



August 19, 2011

Dear Drs. Gilfillan and Parekh,

Thank you again for inviting us to participate in the Population Health Models Group Listening Session on August 3, 2011. As a follow-up to that session, please find below key principles and recommendations for the types of models that you should consider testing for maximum impact on population health and health care costs.

Key Principles

The following are key principles based on decades of public health practice and research that can be used to guide and shape CMMI population health test cases:

- **Focus on prevention:** Keeping people from getting sick or injured in the first place will reduce the onset and severity of illnesses and injuries, reduce demand for healthcare services, and, by reducing the burden on the system, improve the quality of services for those who do need services and therefore save money in the short and long term.ⁱ
- **Primary and secondary prevention go hand-in-hand:** In many instances, the community-level interventions that prevent disease in the first place also support improved outcomes for individuals who are currently managing illness – having a direct impact on current health care costs while also reducing future health care costs. For example, improved air quality reduces the incidence of cardiovascular disease and also reduces hospitalization rates for those who have asthma.
- **Identify solutions that address multiple health issues:** For example, increased physical activity and improved nutrition prevent obesity, diabetes, heart disease, and some forms of cancer; maximizing both population health impacts and health care cost reductions.
- **Focus on changing behaviors and environments:** Health care is a small determinant of health, accounting for only 10% of health outcomes, while behavior and environment, which are interrelated and amenable to prevention, are seven times more influential on health outcomes.^{ii,iii,iv} Effective primary and secondary prevention efforts involve policy, environmental, and/or systems change, in other words change to the environments in which people live to reduce barriers to healthy behaviors.^{v,vi} For example, smoking prevalence, the leading preventable cause of death in the US, was halved between 1965 and 2009, from 42% to 21%, largely through a combination of restrictions on cigarette advertising; counter-advertising; legislation restricting smoking in public places; and increased taxation.^{vii}
- **Community prevention works and is cost-effective in the short term:** Trust for America's Health/Prevention Institute/Urban Institute research^{viii} shows that investing \$10 per person per year in community initiatives pays for itself in less than 2 years and shows a 5-to-1 return in 5

years. Investment of \$10 per person per year could save the country more than \$16 billion in annual health care costs within five years, including \$5 billion for Medicare, \$1.9 billion for Medicaid, and \$9 billion for private payers. The Guide to Community Preventive Services includes over 200 examples of evidence-based community preventive practices shown to improve health.

- ***Complement existing efforts:*** Many funders and entities are already involved in population health activities. CMS's niche should ideally be engaging providers in community prevention activities and facilitating integration of clinical and population health activities.
- ***Focus on the major drivers of health care cost:*** Chronic diseases, such as diabetes and cardiovascular disease, are estimated to account for 75% of national health expenditures.^{ix}
- ***Reach the greatest number of people at once:*** CMMI should generally define population to be at a level greater than a neighborhood but discrete enough to achieve impact on policy, environmental and systems changes.
- ***Focus on high-need populations:*** The greatest potential impact, both in terms of health and cost savings, can be realized by focusing on underserved and vulnerable populations. It is estimated that eliminating health disparities for minorities would have reduced direct medical care expenditures by \$229.4 billion for the years 2003-2006.^x The National Plan to End Racial and Ethnic Disparities offers important guidance in achieving this goal.
- ***Support partnerships and multisectoral work:*** Numerous sectors and elements of society play key roles in shaping the health status of communities. Governmental public health agencies can play a key role as conveners to bring to the table health stakeholders from different sectors (e.g., employers, health care providers, educators, transportation, housing, faith-based organizations, etc.) in order to assess community needs and develop plans to address those needs.

Recommendations

Building on the above principles, below are the model elements we would recommend the PHMG test. These are based on examples of integration of clinical and community prevention from around the country that have been associated with improved health outcomes (see specific examples in the attachment):

1. Incentivize or reimburse health care providers, in coordination with public health partners, to identify community barriers to healthy behaviors among their patients and engage in community prevention activities to address those barriers. Specifically:
 - Support health care providers to share health data with public health departments to assist with surveillance and evaluation activities and to ensure that new data available through increased health IT capacity are also used to support population health activities.
 - Support health care providers to develop new capacities and staff roles within health care institutions that facilitate identification of community barriers to healthy behaviors.
 - Support health care providers to play a key role as partners, and in some cases leaders, in multisectoral prevention partnerships and bring diagnostic and analytic skills and credibility as health experts.

2. Incentivize or support community health needs assessment activities and coordination of multi-sectoral community prevention activities, to ensure activities are appropriate for the given community, targeted to highest cost drivers, and coordinated for maximum impact. Specifically:
 - Support public health departments or other health organizations to collect and analyze health and health care data to determine community health needs (including highest health care cost drivers such as chronic diseases and Medicare/Medicaid dual eligibles) and monitor progress towards population health improvement and health care cost decreases.
 - Support public health departments or other health organizations analyzing and communicating community-level health data and trends, and broadly disseminating health trends information to policymakers and the public.
 - Support public health departments or other organizations coordinating a multisectoral prevention partnerships (including community organizations and coalitions) that addresses community health needs through coordinated clinical and community prevention activities. For example, allow Medicaid administrative costs for “macro integrator” staff position(s) within public health departments dedicated to coordinating access to both personal and community services and clinical care.
3. Support health care providers, public health departments, non-profits and community coalitions in implementing community prevention activities that demonstrate the potential for short-term and long-term cost savings to CMS or other payers. Examples of such community prevention activities include:
 - Housing improvements for asthma;
 - Stronger smoke-free regulations for asthma and heart disease; and
 - Improved healthy food options and physical activity opportunities for diabetes and obesity.
4. Fund training on population health, community and environmental determinants, and effective prevention practice as part of health professionals’ training. We recognize this is a more long-term strategy, however, for the integration of clinical and community prevention to be sustainable it is necessary for clinicians and other public health professionals and community members to be trained in population health and prevention. For example:
 - Work with medical schools, residency and internship programs, and similarly with other aligned health professions, as well as with medical certification and accreditation programs to orient the next generation of health leaders and enhance their understanding, commitment, and population-oriented skills.
 - Support a pilot “community prevention leadership academy” or “public health leadership academy” training series.

Funding mechanisms could involve:

- a. Directly reimbursing for the above activities.
- b. Tying provider payments, and/or incentivizing through bonuses, to community-level health outcomes (i.e., an entire geographic area, not just patient population; for example, community rates of obesity and diabetes in addition to hemoglobin A1C levels), which would incentivize providers to engage in a broader range of prevention activities.
- c. Cost sharing at an administrative rate. Administrative costs related to the Medicaid population are already a reimbursable expense familiar to Medicaid. This would involve defining these costs as acceptable for the purpose of a CMMI RFP. Proposal writers could flesh out which costs

would be reimbursable in the test cases and the savings likely to be generated by those costs. These could be reimbursable at a 90/10 (federal/state or federal/local) FFP or at full-cost reimbursement, as is allowed for community health centers' clinical services delivered to the Medicaid population.

Attached are short descriptions of a sample of initiatives and projects that illustrate the above recommendations.

CMMI has an incredibly important opportunity to support and promulgate pioneering models and practices for effective linkages between the health care delivery system, which has the vast majority of health resources, and the public health system, which has the tools, expertise, and mandate to improve health and safety outcomes at a population level. By bringing these two systems together, CMMI could achieve substantial results in terms of population health improvements and health care cost savings. We look forward to continuing to serve as a resource as you further explore this exciting opportunity.

Thank you,



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ⁱ Trust for America's Health. *Prevention for a Healthier America: Investments in Disease Preventions Yield Significant Savings, Stronger Communities*. Washington, DC: 2009.

ⁱⁱ Adler NE, Newman K. Socioeconomic disparities in health: pathways and policies. *Health Affairs* 2002;21(2), 60 -76

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- ⁱⁱⁱ P. Lee and D. Paxman. Reinventing Public Health. *Annual Review of Public Health*. 1997: 1- 35
- ^{iv} Milstein, Bobby et al. Why Behavioral and Environmental Interventions Are Needed To Improve Health At A Lower Cost *Health Affairs* 2011 30(5): 823 – 832.
- ^vFrieden TR. A framework for public health action: the health impact pyramid. *Am J Public Health*. 2010;100(4):590-5.
- ^{vi} *Ibid.* 4.
- ^{vii} CDC. Achievements in Public Health, 1990-1999: Tobacco Use – United States, 1900-1999. *MMWR*. 1999;48(43):986-993. CDC. Ten Great Public Health Achievements – United States, 2001-2010. *MMWR*. 60(19);619-623
- ^{viii} Op. cit. Trust for America’s Health.
- ^{ix} Kimbuende E,, Ranji U., Lundy J., and Salganicoff A. Background Brief: U.S. Health Care Costs, Kaiser Family Foundation, 2010. <http://www.kaiseredu.org/Issue-Modules/US-Health-Care-Costs/Background-Brief.aspx>
- ^xLaVeist TA, Gaskin DJ, Richard P. The Economic Burden of Health Inequalities in the United States. Joint Center for Political and Economic Studies. 2009. http://www.jointcenter.org/hpi/sites/all/files/Burden_Of_Health_FINAL_0.pdf

Attachment: Examples of successful integration of clinical and population health activities

- 1. Community Health Teams**
- 2. Community-Centered Health Homes**
- 3. Vermont Blueprint for Health**
- 4. Boston's Asthma Program**
- 5. Multnomah County Healthy Homes Program**
- 6. Region IV and VI Infant Mortality Prevention**

1. Community Health Teams

Community Health Teams (CHT) offer an important model to improve population health as they link patients in the clinical setting with essential community resources and primary and secondary prevention interventions. CHT are defined here as a multidisciplinary team for all patients in a primary care office serving as a link between care in the clinical setting to community resources. Yet, to be fully effective in improving population health an essential member of the CHT is a public health specialist. The ideal model would fund a public health nurse who has both clinical training and public health skills and a population health view. Two states implementing CHT are Vermont and North Carolina. In Vermont, Community Health Teams are a component of the VT Blueprint for Health with the goal to provide all Vermonters with the need for well coordinate preventive health services and coordinate linkages to available social and economic support services.¹ In North Carolina, the model is referred to as the Community Care of North Carolina (CCNC) and provides coordinate care to Medicaid recipients and dual eligible CCNC reports significant health care savings, “In partnership with hospitals, health departments, and departments of social services, these community networks have improved quality and reduced cost since their inception a decade ago. The program is now saving the State of North Carolina at least \$160 million annually.”²

The Patient Protection and Affordable Care Act (ACA) specifically outlines requirements for “health teams” for example, “collaborate with local primary care providers and existing State and community based resources to coordinate disease prevention, chronic disease management, transitioning between health care providers and settings and case management for patients, including children, with priority given to those amenable to prevention and with chronic diseases or conditions identified by the Secretary.”³

2. Community-Centered Health Homes

Community clinics and other health care institutions across the country are initiating efforts to integrate their traditional role of providing high-quality clinical services with a focus on community environments that shape the health of patient populations. The skills needed to engage in community change efforts are closely aligned with the problem solving skills providers employ to address individual health needs. It is a matter of applying these skills to communities. In order to make this transition successfully, health care institutions need to:

¹ Vermont Blueprint for Health Annual Report to the Legislature, January 2011.

² Beat D. Steiner et al., Community Care of North Carolina: Improving Care Through Community Health Networks, *Annals of Family Medicine*, Vol. 6, No. 4; July/August 2008. www.annfammed.org

³ Patient Protection and Affordable Care Act: Title III Section 3502: Establishing Community Health Teams To Support The Patient-Centered Medical Home.

- Develop meaningful partnership between health care providers and patients, public health agencies, communities, and other sectors in order to address issues such as walkable neighborhoods, removing toxins from the environment, creating healthy food options, etc.;
- Develop new capacities and staff roles within health care institutions and systems (e.g., health liaisons, Health Information Technology systems that track non-clinical health determinants, ability to identify community health issues in the context of clinical encounters, GIS mapping, etc.); and
- Provide training for clinicians on population health, community and environmental determinants, and effective prevention practice.⁴

A couple of examples of clinics engaged in groundbreaking work include:

St John's Well Child and Family Center, Los Angeles, CA

When clinicians at St. John's Well Child and Family Center in Los Angeles noted a significant number of patients with conditions ranging from cockroaches in their ears to chronic lead poisoning, skin diseases, and insect and rodent bites, they inferred that many of the cases might be related to substandard housing conditions. The clinic began collecting not only standard health condition data (e.g., allergies, bites, severe rashes, gastrointestinal symptoms) but also housing condition information (e.g., presence of cockroaches, rats or mice). Based on this data, the clinic helped form a collaborative that fought for, and successfully, secured local administrative policies and agreements that have improved landlord compliance with standard housing requirements. Evaluation results show that residents' living conditions and health outcomes have improved as a result of these efforts.

Beaufort-Jasper-Hampton Comprehensive Health Services, Inc., South Carolina

Beginning in the 1970s, the clinic noted at least 5-7 pediatric cases of soil-transmitted helminthes (ascaris, hookworm, and whip worm) each week. Clinic staff knew that the best way to treat and prevent helminthes was to first improve home sanitation. So the clinic sought grants and, in partnership with local community organizations, led the installation of septic systems and portable bathrooms in people's homes. The clinic, which now partners with the United Way, has constructed up to 200 septic units each year. Today, the clinic does not see any cases of soil transmitted helminthes disease in its patients. The clinic's role in the community has expanded beyond alleviating unsafe water conditions to include rodent and parasite reduction, removal of lead and other toxins, and addressing other environmental conditions.

3. Vermont Blueprint for Health

The State of Vermont, under the leadership of its Governor, Legislature and the bi-partisan Health Care Reform Commission, has established a visionary program called the Blueprint for Health. The Blueprint is guiding a comprehensive and statewide process of transformation designed to reduce the health and economic impact of the most common chronic conditions and focus on their prevention. Blueprint-guided transformation is helping primary care providers operate their practices as patient-centered medical homes, offering well-coordinated care supported by local multidisciplinary teams, expanded use of health information technology, assisting the development of a statewide health information exchange network, and financial reform that sustains these processes and aligns fiscal incentives with healthcare goals. This high level of care incorporates

⁴ Prevention Institute, Community-Centered Health Homes: Bridging the gap between health services and community prevention, 2011.

strategies to enhance self management and is closely integrated with community-wide prevention efforts. It is based on a model that is designed to be financially sustainable, scalable, and replicable.⁵

During the last 3 years, 6 Blueprint communities have implemented improved diabetes care and prevention through: provider training and incentives, expanded use of information technology, evidence based process improvement through Clinical Microsystems training, self management workshops (statewide), and support for community activation and prevention programs (statewide).⁶

The Blueprint was initially launched by the Vermont Department of Health (VDH) in collaboration with Medicaid, private payers, Medical Society and Hospital Association. VDH was the lead convener and provided staff to lead in planning, communication and implementation of early interventions such as the Stanford Self Management Model. This is an excellent example of the significant health system redesign possible when public health leadership partnered with key stakeholders has the fiscal, governmental and legislative support.

Initially limited funds from the Public Health and Health Services Block Grant and state funds were used for convening stakeholders, staff to lead in planning, communication and implementation of early interventions such as the Stanford Self Management Model. Currently the annual state budget supports the healthcare transformation process, along with expanded use of health information technology and development of a statewide health information exchange network. Importantly insurers, both private and non-profit support the direct care delivery components of the Blueprint. For other states, counties or cities to replicate the Blueprint Model core capacity building funding to support the health transformation process will be essential.

On average, trends in hospital based care have improved for all Medicaid beneficiaries in Vermont since July 2008. Reductions in the rate of change of emergency department visits and in patient utilization are not as high on a statewide basis as they are in the first two pilot communities during the same period of time. For example in one hospital service area VT it is noted, “St. Johnsbury clearly demonstrated substantial improvement year over year across most lines of service measured, reducing its overall per member per month (PMPM) costs from \$414 per member in 2008 down to \$366 per member in 2009.”⁷

4. Boston’s Asthma Program

The City of Boston has demonstrated the impact of an integrated model on the health of children with asthma. Asthma is the most common chronic health condition among children but is also common among adults, particularly elderly adults. Studies show that asthma mortality is disproportionately high among African Americans and in urban areas that are characterized by high levels of poverty and minority populations. Massachusetts has among the highest asthma rates in the United States for both children and adults. The Boston Public Health Commission used the data to shape an integrated system between public health (Boston Public Health Commission, Boston’s Urban Asthma Coalition, Boston Inspectional Services Department Housing Division) and health care providers (Boston community health centers, Boston Medical Center, Children’s Hospital Boston) in the *Breathe Easy at Home* program.

⁵ Vermont Blueprint for Health Annual Report to Legislature, January 2009.

⁶ *Ibid.*

⁷ *Ibid.*

Breathe Easy at Home fundamentally redefines the question of asthma management, both the administering of medications and reduction of triggers in the home, through an integrated health care/public health system. The integrated system is characterized by an explicitly stated common goal, inter-dependence and information sharing.⁸ The program provides providers with data on clustering of higher rates of asthma (a data input to the health care provider system). It also links the health care provider to the public health system by providing a link for the health care provider in the patient's electronic medical record to initiate inspection referrals to Boston Inspectional Services Department for an inspection and initiation of addressing environmental factors that exacerbate asthma. To date, there have been over three hundred referrals to *Breathe Easy at Home*, each of which represents a link between a need recognized by a health care provider and the public health system.

5. Multnomah County's Healthy Homes Program

Multnomah County Environmental Health's *Healthy Homes Program* brings public health nurses and community health workers into communities for the purpose of improving management of symptoms and reducing complications related to asthma among low-income children using a multidisciplinary home visiting team comprised of a community health nurse and outreach workers focused on identifying and overcoming asthma triggers. The program's documented impacts include:

1. *Decreasing emergency room visits for children* enrolled in the project. Multnomah County Healthy Homes' participants were 2 ½ times less likely than a control cohort of Medicaid enrolled children not receiving the intervention to have an emergency department visit associated with asthma. The program saved \$130,925 in emergency department and hospitalization costs in a twelve month period.
2. *Reducing children's exposure to asthma triggers (tobacco smoke, dust, chemical irritants, mold and insect/rodent triggers)* by 60 percent by providing parents and caregivers sufficient knowledge of common substances in their home that can trigger asthma attacks. Assessments conducted pre and post intervention.
3. *Improving asthma control.* Seventy percent of Healthy Homes' children had improved asthma control that was sustained six months after the last home visit using a clinical asthma control test. (ACT score)
4. *Improving Housing Enforcement Protocols* by developing and adopting health protective policies. Housing code enforcement and codes in all areas of Multnomah County, including unincorporated areas and City of Gresham which previously lacked these mechanisms for tenant protections. These policies are based on the International Property Maintenance Code.

During the fall of 2009, project staff began aggressively pursuing funding options for the Healthy Homes program, through a coordinated effort including Managed Care Plans, Medical Directors, Commissioners, Legislators and representatives, project staff developed, submitted and received approval from CMS for a State Plan Amendment for Healthy Homes Targeted Case Management (TCM) which began billing in July 2010. This work included:

⁸ Skyttner, Lars. *General Systems Theory: Problems, Perspective, Practice*. World Scientific Publishing Company; 2006.

1. Successful implementation of Healthy Homes Targeted Case Management reimbursement for nursing and environmental health intervention for children with asthma in Oregon.
2. Coordinated submission of the State Health Plan Amendment to the State Department of Medical Assistance Programs for signature and review by the Federal Center for Medicaid Service
3. Coordinated submission of the Administrative Rules to State DMAP.

6. Addressing Infant Mortality from Local and State to Regional

From 2000 through 2006, infant mortality rates in the 13 southern states in HHS Regions IV and VI were higher than the U.S. average.⁹ Kentucky has developed a comprehensive initiative to address one of the key drivers of poor infant outcomes and costs, with a specific focus on “preventable” preterm births. This statewide initiative has been lead by state health official Dr William Hacker and Maternal Child Health Director, Dr Ruth Ann Sheppard in partnership with local providers and hospitals and statewide groups including the Medical Society, Hospital Association and March of Dimes. In the first two years of this initiative KY reports a significant decrease in preventable preterm births with the impact of saving hospital costs and potential life threatening or lifelong disabilities for infants born before 39 weeks. The Kentucky Department of Health strategy includes Four Key Components: 1) Convening key partners; 2) supporting implementation of evidence based practice in the clinical and community setting; 3) support for patients; 4) raising public and community awareness.

All State Health Officials from the states in DHHS Regions IV and VI are committed to reducing infant mortality and are in the process of identifying steps which they can implement together to replicate best practices from other communities and states such as KY. However, if success is to be realized it will be through collaboration and the support of national, federal, local partners and private and non-profit entities. This priority attention on infant mortality can demonstrate now public health leadership with support for convening, planning, assessment and implementation can be quickly replicated from a local and state initiative to a region wide approach to improve population health.

Reductions in infant mortality and preterm births could yield substantial cost savings. The IOM found in a 2006 report that in 2005, the annual societal economic cost (medical, educational, and lost productivity) associated with preterm birth in the US was at least \$26.2 billion, or \$51,600 per infant born preterm. According to a Thompson Reuters study conducted in 2008 for the March of Dimes, the combined infant and maternity medical costs for a premature infant averaged \$64,713, nearly four times as high as those for an uncomplicated full-term infant (\$15,047), and health plans paid over 90% of these costs (\$60,417) per premature infant. And cost savings are likely to benefit CMS. The majority of states in both regions have over 50% of births covered by Medicaid.

⁹ Georgia Division of Public Health. A Review of Infant Mortality Data — Region IV (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee) and Region VI (Arkansas, Louisiana, New Mexico, Oklahoma, Texas), 2000–2006. Prepared for the State Health Officials Meeting, September 9 and 10, 2010, Atlanta, Georgia.