead to the following set of priorities:

1. **The Number One priority for achieving the goals of the new Maryland All-Payer Model is to reduce hospital admissions. HSCRC should encourage all Maryland hospitals to adopt the types of promising interventions presented in this report.** These interventions may draw upon the real-world models highlighted in this report, which can lead to reduced hospital admissions. It will be helpful to bring the most effective models of care management in primary care settings to wider use in Maryland. This includes patient-centered medical home programs with payment reforms that provide strong financial incentives for primary care providers to work with payers to control total health spending. But many people will remain “medically homeless” and can benefit from effective care management programs across the continuum of care.
2. **Payment systems must encourage this type of care management by financing the types of strategies recommended in this report.** Net savings will also be facilitated by placing care management fees at risk, depending on the achievement of quality and cost savings goals.
3. **The second priority is for hospitals to work with community partners to develop very strong programs to reduce hospital readmissions.** The ingredients include the identification of high-risk patients, individualized care plans, pre-discharge planning, post-discharge home visits, medication management, early symptom spotting, and careful patient monitoring using electronic reporting of patient conditions from home to nurses and physicians.
4. **A third priority is for long-term care facilities to adopt the types of models presented in this report under which they can quickly identify and effectively treat minor changes in patient conditions on-site.** This will avoid many preventable trips to the ER, which all too frequently lead to avoidable and expensive hospital admissions.

Conclusions and Policy Implications

Reducing avoidable ER use, inpatient admissions, readmissions, and hospital outpatient care will be critical to meeting tight revenue caps. A careful assessment of myriad care management interventions conducted over the past ten to twelve years shows that achieving success is actually quite difficult. Many promising care management/care coordination programs have not led to identifiable savings.

Yet, a cluster of characteristics of successful interventions emerges from a close reading of the many published evaluations. While much of the research and evaluation has focused on Medicare, the findings seem consistent across various types of patients and payers.

The first step is to identify people who are at high risk of being in poor health and generating a large amount of spending.

The literature consistently shows that care management programs that fail to identify the highest-risk patients and instead serve a broad range of people including many with “lighter” needs are unlikely to yield net savings. High-risk patients should be targeted for care management programs. This can be based on hospital admissions in the prior year, a pattern of ED use, and the presence of certain chronic diseases known to require ongoing and intensive management. At the top of this list is CHF, but it is followed closely by COPD, CAD, ESRD, and severe mental illness (psychosis, bipolar condition, and serious depression). Diabetes, hypertension, and asthma are also amenable to better outcomes and lower spending through good care management. Patients with multiple chronic diseases are at particularly high risk.

Another approach is to select a certain number of patients who are generating a very disproportionate share of total health spending, determine their needs and characteristics, and how many are in a care management system presently. For example, about 800,000 Maryland residents are in Medicare, so perhaps the top 10% of spenders in this program, or 80,000 people, could be identified.

The second step is a health risk assessment. This should be comprehensive and typically done on a face-to-face basis.

The third step is that patients identified as high-risk should be quickly given an individualized, patient-centric care plan. The patients and their families should be involved in both the preparation and execution of this plan.

Key elements of reforms

The integration of behavioral health and somatic care is essential. In the U.S., people with serious mental illness have an average life expectancy of 49 to 60 in states studied by Colton and Mandersheid.⁵⁸ This is similar to life expectancy in many sub-Saharan African nations (e.g. Sudan, 58.6 and Ethiopia, 52.9).⁵⁹

The challenge to integrate behavioral and somatic health should be thought of as a two-way set of responsibilities. First, primary care and specialist physicians should be educated to recognize the danger signals of serious mental illness and make appropriate referrals to behavioral health providers. Second, behavioral health providers, for their part, must ensure that their patients are getting proper treatment for physical health conditions that are prevalent in individuals with serious mental illness. This includes diabetes and heart disease, among other medical conditions. Antipsychotic medications are highly associated with severe Type-2 diabetes.

⁵⁸ Craig W. Colton and Ronald W. Mandersheid. Congruencies in increased mortality Rates, Years of Life Lost, and Causes of Death Among Public Mental Health Clients in Eight States. *Prev Chronic Dis*. April 2006; 3(2):A 42.

⁵⁹ United Nations, Department of Economic and Social Affairs, Population Division (2007). World Population Prospects: The 2006 Revision, Highlights. Working Paper No. ESA/WP.202.

Co-location of physical health and behavioral health providers could address both types of challenges. A successful care management strategy must break down the silos that separate our regular medical delivery system from mental health services, and the latter must be adequately funded.

The use of inter-disciplinary, multi-dimensional teams to deliver care is very important. These teams should be comprised of the patient's PCP, the various specialist physicians who see the patient (who should regularly huddle about the patient's medical situation), as well as a PA, an NP, and/or nurses, and a pharmacist. These teams should also include non-medical professionals as well, including nutritionists, social workers. As shown in the examples from Frederick Memorial Hospital and Hennepin County, community health workers can also play an important role by connecting patients to a wide range of community resources and breaking down access barriers.

Care managers should arrange for in-person visits with patients. Telephonic check-ins can effectively complement face-to-face visits, but are not a substitute and as a stand-alone strategy are unlikely to be successful. Home visits can include checking the patient's home for dangers such as asthma triggers and fall risks, as well as medication fills and refills, and whether the patient is alert to danger signals. Accompanying patients on their physician visits is also an important, valuable role for care managers. When possible, embedding care managers in the PCP practices is an even greater assurance that chronic conditions will be properly managed.

Having the care managers "onsite" in a primary care practice setting will help avert flare-ups and complications of chronic illnesses. Care managers should also spend time at the bedside with their patients when they are hospitalized.

Further, care management fees must be held down to very reasonable levels in order for the benefits in the form of reduced ER use or reduced inpatient admissions to generate savings that are larger than the program costs. This will require that much of the work be done by people who are very valuable, but frequently not physicians and sometimes not highly trained nurses. Otherwise, even properly designed programs that yield savings will find that the costs of the program exceed these savings.

Care managers should ensure that their patients' primary care physician has all of their records from service use well beyond the PCP setting. Having an electronic medical record is important. But the information must be comprehensive, shared in a secure way, and used by physicians and hospitals in real time as they see patients in their offices or at the bedside.

Medication management is critical to success. This involves both avoiding errors in writing prescriptions and ensuring patient adherence to drug regimens.

Social services should complement medical services. This could include nutrition, smoking cessation, weight control, transportation, and language services. A lack of transportation to medical appointments is a major barrier to effective care management.