

BUILDING EVIDENCE-BASED INTERVENTIONS TO AVERT DISEASE AND REDUCE HEALTH CARE SPENDING

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SUMMARY

Key Design Features of Successful Care Coordination Programs

The voluminous amount of published research examining the effectiveness of various models and forms of care coordination allows us to identify organizational features and care coordination functions that work to reduce spending and improve quality as well as those that do not. This paper outlines the key features and design of care coordination models that randomized trials and real world experience in the private sector have found to be effective. **The data are instructive concerning the elements of care coordination that work, and the extent of the potential savings. Key findings include:**

- **Transitional care models adopted throughout the Medicare program would, according to a decade of randomized trials and experience in current health plans, reduce Medicare spending by about \$150 billion over the next decade.**
- **Health and lifestyle coaching that work on medication adherence, behavior change and improving patient self-management skills could, according to a recent randomized trial, reduce Medicare spending by more than \$100 billion over the next decade.**
- **According to the Government Accountability Office, HMOs that provide care in the current Medicare Advantage market and use many of these techniques bid about 6 percent less today to provide the basic Medicare fee-for-service benefits—which translates into \$345 billion in potential Medicare savings over the next decade.²**

There is a growing body of evidence that has identified the key functions performed by health plans and successful comprehensive team-based care coordination models in managing

chronically ill patients. I will summary this literature below. In addition, MedPAC has examined the characteristics of effective (and ineffective) care coordination models as well. The key design features of care models identified in the literature, as well as by MedPAC include:³

- Coordination of care for all covered Medicare and Medicaid services utilizing a team-based approach and receive a combined payment from Medicare and Medicaid
- Approaches that provide a “whole” person focus on preventing disease and managing acute, and mental health services
- Medical advice from a care coordinator available 24/7
- Assessment of patient risk and development of an individualized care plan
- Medication management, adherence, and reconciliation
- Transitional care
- Regular contact with enrollee
- Centralized health records and information technology
- Close integration of the care coordination function and primary care (and specialist) physicians
- Evidence-based health coaching to train patient self-management skills and facilitate behavior change.

These activities provide the foundation for cost savings moving forward and improved health outcomes when coordinating care for chronically ill patients. Each of the major functions outlined above (transitional care, medication adherence, health coaching) have several published randomized trials showing they individually result in improved health outcomes at lower levels of health care spending. Collectively they serve as a powerful, team-based approach to generate substantial proven savings and improved quality of care. In short, the years of pilot studies, randomized trials and experience in the private sector have produced a rich base of evidence

highlighting the key aspects of care coordination most effective and how to integrate them into care coordination models.

The Problem

Patients with chronic disease account for 84 percent U.S. health spending and a sizeable and growing burden of largely preventable morbidity and mortality.⁴ Despite significant health care outlays, chronically ill patients receive just 56 percent of clinically recommended services, and that gap in care may explain a nontrivial portion of morbidity and mortality.⁵ Over the past decade, chronic disease management programs have proliferated in the private sector, and they are common in Medicaid and Medicare Advantage programs. Yet, they are notably absent in traditional fee-for service (FFS) Medicare (other than for homebound patients who receive home health care)—a crucial gap, given that 75 percent of Medicare beneficiaries are enrolled in traditional FFS Medicare, and they account for about 77 percent of the program’s overall health care spending.⁶ What’s more, 95 percent of spending in Medicare is linked to patients suffering from chronic illnesses and virtually all of the spending growth within Medicare since 1987 can be attributed to patients treated for five or more conditions.⁷ Over a lifetime, those who are obese (often also living with chronic illness) spend 15 percent to 40 percent more on health care than their normal weight peers with no chronic disease.⁸ These realities, however shocking, present opportunities for improvement and even cost-savings.⁹ Because chronic conditions are often managed through drug therapies and ambulatory services, care coordination interventions hold promise for improving clinical outcomes for those with chronic illnesses and avoiding costly preventable hospital admissions and readmissions.¹⁰ Furthermore, many randomized controlled trials (RCTs) of care coordination efforts have demonstrated savings potential of at least \$15 billion per year within the Medicare program.¹¹ A substantial volume of published empirical work highlights the potential for prevention and care coordination to improve quality and reduce health care spending.

- Medicare demonstration projects have proven that integrated practices achieve better outcomes and higher savings – up to 5 percent possible within the current Medicare system.¹² *Even larger savings (more than 15 percent) were found when tracking enrolled participants in Healthways, Medicare Health Support demonstration beyond two years.*¹³ In contrast, a recently published evaluation of the Medicare Health Support demonstration found no changes in utilization of care.¹⁴ These results, however, are largely an artifact of the

methods used in the evaluation. Specifically, the evaluation used an “intent to treat” approach where individuals were considered “treated” even if they did not participate in the care management program. In 2006, for instance, only 71.9 percent of beneficiaries in the treatment group participated in the treatment for all 12 months. When comparing those “treated” (and accounting for selection issues) to controls, the Healthways model reduced spending among those actually treated by 15.7 percent. The “intent to treat” methodology blended savings among those treated and no savings among those not treated.

- At the University of Pennsylvania, transitional care randomized trials have achieved a 56 percent reduction in readmissions and 65 percent fewer hospital days for their patients – an average savings \$4,845 per patient.¹⁵
- The YMCA – DPP adaptation has decreased diabetes incidence by 58 percent, achieved an average weight loss of 11 pounds per patient, and improved control of other cardiovascular disease risk factors.¹⁶ Certain community-based interventions have proven cost neutral in the short-term, and have provided 6:1 returns on the initial investment in the long-term.¹⁷ When adapted to Medicare, this could produce up to \$27 billion in lifetime savings.¹⁸
- The value of health information technology (HIT) cannot be overlooked when implementing systemic changes. HIT promises improved care coordination and administration, and if properly implemented and widely adopted, improvements in efficiency alone could generate annual savings of more than \$77 billion.¹⁹ Additional health and safety benefits could double these projected savings.
- Medication adherence among those with chronic illnesses is typically low – only 50 to 65 percent - which often leads to unnecessary and costly hospitalizations (estimated to add \$100 billion in costs, annually).²⁰ Several studies show that by increasing medication adherence through proven strategies – such as patient education, simplified dosing schedules, additional open clinic hours, and improved communication between providers and patients – significant savings can be achieved alongside improved clinical outcomes.²¹ ROI for medication adherence programs averages 7:1 for diabetes, 5:1 for hyperlipidemia, 4:1 for hypertension, and has been shown to decrease overall health care spending for CHF by 15 percent.²²

These demonstrations and trials point to potential for significant cost savings.

- Trust for America’s Health estimates that an investment of \$10 per person per year could yield medical cost savings of more than \$16 billion annually within five years.²³
- A meta-analysis of chronic disease management studies showed a 35-45 percent drop in readmissions and total hospital costs.²⁴ Coordinated care interventions for those with diabetes lowered per patient per year costs by \$685-\$950, as well as lowering all-cause hospitalizations (by 9 percent), Emergency Room utilization (by 71 percent), and total claims (by 21 percent).²⁵

- Investments in transitional care could also yield significant savings – Medicare could save an estimated \$100 billion by investing \$25 billion in community health teams over the course of 10 years.²⁶

While these innovative health interventions and system designs offer much promise for greater savings and improved patient health, they operate most effectively when implemented in an integrated way, both in the community and throughout the formal health system. Furthermore, these interventions must be guided by the growing evidence-base of research to ensure optimum outcomes and savings. With these caveats in mind, we must move forward with reform by advancing community-based prevention programs, providing enhanced coordinated care for those with chronic illnesses, and realigning financial incentives for care providers and insurers so as to achieve better clinical outcomes at reduced costs, improving health and increasing savings.

This paper presents six proposals that will reduce health care spending and improve clinical outcomes. I briefly outline these proposals, and present the published evidence—largely from RCTs—that highlight the opportunity for substantial cost saving and quality improvements. Collectively these proposals could reduce federal health care spending by some \$240 billion over the next decade.

In each case, the “definition” of care coordination includes the evidence-based functions described below which are also outlined under section 3502 of the Affordable Care Act.

PROPOSAL 1. ADOPT CARE COORDINATION NATIONALLY INTO THE MEDICARE AND MEDICAID PROGRAMS USING COMMUNITY HEALTH TEAMS OR SIMILAR TEAM-BASED CARE COORDINATION INTERVENTIONS. WE WOULD ENCOURAGE THE STATES TO ADOPT TEAM-BASED CARE AS DESCRIBED BELOW AS PART OF THEIR DEFINITION OF AN ESSENTIAL BENEFIT PACKAGE IN THE HEALTH INSURANCE EXCHANGES.

Potential Savings--\$145 billion in lower Medicare spending (net savings of \$105 billion) over the next ten years (about 3 percent of Medicare fee-for-service spending). This is on a base of more than \$6 trillion in spending over the next ten years.

Community Health Teams (CHTs) are interdisciplinary primary care teams that include salaried health professionals – nurses, nurse practitioners, social and mental health workers, health educators, and public health nurses – who work closely with primary care practices, clinics, and community health centers to execute the patient care plan; perform health coaching and education, including medication and testing adherence; provide transitional care for patients post-discharge; and refer patients to community-based, public health, and primary prevention resources such as smoking cessation and diet, exercise, and nutrition programs (*see* Figure 1). Several states have moved to implement versions of the CHT model, demonstrating it is scalable and replicable nationally. When effectively designed and implemented, CHTs work to reduce the rate of increase in targeted chronic conditions (primary prevention) and to implement evidence-based care management (secondary and tertiary prevention), both of which result in significant savings on health expenditures. A related model is guided care; a team of specially trained nurses working in provider practices to manage chronically ill patients. This model targets the most clinically complex patients and provides a similar set of services described below. A multi-site randomized trial found that this team-based approach improved clinical outcomes and reduced health care spending.²⁷

Important elements to the successful implementation of CHTs include: (1) in-person contact with patients; (2) targeting the right patients; (3) patient education on medication adherence and other self-care; (4) transition care coordination to avoid preventable readmissions; (5) close collaboration between care coordinators and physician practices; (6) the ability to link with and refer to effective community-based interventions; and (7) real-time evaluation and information on clinical markers with feedback.²⁸ These teams provide formal transitional care, health coaching, medication management and reconciliation, 24/7 care coordination contractually linked to the provider practice and community-based links to public health efforts and programs like the C-DPP and evidence-based smoking cessation programs.

Many of these elements are enumerated within the regulatory language Sec. 3502 of P.L. 111-148, providing health practitioners and policymakers with a clear vision for the goals and structural components of health teams that are necessary to achieve quality clinical outcomes. Yet, because implementation of these interventions requires an upfront investment, it is critical to review the evidence base for these particular health team components to ensure that each

initiative is designed to achieve the best value, not only in clinical measures, but through cost savings and positive rates of return on investment, as well.

In addition to the randomized trials, several large integrated provider practices and health plans have shown substantial savings by adopting several elements of the evidence-based coordination functions described below. These include:

- The Marshfield Clinic. The Clinic in a randomized Medicare trial reduced spending by \$83 million over a four year period and received bonus payments exceeding \$16 million.²⁹
- Several other private plans that adopted transitional care models and other evidence-based care coordination activities have reduced spending, including Geisinger Clinic and Aetna.³⁰

CHTs - Potential Savings Based on Published Research Findings

- **Savings potential of more than \$15 billion per year within the Medicare program.**³¹
- **Returns on investment ranging from 1.4 to 32.7.**³²
- **Several studies from Mercer examining North Carolina's community care networks show savings more than \$140 million per year.**³³ **A University of North Carolina analysis found the health teams reduced total spending for asthma and diabetes.**³⁴

A significant body of published research from randomized control trials highlights the potential cost savings associated with each of the functions performed by CHTs or other similar care coordination programs. The functions performed by team-based care coordination teams include:

Transitional care –

Two of the best known models of transitional care have been developed by Eric Coleman at the University of Colorado and Mary Naylor at the University of Pennsylvania. The team at Penn defines transitional care as providing “comprehensive in-hospital planning and home follow-up for chronically ill high-risk older adults hospitalized for common medical and surgical conditions.” The heart of the model is the Transitional Care Nurse (TCN), who follows patients from the hospital into their homes and provides services designed to streamline plans of care, interrupt patterns of frequent acute hospital and emergency department use, and prevent health status decline. While TCN is nurse-led, it is a multidisciplinary model that includes physicians,

nurses, social workers, discharge planners, pharmacists, family caregivers, and other members of the health care team in the implementation of tested protocols with a unique focus on increasing patients' and family caregivers' ability to manage their care. For the millions of Americans who suffer from multiple chronic conditions and complex therapeutic regimens, TCM emphasizes coordination and continuity of care, prevention and avoidance of complications, and close clinical treatment and management - all accomplished with the active engagement of patients and their family and informal caregivers and in collaboration with the patient's physicians. More information is available at <http://www.transitionalcare.info/>.

EVIDENCE OF IMPACT OF TRANSITIONAL CARE

A major target for team-based care is reducing preventable admissions and readmissions through coordinated transitional care model (TCM). TCM targets older adults with two or more risk factors, including a history of recent hospitalizations, multiple chronic conditions and poor self-health ratings. Among Medicare beneficiaries suffering from congestive heart failure (CHF), approximately half of the 700,000 patients discharged from non-federal short-stay hospitals will be readmitted within 6 months at an average cost of \$7,000 per readmission.³⁵

There are several published randomized trials showing that well designed transitional care reduces hospitals readmissions reduces total Medicare spending and improves health care outcomes. *Just the use of transitional care alone throughout traditional Medicare could reduce Medicare spending by \$125 billion over the next decade.*

- **A meta-analysis of 18 studies (from eight countries) showed that comprehensive discharge planning coupled with post-discharge support for those hospitalized due to congestive heart failure resulted in reduced readmissions of nearly 25 percent.³⁶**
- **More recent randomized trials from the University of Pennsylvania and Colorado have showed that nurse-led transition care programs can reduce preventable readmissions by up to 56 percent.^{37,38}**
- **Three randomized trials have tested and refined the transitional care model (TCM). The TCM has consistently improved health outcomes, reduced hospital readmissions (43 percent lower at 6 weeks post discharge and 50 percent 26 weeks post discharge), and lowered total Medicare spending.**

- **Another randomized trial of another transitional care model outlined by Eric Coleman using nurse transition coaches produced lower rates of readmission and a 20 percent reduction in hospital spending.³⁹**

MedPAC estimates that the costs of potentially preventable readmissions within 30 days were \$12 billion in 2005—*nearly \$245 billion in potentially preventable readmissions in Medicare alone over the current ten-year budget window.*⁴⁰ Even a 40 percent reduction in potentially preventable readmissions could generate up to \$100 billion in savings over this ten year period. By building transitional care programs into the community health team framework (as outlined in section 3502), preventable readmissions can be reduced, leading to substantial health system savings.

Health coaching/ Patient education –

Health coaching enables individuals to achieve the goals outlined in their personalized care plan provided by their health care providers. These goals often include lifestyle changes such as diet and nutrition, exercise, smoking cessation among others. There is a growing body of evidence that shows that application of behavior change theory can result in behavior change in practice.

EVIDENCE OF IMPACT

- **Demonstrated savings potential of approximately \$2.7 million over one year through reduced hospital readmissions.⁴¹**
- **Reduced HbA1c levels of type 1 diabetes patients.⁴²**
- **Large randomized trial of 174,120 subjects found net savings of health coaching *alone to be 3 percent of total spending* (potential of well more than \$100 billion in Medicare).⁴³**

Several randomized controlled trials have also demonstrated that health coaching and patient education programs can effectively achieve cost savings by addressing a broad spectrum of medical concerns, including diabetes, obesity, asthma, and pain among cancer patients.⁴⁴

- **Sacco, et al. tested an innovative program that trained undergraduate students to implement a coaching intervention in the form of brief, proactive, telephone delivered self-management education. While further replication is necessary to determine the level of generalizability, preliminary findings suggest that this type of intervention, which is easy and inexpensive to implement, can reduce HbA1c levels of type 1 diabetes**

patients – a measure linked to significant reductions in costly diabetes-related complications.⁴⁵

Health coaching shows particular promise for more effectively managing patients with chronic illness. While externally-run disease management programs face challenges of limited patient uptake, limited influence on patients, and difficulty coordinating services, the Dartmouth-Hitchcock Clinic is attempting to address these noted shortcomings. In their program, nurses who are trained as health coaches are embedded within a physician practice and offer customized information and support to patients managing chronic illnesses. The nurses are also provided access to patients' electronic medical records so as to foster informed counseling and education based on relevant health factors.

- **During this recent three-year demonstration, 77 percent of eligible Dartmouth-Hitchcock patients participated in the program (as compared to the 7-13 percent enrollment rate noted in prior demonstrations). Readmission rates among enrolled patients age 65 or older dropped by 2 percent (a reduction which has been sustained for more than a year). This higher level of patient uptake was seemingly due to the fact that the nurse/health coaches were integrated into the physician practice. This demonstration program achieved savings of approximately \$2.7 million over one year.⁴⁶**

Researchers have identified common elements that consistently lead to improved clinical outcomes **and** significant cost savings. The most essential elements include ensuring that health coaches are properly trained in motivational interviewing and assessment of patient readiness for behavior change as well as employing a dedicated full-time coaching staff to ensure health coaching is performed consistently. If properly designed and implemented, health coaching and patient education programs hold great promise for improving patient health outcomes and generating savings.

- **A large randomized trial conducted by Health Dialog and published in the New England Journal of Medicine utilized telephonic health coaching to work with a large population (more than 174,000) of patients. This recent randomized trial showed that total health care spending was 3.6 percent lower in the treatment group (yielding about a 3 percent net savings after accounting for the cost of the intervention). *This single component of care coordination alone reduced hospitalizations in the trial by 10 percent and total spending by more than 3 percent.***

Medication adherence, management and reconciliation –

Appropriate use of prescription drugs is a key element of effective management of chronically ill patients. Medication therapy management is provided by a pharmacist working with the patient (and care team or plan) to assure the safe and effective use of medication to achieve the targeted health care outcome. This includes issues of dosage, interactions among drugs, filling and refilling medications among other functions. Effective management of medications has been shown to reduce hospitalizations and emergency and outpatient visits.

EVIDENCE OF IMPACT

- **ROI of improving medication adherence for these costly chronic conditions was nearly 4:1 for hypertension, 5:1 for hypercholesterolemia, and an impressive 7:1 for diabetes.⁴⁷**
- **Overall health care spending among medically adherent Medicaid patients was 23 percent lower than non-adherent patients.⁴⁸**
- **10 year study at large integrated health system that installed evidence-based medication therapy management generated a system-wide ROI of 1.29.⁴⁹**
- **Specific evidence-based approach to medication management and evidence of overall savings summarized at <http://www.pcpcc.net/files/medmanagement.pdf>.**
- **A recent CVS Caremark study found that increased medication adherence resulted in a large reduction in total health care spending, ranging from \$1,860 per year for patients with hyperlipidemia to more than \$8,880 for congestive heart failure patients.⁵⁰**

Several studies demonstrate that by increasing medication adherence through proven strategies – such as patient education, simplified dosing schedules, additional open clinic hours, and improved communication between providers and patients – significant savings can be achieved alongside improved clinical outcomes.⁵¹

- **A study examining the relationship between medication adherence and four costly chronic conditions – diabetes, hypertension, hypercholesterolemia, and congestive heart failure – found that high levels of medication adherence in all four conditions resulted in significantly fewer hospitalizations. This decreased utilization of services translates to significant savings as cost offsets for these patients were observed not only for disease-related medical costs, but for all medical costs. In short, the ROI of improving**

medication adherence for these costly chronic conditions was nearly 4:1 for hypertension, 5:1 for hypercholesterolemia, and an impressive 7:1 for diabetes.⁵²

- In a similar analysis of Medicaid beneficiaries with congestive heart failure, overall health care spending among adherent patients was 23 percent lower than non-adherent patients.⁵³ Many large, integrated group practices (e.g., Geisinger, GroupHealth, and Community Care of NC) have already implemented programs to improve medication adherence among patients with much success.⁵⁴

Successful treatment of any condition largely depends upon patients' adherence to physician-prescribed medication regimens. Yet, for many reasons (e.g., costs, clarity of dosage, patient error, side-effects, *etc.*), medication adherence, particularly among those suffering from chronic conditions, is far too low – with adherence estimated between 50-65 percent.⁵⁵ While patients' health is the greatest cause for alarm arising from non-adherence, increased costs of care should also generate concern. Among medication-related hospitalizations, 33-69 percent is due to poor medication adherence, which in turn, results in approximately \$100 billion per year in increased spending.⁵⁶ While medication adherence is only one piece to the care coordination puzzle, improving medication adherence is a promising approach to achieving better value within our health care system.

PROPOSAL 2. USE TEAM-BASED CARE TO COORDINATE CARE FOR DUAL MEDICARE-MEDICAID ELIGIBLES.

Potential federal savings = \$125 billion over the next ten years

Over the next decade, the federal government will spend approximately \$3.7 trillion on health care services for dually eligible patients. Dual eligibles are the most chronically ill patients in either the Medicare or Medicaid program. On an annual basis, they incur well more than \$20,000 per year in health care spending. They require a complex range of services received from multiple providers. Financing care for dual eligibles is also complicated. The vast majority of medical services are paid for by Medicare while long term care and support services are funded through Medicaid. there is a clear need to align financial incentives to effectively integrate the care delivery process using team-based care and approaches such as PACE (Program of All-inclusive Care for the Elderly).

This proposal would fully align financial incentives by developing a three-way contract which channels federal and state payments for services to a single coordinating entity. The Federal government and states would contract with entities that can provide the set of evidence-based care coordination services as outlined in section 3502 of the Affordable Care Act. Implementing such a three-way contract would allow development of processes to better coordinate care while acknowledging the importance of both federal and state oversight, as well as the need to preserve essential beneficiary rights and benefits under Medicare Parts A, B, C and D, as well as in Medicaid. While such an approach stops short of creating a single benefit package and “seamless” integration, it would represent substantial progress toward better care coordination and would offer potential to achieve dramatic improvement in health outcomes.

Combining federal and state payments provides a range of incentives to rely more heavily on home and community based care (rather than nursing home care) and the use of team-based care will reduce hospital admissions, readmissions as well as emergency room and clinic use. Over the next decade, the federal government will spend an estimated \$3.7 trillion dollars through Medicare and Medicaid to treat dual eligible patients. Today, few dual eligibles are enrolled in coordinate care programs like PACE or a similar coordinated care program. Even in states with lots of managed care, such as California, more than 80 percent of dual eligible patients receive care through the fragmented fee-for-service system. Based on their review of the literature, the Lewin Group has estimated the use of capitated models, care coordination and enhanced incentives to rely on community-based care, would generate savings that average slightly above 4 percent.⁵⁷

PROPOSAL 3. INCLUDE TEAM-BASED CARE COORDINATION AS AN ESSENTIAL COMPONENT OF ACCOUNTABLE CARE ORGANIZATIONS and PATIENT-CENTERED MEDICAL HOMES

Accountable care organizations (ACOs) take on many different forms, yet are rooted in their commitment to measure and improve quality and contain costs as well as their willingness to be held accountable for their achievements on key quality and cost measures. While this care model is relatively new, the Medicare Physician Group Practice (PGP) Demonstration begins to offer data (year 5 of 10 completed with data available through year 3), and the Medicare Shared Savings section of the recent health law allocates funding for demonstration and voluntary pilot

projects to provide further evaluation of ACOs. The definition of ACOs provided within the law is vague, yet on a basic level, appears similar to the model provided of the Brookings-Dartmouth ACO Learning Project, which provides comprehensive guidance and resources for implementation of accountable care organizations.⁵⁸ According to the Brookings-Dartmouth Project, ACOs provide local accountability, allow for flexibility to address variations in local health systems, promote value, and provide greater transparency for consumers. The ACO model functions by aiming to improve cost and quality of care, as measured against an established spending benchmark (based on expected spending). If the ACO can be successful in slowing spending growth and improving quality of care, it is then eligible to receive shared savings from the organization's payers.⁵⁹

ACOs - Potential Savings Based on Published Research Findings

- **The Brookings-Dartmouth Project team references the interim results of the Medicare PGP Demonstration to provide ongoing data and evidence of savings generated, to date, by the group practices involved. In year one, all demos improved clinical management of diabetes and two of the ten group practices met benchmarks on all ten diabetes measures.⁶⁰**
- **By year three, all ten of the participating practice groups continuously improved the quality of care for chronically ill patients: quality scores for diabetes improved by an average of 10 percent, congestive heart failure by 11percent, coronary artery disease by 6 percent, cancer screening by 10percent, and hypertension by 1 percent.**
- **Furthermore, five of the ten practice groups earned \$25.3 million in performance payments for improvements across quality and cost efficiency of care measures and a total of \$32.3 million in Medicare savings.⁶¹**

PCMHs - Potential Savings Based on Published Research Findings

- **After two years, the Geisinger clinic is trending toward a 9 percent decrease in costs and a projected \$3.7 million in net savings, in part due to the 15 percent reduction in preventable hospitalizations.⁶²**
- **GroupHealth has achieved an impressive 29 percent reduction in emergency room visits, and Intermountain Health Care reports savings of \$640 per patient/per year.⁶³**
- **Likewise, North Carolina has reported more than \$400 million in savings within the Medicaid PCMH pilot program, and among children covered under Colorado Medicaid and SCHIP, the median annual costs for those receiving treatment in a PCMH were \$215 lower than the median annual costs for children in a control group (\$785 vs. \$1,000).⁶⁴**

At least 75 percent of total health care spending, and well over 90 percent of total spending in Medicare, is associated with chronically ill patients. The traditional Medicare program neither pays for nor provides care coordination services for non-homebound patients (*i.e.*, the 9 percent of homebound patients eligible for the home health care benefit). A key to slowing the growth in health care spending requires a focus on care delivery chronically ill patients. ACOs are a promising framework for addressing the rising costs of chronic disease, as the ACO models allows for flexibility to link with other delivery reforms initiatives promising improved quality of care and clinical outcomes, such as the team-based care coordination approach known as the patient-centered medical home (PCMH).

The PCMH can be understood as “a clinical setting that serves as a central resource for a patient’s ongoing medical care.”⁶⁵ With an emphasis on primary care, PCMHs integrate care coordination, community-based prevention, and payment structure reforms to provide a more comprehensive, effective, and cost-containing approach to patient care. Large integrated primary care systems such as Geisinger, GroupHealth, Intermountain, North Carolina and Colorado Medicaid have been at the forefront of care coordination innovation and implementation and are providing compelling data highlighting the potential for clinical improvements and cost savings.

PROPOSAL 4. BUILD VALUE-BASED BENEFIT DESIGN INTO MEDICARE and the HEALTH INSURANCE EXCHANGES

The basic premise of value-based benefit design (VBD) is to remove financial barriers to essential, high-value health services. The concept is based on three principles:

- Value equals the clinical benefit achieved for the money spent.
- Health care services differ in the health benefits they produce.
- The value of health care services depends on the individual who receives them

Value-based benefit design is particularly important for chronically ill patients. By definition these are patients with an established long-term medical problem. A key goal is to keep these patients as healthy as possible by increasing compliance with clinical care guidelines (for example for the medical management of diabetes, hypertension and hyperlipidemia). Financial barriers in the form of cost sharing reduce compliance with these clinical guidelines resulting in

poorer health outcomes and in many cases higher health care spending. Value-based benefit design results in lower or no cost sharing associated with medical care shown to improve health outcomes of chronically ill patients. Some versions of value-based design may also increase cost sharing for services found ineffective.

As value-based benefit design is a relatively new concept in practice, the published empirical evidence of the impact of VBD is more limited than the other functions performed as part of team-based care coordination.

One approach for expanding the use of value-based benefit design is to build it into the Medicare program. This would include eliminating any cost sharing associated with medical management recommended and published by the medical profession in treating patients with diabetes, hypertension, hyperlipidemia, asthma, pulmonary disease, arthritis, depression and other conditions where published recommendations exist.⁶⁶ This would include medication and medical management as appropriate. We would encourage the states to explore the use of value-based benefit design as part of their definition of an essential benefit package.

Potential Savings Based on Published Research Findings

- **In WellPoint's Maine Diabetes Initiative, 40,000 employees who received waived or reduced copayments for diabetes medication each saved an adjusted average of \$1,300 in health care costs over one year, compared with individuals in a randomly matched control group.⁶⁷**
- **UnitedHealthcare's Diabetes Health Plan, which incentivizes diabetics and pre-diabetics to manage their diabetes following evidence-based guidelines, has the potential to save as much as \$25,000/pre-diabetic individual/year, on average, if it prevents the later development of full-blown diabetes with complications.⁶⁸**

The cost-savings potential of value-based benefit designs is not immediately evident, as the increased utilization of high-value services often initially drives costs. The City of Springfield, Oregon's EMPOWER study, for example, found that Type 1 and Type 2 diabetes patients who received waived copayments and coinsurance for diabetes-related treatments spent, on average,

\$450 more on health care than individuals in the control group.⁶⁹ Likewise, Chernew, et al. projected that, in order for the intervention company in their study to break-even from a broader employer and employee cost-perspective, non-drug spending must decrease by 17 percent to offset the higher cost of increased health care utilization.⁷⁰ The net financial benefit of value-based benefit designs can be improved, however, by accounting for factors which were overlooked in the above studies.

Value-based benefit programs work best when they:(1) target patients populations that are at-risk for experiencing adverse medical outcomes and greatly underuse high-value services; (2) determine what services are of highest and lowest value for these patients, based on their clinical diagnoses and other factors that influence treatment effectiveness; (3) increase cost-sharing for low-value treatments in addition to decreasing cost-sharing for high-value services; and (4) ensure that patient behavior is responsive to the cost-sharing changes implemented.⁷¹

Such patient targeting could potentially decrease the non-drug spending reduction necessary for insurance programs to break-even to nine percent or lower.⁷² Also, the non-medical benefits of improved health should be taken into consideration as offsetting the higher cost of increased health care utilization.

Published Research Findings

- **Individuals in the EMPOWER intervention group took fewer days off of work, compared to those in the control group.**⁷³
- **Even such a small decrease in worker absenteeism can have large cost-saving implications, as a productivity-loss modeling study in Battle Creek, Michigan found that decreasing worker absenteeism and presenteeism by a total of just 10 percent would generate almost \$250,000 in productivity gains.**⁷⁴
- **Since health-related productivity costs are 2.3 times greater than pure medical costs, the financial benefits of improving long-term health outcomes through value-based benefit designs are much more significant than simply containing medical expenditures alone.**⁷⁵

Unlike consumer-driven health plans and other increased patient cost-sharing models, which have been suggested to decrease patient utilization of both low-value and high-value services,

value-based benefit designs aim to simultaneously contain costs while increasing the health ROI. This is particularly true for chronically ill patients. Every year, several medical associations (American Diabetes Association and Heart Association, among others) publish clinical consensus guidelines for effective medical management of chronic diseases, such as diabetes and hypertension, which may include eye and extremity exams, monitoring blood glucose and pressure levels, etc. For such clinically recommended and indicated services, the goal is to increase compliance, not reduce it through introducing cost sharing. By making evidence-based treatments and services financially accessible, these programs make it possible for patients to receive effective treatments that will both improve their health and save money by preventing avoidable health care utilization.⁷⁶

PROPOSAL 5. Integrating a National Approach for Childhood Obesity for all Children including Medicaid and the Children’s Health Insurance Program (CHIP).

Potential Federal Savings = \$3 billion over the next 10 years.

Preventing and reducing obesity among children from low-income families are top national public health priorities and challenges in the US, and may be among the most effective ways of stemming future health care spending related to chronic disease. Today approximately 16 percent of children are considered obese according to the CDC. The national costs of childhood obesity are estimated to be \$3 billion for Medicaid (federal and state) and another \$11 billion for those children with private insurance.⁷⁷ Over the next decade the federal government will spend an additional \$30 billion on health care to treat obese children. To date, only one non-surgical approach has been able to demonstrate behavior modification and weight reduction or maintenance that is sustained beyond the intervention among children. A United States Prevention Services Task Force (USPSTF) report shows that comprehensive, medium to high-intensity¹ programs that include a combination of healthy eating counseling, a physical activity program and instructional support for behavioral management techniques to make and sustain changes in diet and physical activity can be effective in helping children (ages six years-old and

¹ The USPSTF defines low-intensity programs as those including 10-25 contact hours during a six to twelve month period; medium intensity program include 26-75 contact hours and high-intensity programs include more than 75 contact hours during a six to twelve month period.

above) to improve their eating practices, increase their physical activity levels and reduce their body mass index (BMI).⁷⁸

This proposal for a nationally-scalable model to deliver a childhood obesity prevention program to Medicaid and Children's Health Insurance Program (CHIP) recipients that may help reduce future health care spending related to chronic disease. This process has included identifying an evidence-based and cost-effective program that can treat the scale of obesity, as well as brainstorming a sustainable model of delivery that can reach medically underserved young people.

A review of the childhood obesity prevention literature shows that many efforts to prevent or reduce childhood obesity in school-, primary care- or community-based settings have not been intense enough to catalyze behavior modification and weight reduction or maintenance that is sustained beyond the intervention. However, an optimistic report from United States Prevention Services Task Force (USPSTF) shows that comprehensive, medium to high-intensity programs (25 hours or more over 6-12 months) that include a combination of healthy eating counseling, a physical activity program and instructional support for behavioral management techniques can be effective in helping children (ages six years-old and above) to improve their nutritional health, increase their physical activity levels and lose weight.

The objective of the proposal is to describe a scalable and sustainable model for delivering a particularly promising high-intensity, multi-component childhood obesity prevention and reduction program called the Mind, Exercise, Nutrition, Do It! (MEND) program. MEND is an evidence-based, community and family-centered program designed by an interdisciplinary team of researchers in the UK that targets medically underserved communities. The MEND program is based on a 10-week curriculum that includes two 2-hour after-school sessions per week, and includes an innovative, long-term weight maintenance strategy. Children and at least one parent or caregiver participate in a curriculum that includes nutrition education, physical activity and behavior modification. The program is delivered by non-specialist staff members that are trained to act as health coaches and motivators. This staffing model reduces

costs and allows community members familiar with local dynamics and pressures to participate in the delivery of the program.

Evidence of the positive impact of participating in the MEND program has been documented at individual, family and community levels. Data from a randomized controlled trial in the UK and emerging results from pilot studies in the US show that in addition to BMI reductions, participants who complete the MEND program show an average reduction in waist circumference of one inch at three months from baseline. They also show a mean reduction of 6.2 hours/per week of sedentary activity; a mean increase of 3.4 hours/per week of physical activity and improved cardiovascular fitness demonstrated in a standardized step test. Parents and caregivers describe increased feelings of control as a result of learning how to effectively set boundaries for their child. Families report increased social-well being from spending more time together, eating together on a regular basis or for the first time and exercising together. At the community level, more individuals are trained in delivering obesity prevention, and more schools are equipped to deliver programs.

The MEND program has been shown to be a cost-effective use of health care resources. The incremental cost-effectiveness ratio (ICER) of the program places MEND considerably below the National Institute of Clinical Excellence (NICE) threshold for cost-effectiveness. In the UK, public and private investments have allowed the MEND program to be delivered to more than 16,000 children during the past three years. The projected cost per child enrollee per program is \$720, which compares favorably with other obesity prevention and reduction strategies including obesity residential camps, regular dietitian visits and most pharmacological and surgical interventions. This amount is also considerably less than the cost of treating of obesity among child recipients of Medicaid, which is estimated to be \$6,730 annually.

Several challenges hinder the delivery of high-intensity, multi-component obesity prevention programs to medically underserved communities at the population level. The first of these challenges is the absence of a repayment system for childhood obesity prevention. Although language in Early, Periodic, Screening, Diagnosis and Treatment (EPSDT) manuals suggests that children should have access to comprehensive obesity services, at present, public

and private health insurance programs do not cover treatment for obesity unless a metabolic or physiological abnormality such as type II diabetes, hypertension, hyperlipidemia or orthopedic problems is present. The proposal outlines policy changes in Medicaid and CHIP that will be critical to developing an infrastructure for population-level childhood obesity prevention.

The second challenge is developing a model of delivery that will treat the scale of obesity. Health care providers do not have the staff, time or physical resources to provide high-intensity programs within their clinics at the population level. Therefore, collaborative efforts at the local level are required to utilize existing community infrastructures to deliver programs. This proposal describes a delivery model that aims to use schools as sites for obesity surveillance and screening, and views schools as resources within communities that may be utilized both for the referral of students into after-school programs and as well as sites that have the physical resources to host them.

Two, five and ten-year objectives for delivering the program are outlined in the proposal. The first two years of implementation will test the feasibility of delivering the MEND program through schools with School-Based Health Centers (SBHC). SBHC provide health care to young people in medically-underserved communities, and health care providers within them are in an ideal position to refer young people into childhood obesity prevention programs who may benefit from participating.

During the first two years of implementation, the MEND program will be made available in six SBHC's in Baltimore City, Maryland. To date, I have identified four SBHC's in east Baltimore that would be interested in collaborating in the delivery of the MEND program through their schools.

If the evaluation of the results from the first two years shows a positive impact, the program will be expanded on a wider scale. Between the third and fifth year of implementation, the objective will be to make the MEND program available in all 61 schools with School-Based Health Centers in Maryland. During this time period, the feasibility of delivering the MEND program in schools with traditional school health programs will also be tested. Within 10-years,

the objective is to make MEND available nationally as an after-school childhood obesity prevention and reduction program.

The importance of developing an infrastructure for delivering high-intensity, multi-component community and family-centered obesity prevention programs cannot be overestimated. Preventing and reducing obesity in childhood are among the most effective steps toward reducing the social and physical health consequences as well as the financial costs of long-term obesity and its co-morbidities. Investment in programs like MEND will help young people improve their nutrition, physical health, self-esteem and quality of life as well as reduce their risk for developing obesity's costly co-morbidities.

PROPOSAL 6. SCALE THE COMMUNITY-BASED VERSION OF THE DIABETES PREVENTION PROGRAM NATIONALLY.

Potential Federal Savings = \$7 billion over ten years and \$27 billion in lifetime savings

This proposal would build on the foundation of the YMCA's community-based diabetes prevention program, already in place. As of 2011 the YMCA's program was being delivered by 50 YMCAs at more than 116 sites in 24 states.⁷⁹ This proposal would take the effort to national scale. As of 2011, there were 2,686 YMCAs nationwide, with nearly 60 million Americans living within 3 miles of a facility. Other community-based sponsors -- such as state or local health departments, or other nonprofit organizations -- would also be eligible sponsors.

Randomized trials have shown that the diabetes prevention program resulted in a sustained mean weight loss of 7 percent that persisted after 2.8 years of follow-up. A 10 year follow up shows that the cumulative incidence of diabetes was 34 percent lower in the lifestyle group compare to placebo.⁸⁰ At the same time, it reduced the prevalence of diabetes by 58 percent among participants in general and by 71 percent among participants over age 60. In other words, among every 100 overweight or obese adults who completed the intensive lifestyle intervention 19 out of an expected 33 failed to develop Type 2 diabetes. For those 19 individuals, the social and financial costs of a new diabetes diagnosis --for such necessities as additional tests, diabetes education, glucose meters, test strips, and more intensive management of other cardiovascular

risk factors – were avoided. Moreover, for every 100 adults, 8 avoided the need for blood pressure and cholesterol medications.⁸¹ The YMCAs are providing the diabetes program at about \$300 per year, generating overall reductions in health care costs within 2 years.

Other recent randomized trials examining the impact of structured intensive lifestyle interventions have corroborated the DPP results. Recently published results from the AHEAD trial that enrolled adults aged 45 to 76 found that their intensive lifestyle and education program (modeled after the DPP) generated a mean weight loss of 8.6 percent.⁸² Among overweight adults (BMI \geq 25) the lifestyle interventions generated significant improvements in triglycerides, blood pressure and HbA1c levels. As a result, there was a significantly significant reduction in the percent of participants using insulin, lipid-lowering and hypertension medications.

Based on the experience from their current test sites, the YMCA of the USA, together with the Centers for Disease Control and Prevention, has estimated that building the capacity (i.e. protocol training, costs for data collection and reporting, and outreach) to deliver the community-based diabetes prevention program nationally would cost about \$80 million.⁸³ The proposal is that this national scaling be funded out of the \$1 billion authorized in the Prevention and Public Health Trust Fund in federal fiscal year 2012. This estimate assumes that delivery capacity could reach 15 million at-risk adults.⁸³ Scaling the diabetes prevention program nationally through the Prevention and Public Health Trust Fund would be allowable under the provisions of the Affordable Care Act; however, there are currently no plans to exercise this option.

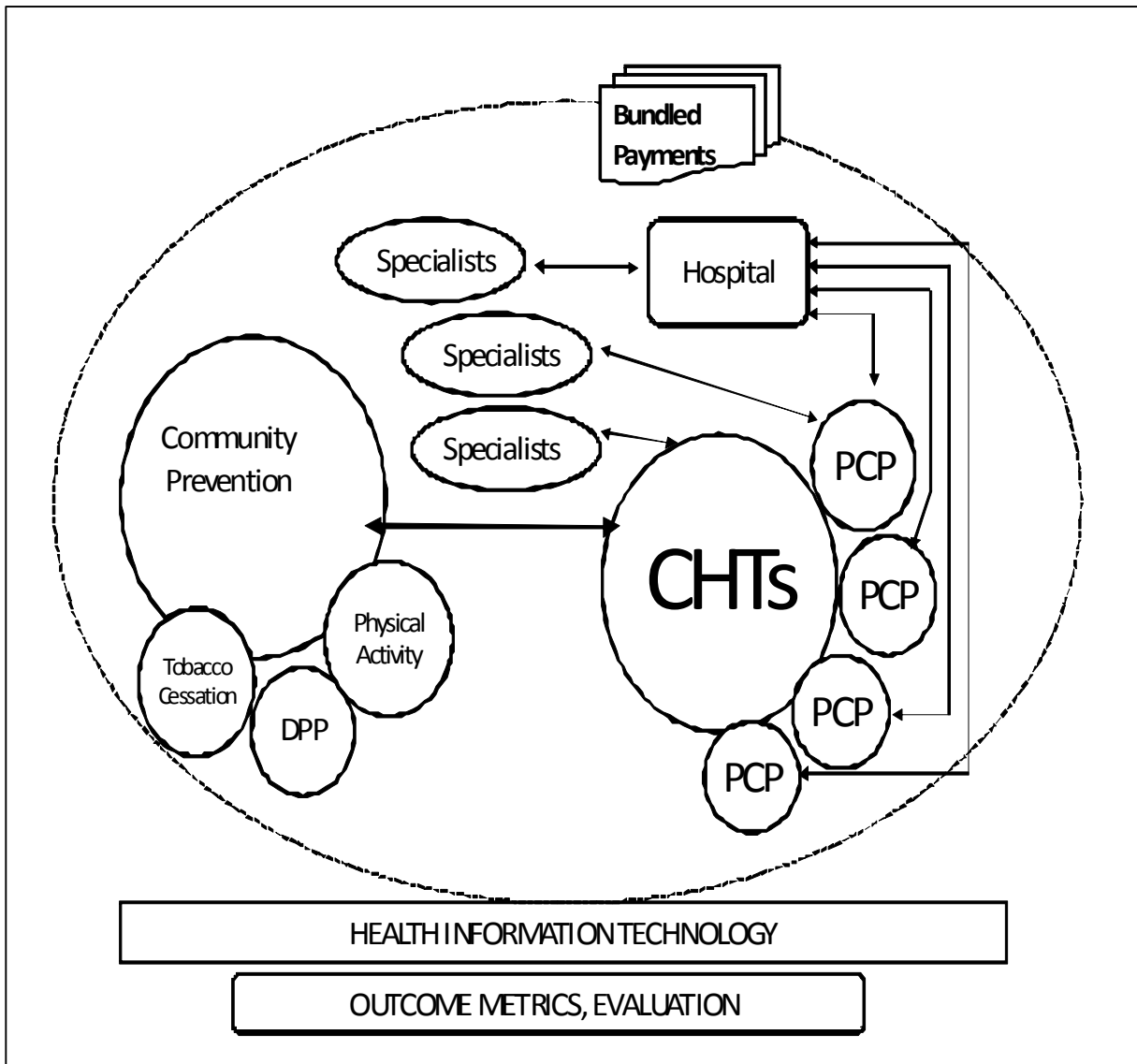
Summary

Collectively, these four proposals have the potential for saving nearly \$240 billion over the next decade in Medicare spending alone. This is likely a conservative estimate as it accounts for only 4 percent of total fee-for-service Medicare spending during this ten year period. ***Several of the components of team-based care coordination-such as transitional care, health coaching, and medication management have saved 3 to 4 percent of health care savings by themselves according to several published randomized trials.*** Building evidence-based prevention and care coordination programs nationally into the Medicare and Medicaid programs over the next 3 to 5

years have enormous potential for savings. If adopted in the health insurance exchanges, and more broadly by the private sector, these proposals have enormous potential for slowing the growth in health insurance premiums. The proposals address many of the key drivers of rising health care spending in our entitlement programs—rising rates of largely preventable chronic diseases and poorly managed care provided to patients with one or more chronic health care condition.

FIGURE 1:

Building a Community Health Team



NOTES

¹ Opinions expressed in paper are solely those of the author and do not necessarily reflect those of Emory University or others. I thank sanofi-aventis and the Peter G. Peterson Foundation for providing research funding.

² See, <http://www.gao.gov/new.items/d11247r.pdf>. Across all MA plans, bids are 2 percent lower than fee for service and 6 percent for HMOs for a “standard” Medicare enrollee, page 16.

³ Available at http://www.medpac.gov/chapters/Jun11_Ch05.pdf

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