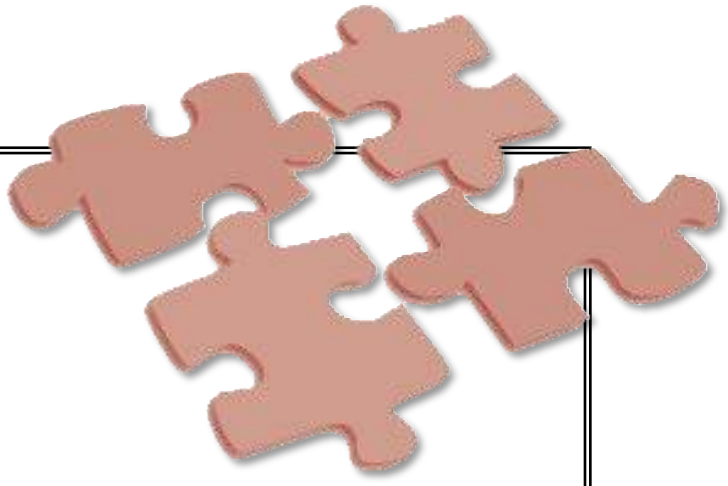

A Community-Integrated Learning Health System for Maryland

Maryland's State Healthcare Innovation Plan

MARYLAND
Department of Health and Mental Hygiene

A Community-Integrated Learning Health System for Maryland

Maryland's State Healthcare Innovation Plan

Submitted To:

The Center for Medicare and Medicaid Innovation
Centers for Medicare & Medicaid Services
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in partial fulfillment of the State Innovation Model Design award

March 31, 2014

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Executive Summary

On January 10, 2014, the Center for Medicare and Medicaid Innovation (CMMI) announced its approval of Maryland's historic and groundbreaking proposal to modernize Maryland's all-payer hospital payment system. The model shifts away from traditional fee-for-service (FFS) payment towards global budgets and ties growth in per capita hospital spending to growth in the state's overall economy. In addition to hitting aggressive quality targets, this model must save at least $330 million in Medicare spending over the next five years.

> **"[Maryland's Modernized Hospital Payment Model] is without any question the boldest proposal in the United States in the last half century to grab the problem of cost growth by the horns."**
>
> *Uwe Reinhardt, Princeton University*

The first of its kind in the nation, this new payment model also has significant implications for the entire health care delivery system, and the stakes could not be higher, either for Maryland or for the nation. By moving away from volume-based payment, this model financially rewards rather than penalizes hospitals when they prevent avoidable hospitalizations and readmissions. However, hospitals have limited control over the level of illness in the population and the need for admission. To succeed, Maryland must develop and implement a comprehensive approach to primary care and community health. This essential step is embodied in this proposal.

As hospital care contributes to approximately 40% of the total cost of care in Maryland, the realignment of hospital financial incentives is a necessary first step towards active hospital participation in the development of a prevention-oriented health care system capable of bending the health care cost curve through improved population health. While necessary, however, the modernized hospital payment model alone is not sufficient. The hospital payment model sets very ambitious financial and quality improvement goals: to be successful, hospitals will need additional tools and effective partnerships with local community assets that will be critical not only for meeting – but also exceeding – those goals.

> **"[Maryland's Modernized Hospital Payment Model] has … measurable financial goals that I think are very difficult to meet. It doesn't necessarily give the hospitals enough tools … to make all this work out."**
>
> *Joseph Antos, American Enterprise Institute*

A health care system's ability to bend the cost curve through improved population health is greatly amplified when it is well integrated with--and leverages--the resources available in the broader community where patients live, work, and play. The more that patients can be effectively, more proactively, and comprehensively served in "upstream" and lower-cost settings of care -- like a primary care clinic or the patients' home, school, or workplace -- the more accessible and cost-effective the care is likely to be. Moreover, effective community-clinical partnerships with non-clinical community-based assets like schools, transportation authorities, public health departments, and social services providers can improve the ability to intervene on social and environmental determinants of

health and reduce unnecessary health care utilization.

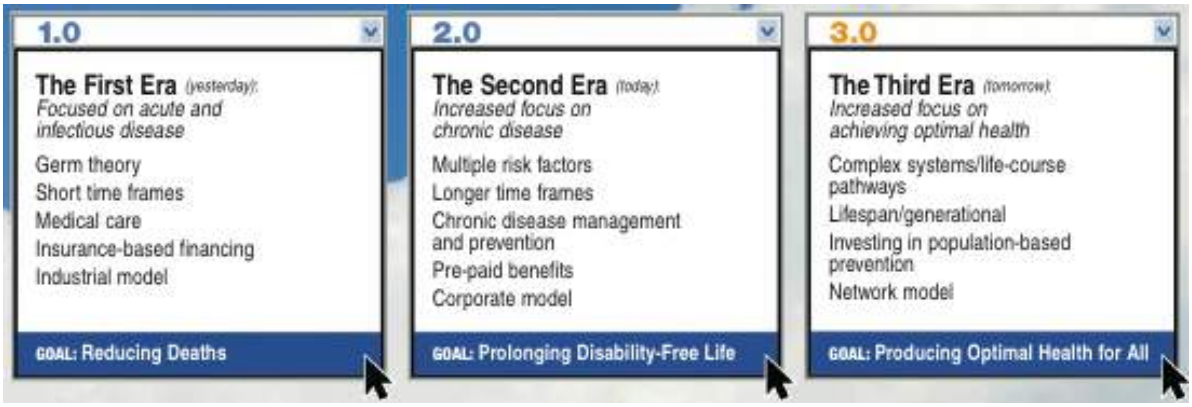
This integration of health care with the broader community point is particularly important because there are several risk factors such as socio-economic status and environment that account for an estimated 90% of the determinants of poor health and premature death and are difficult to address efficiently and effectively within the traditional confines of the health care system.[1] Indeed, micro-simulation models have shown that only those health reform strategies that combine public health approaches with medicine are successful in improving population health and bending the health care cost curve.[2] This is especially true for our most vulnerable patients with complex health needs who often account for a disproportionate share of our health care spending.

Through the SIM initiative, Maryland is facilitating the transformation of our health care delivery system into one which promotes health as well as it responds to illness.

Moving Towards 3.0: A Patient-Centered Medical Home for All Marylanders. A Neighborhood for Every Home.

Through the State Innovation Model (SIM) initiative, Maryland is facilitating the transformation of our health care delivery system into one which promotes health as well as it responds to illness: an evolution that several prominent public health leaders have referred to as the "third revolution in health"(figure 1-1) and which corresponds to what CMMI refers to as a "community-integrated health

Figure 1-1. The Evolving Health Care System[3]

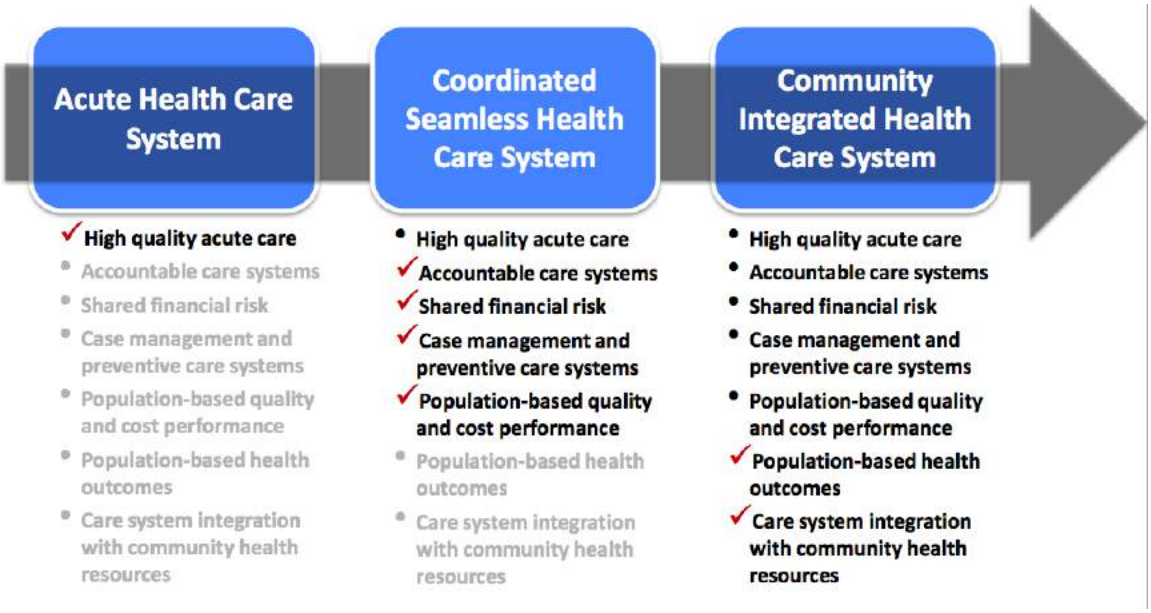


"Each era's system has had its own logic. The first was about saving lives through acute, emergency and rescue care, and public health safety. The 2.0 system is about prolonging life and decreasing levels of disability through chronic disease management and secondary prevention. And the concept for 3.0 is to move toward optimizing the health and well-being of the population. It's not that one usurps the next – we still need to fight infectious and chronic diseases. But we upgrade the system's capacity so that we can do more." – *Neal Halfon, UCLA Center for Healthier Children, Families & Communities*

[1] Steven A. Schroeder, *New England Journal of Medicine*, Sept 20, 2007
[2] Milstein, et al. "Why Behavioral and Environmental Interventions are Needed to Improve Health at Lower Cost". *Health Affairs* 2011
[3] *http://ph.ucla.edu/sites/default/files/downloads/magazine/fsph.nov2012.health3.0.pdf*

care system" that enables the health care system to keep pace with the changing burden of disease (figure 1-2).

Figure 1-2. A Reformed Delivery System Will Support and Reward Those Who Delivery Improved Health of Populations



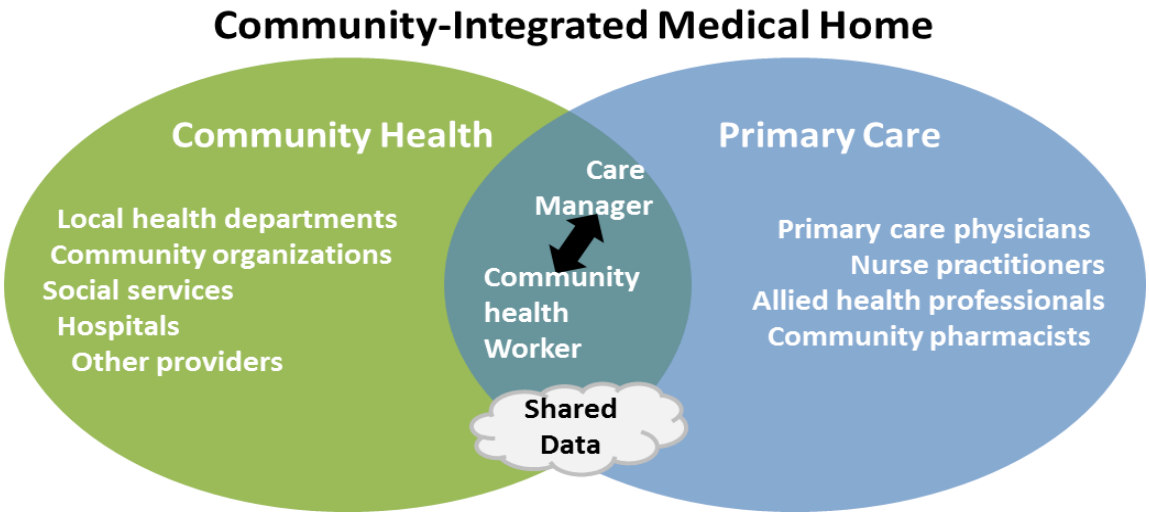
http://innovation.cms.gov/resources/State-Innovation-Models-Initiative-Overview-for-State-Officials.html

At the center of our model design is the "Community-Integrated Medical Home" (CIMH) that, in turn, will be nested within a more robust organizational and evaluation infrastructure necessary to effectively and sustainably implement the model.

The CIMH integrates patient-centered primary care and innovative community health initiatives to improve individual and population health (figure 1-3). In the CIMH model, community health teams will provide complementary public health and community-based wraparound services and supports to participating primary care providers and their most vulnerable patients, thus providing a "neighborhood" that is supportive of each medical home. In turn, the CIMH will itself be nested within a more robust organizational and data infrastructure necessary to effectively and sustainably implement the CIMH model.

The CIMH is not a new "intervention," per se. Rather, it is best conceived of as a flexible model of care or a framework that will enable Maryland to coordinate, refine, and expand services, supports, and delivery reform efforts – many of which already exist in Maryland -- so that they can build upon each other and create the synergies required to realize their full potential impact.

Figure 1-3. Maryland's Community-Integrated Medical Home Model



In the treatment of childhood asthma, for example, an approach that combines medical (e.g. medication reconciliation) and non-medical interventions (e.g. improving indoor air quality in the home by eliminating allergens, pests, and mold) is likely to be more effective than a clinical or community intervention in isolation (figure 1-4). Within the CIMH framework, Maryland's Patient-Centered Medical

Figure 1-4. Example: Clinical-Community Integrated Intervention for Asthma

Community-Based Interventions	Clinical Interventions

• Assessment and maintenance of indoor air quality (in home/school)
• Patient/family education and follow-up in the home
  ◦ Inhaler technique
  ◦ Appropriate use of medication (long-term vs. quick relief)
  ◦ Use of peak-flow meter
  ◦ When to go to ER vs PCP
	• Medication provision and reconciliation
	• Develop asthma action plan
	• Care coordination between primary care and secondary/tertiary care

Homes (PCMHs), Medicare Accountable Care Organizations (ACOs), Chronic Health Homes, and Federally Qualified Health Centers (FQHCs) will be expanded and strengthened to provide the clinical interventions in figure 1-4. Maryland's school-based health centers (SBHCs) will also be supported in developing their capacity to provide advanced primary care services and function as a medical home for their students, and potentially their broader community where primary care shortages persist. Similarly, several community-based organizations and local health departments currently provide the community-

based interventions described in figure 1-4. The CIMH provides a framework to engage and coordinate these efforts in a deliberate and systematic way.

Asthma is by no means the only condition amenable to a CIMH approach. Another example could be low-income chronically-Ill patients who forgo necessary medications because they cannot afford the copays. Many of these patients are eligible for income assistance through the Supplemental Nutrition Assistance Program (SNAP) or Temporary Assistance for Needy Families (TANF) but have not applied for the benefits. Social services navigators and outreach workers throughout Maryland – working alongside public health nurses -- could be leveraged to provide the community-based interventions in figure 1-5, complementing the clinical interventions provided by PCMHs, ACOs, Health Homes, and FQHCs.

Figure 1-5. Example: Clinical-Community Integrated Intervention for Medication Adherence Among Low-Income Chronically Ill

Community-Based Interventions	Clinical Interventions
● Assessment of eligibility for social services ● Outreach and assistance with application process ● Ongoing monitoring to ensure that benefits do not "term" and lead to disruptions in benefit receipt ● Ongoing medication reconciliation and adherence monitoring in the home setting	● Medication provision and reconciliation ● Care coordination between primary care and secondary/tertiary care

In fact, any patient population or health condition that would benefit from expanded community-based clinical care coordination in-between primary care visits or from services and supports that are typically beyond the scope and reach of the traditional health care system (e.g. social services, housing, transportation) is a candidate for a CIMH approach.

We will use a variety of mechanisms to identify patients who might benefit from this type of community-integrated approach, including "hot spotting" tools made possible by Maryland's robust data infrastructure as well as physician and hospital referrals. In turn, each individual patient interaction will be logged so that we can learn from our outreach and intervention efforts, identify more quickly any patterns that emerge, and formulate more effective solutions. For example, mapping the locations where individual home environmental remediation efforts were necessary might reveal "clusters" of activity. If a cluster appeared within whole housing units or near suspected environmental hazards, this data would suggest that an integrated systems approach – perhaps with DHMH working together with Maryland housing or environmental authorities -- could more efficiently address the root cause of the health problems and thus assure the conditions necessary for good health. Likewise, we will develop mechanisms that will allow us to leverage the insights and experiences of front-line staff in helping to identify systemic barriers that can be more effectively addressed at the state-level.

In this way, individual interactions can become additional data points for public health surveillance and effective collective action in our community-integrated learning health system, thus facilitating the

ability to weave effortlessly between individual-level and population-level approaches to most effectively address the needs of our residents.

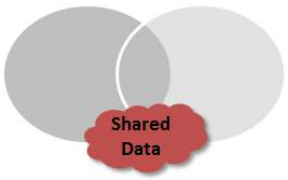
The Four Pillars of the Community-Integrated Medical Home Model

The CIMH stands on four pillars: Primary Care, Community Health, Workforce Development, and Strategic Use of Data. The goals of each pillar are described in Figure 1-6.

Figure 1-6. CIMH Four Pillars and Goals

Pillar	Goal	Importance of Pillar and Goal
Pillar #1: Primary Care 	Increase to 80% the number of Maryland residents who have a certified primary care provider that they can call their medical home. Increase the number of patients with primary care follow-up appointments before hospital discharge.	Primary care has been widely recognized as the bedrock of an effective and efficient health care system for its ability to promote access to care, coordinate care, and to faciliate early management of health problems.[4]
Pillar #2: Community Health 	Coordinate hospital services/public health/social services/ behavioral health services at the state and local levels in order to provide the comprehensive community-based wraparound services and supports that are necessary to address the full range of non-medical determinants of patient health	PCMHs may be sufficient for the healthy and chronically ill and under control. However, advanced primary care is necessary but not sufficient for super-utilizers and the chronically ill at risk of becoming super-utilizers because their hospital utilization is unlikely to be a function of clinical need alone.
Pillar #3: Workforce Development 	Develop the workforce required to bridge communities with care	The CIMH will reach out to the people who struggle to benefit from healthcare available to them with CHWs acting as critical connectors between the hospital system, the public health infrastructure and primary care teams. With their roots in community development, and embedded in the community and culture in which the patient lives, CHWs have the potential to link across the clinical and non-clinical needs of the individual patient and promoting the use of primary care for preventing and managing disease in the community rather than in more expensive hospital-based settings.

[4] Starfield B, Shi L, Macinki J (2005). Contribution of Primary Care to Health Systems and Health. *The Milbank Quarterly*. 83(3): 457–502

Pillar	Goal	Importance of Pillar and Goal
Pillar #4: Strategic Use of Data 	Development of a robust data infrastructure that will support more effective outreach, care coordination, performance monitoring, and comparative effectiveness analysis at the system level	The ability to share data is necessary to overcome the fragmentation that currently characterizes much of our health care system through. To be effective, community health teams, hospital teams and primary care teams require both the support of a robust data infrastructure to monitor community and population health and the capability of advanced data analytics and mapping capabilities to identify hot spots and clusters of high-utilizer patients and translate "big data" and advanced analytics into improved human health.

Creating the Infrastructure Necessary to Sustainably Adopt and Scale-Up Demonstrated Successes in Existing Maryland Innovations

Maryland is fortunate to be actively engaged in health reform and to have so many innovative delivery and payment reform models being implemented and tested. Maryland has also made significant investments in its data infrastructure. Figure 1-7 provides an overview of just a few of these models and data systems currently in place in Maryland. In addition to implementing the CIMH model, we will

Figure 1-7. Maryland's Robust Data, Delivery Reform and Payment Reform Landscape

Delivery and Payment Reform Models	Data Infrastructure
• **PCMH** – single-carrier programs as well as multi-payer program • **Medicare ACOs** – fifteen Medicare ACOs approved in Maryland • **All-Payer Hospital Payment Model** – shifts hospital payment away from fee-for-service models to global budgets and quality improvement targets • **Health Enterprise Zones** -- aims to address persistent health disparities in five targeted areas across the state • **State Health Improvement Process** (SHIP) – Local Health Improvement Coalitions spanning the state and supported with data on core measures of population health at the state and county levels	• **CRISP –** Maryland's statewide health information exchange: live ADT feeds from all Maryland hospitals; most lab data (including Quest/LabCorp); imaging data; "master patient index" capability • **Hospital Encounter and Payment Data –** utilization, demographics, diagnostic information, hospital charges (in Maryland, charges ≅ cost) • **EHR adoption:** 50% of primary care providers have adopted EHRs, including 100% of FQHCs. • **All payer claims database (APCD) –** currently commercial claims (and Medicare data, under a state DUA arrangement) • **Virtual Data Unit—**Maryland's version of the Health Data Initiative – public health surveillance data, vital statistics, etc.

leverage Maryland's robust and ever-growing data infrastructure to create a Learning System that will enable us to more effectively and systematically learn from this experimentation and more quickly scale the models that demonstrate effectiveness.

The CIMH model represents the first of what will be several ongoing and systematic attempts by Maryland's Department of Health and Mental Hygiene (DHMH) to facilitate "sense-making," or organizing system improvement efforts at a state level in a way that provides greater clarity of shared purpose, shared evaluation, and capabilities for scaling care delivery innovations.

Through the deployment of the CIMH model, we will be able to develop the mechanisms to more systematically catalogue all of these efforts, identify gaps and unmet needs, coordinate efforts so that we can realize synergies and additive impacts across them, leverage shared resources, reduce duplication of effort, and then rigorously and rapidly evaluate and identify the interventions that are working and bring them to scale.

Serving as a "public health integrator"—to bring multiple programs and entities together in order to more efficiently manage and improve population health—is a critical function that Maryland's DHMH is uniquely positioned to fill. As a state-level entity, DHMH has the ability to plan and implement at a larger scope than individual organizations, to work across sectors and partner with other state-level agencies, and to also combine actions with statutory and regulatory levers.

A Broad-Based, Collaborative Approach to Model Design

With SIM Model Design funding from the Center for Medicare and Medicaid Innovation, DHMH engaged in an intensive and extensive stakeholder engagement process between May and September of 2013 to solicit input into the design of the Community Integrated Medical Home. DHMH convened leaders from state agencies, academia, private health plans, provider groups, community organizations, and public health officials to integrate the perspectives of a broad array of stakeholders and subject-matter experts and develop consensus on key areas of model design. This State Healthcare Innovation Plan constitutes the main deliverable for that Model Design award and describes what Maryland would propose to implement if awarded further funding – including but not limited to SIM Model Testing funding – to implement this model design.

While much of this Innovation Plan is the product of those collaborations and the feedback received during that stakeholder engagement process, the application for the modernized all-payer hospital payment model had not yet been approved by CMMI during that time. As such, this Innovation Plan represents Maryland's first systematic attempt to integrate the concepts of the Community-Integrated Medical Home with the hospital payment model. Stakeholder engagement will continue to help guide this integration and, as such, this Plan should be construed as a living document that will continue to take shape as stakeholder engagement continues.

In our view, Maryland's Modernized Hospital Payment model and the CIMH model are mutually dependent on each other for their individual success. Both are necessary components of an overall

strategy for population health improvement while bending the health care cost curve, but neither one would be sufficient on their own. For example, community-integrated health care systems would not succeed in the long-term if hospitals continued to be financed on a pay-for-volume basis and thereby financially penalized for working with their community partners to prevent avoidable hospitalizations and readmissions. By the same token, while hospitals are a major health delivery and financial driver, hospitals alone cannot foster the complete package of large-scale system reforms required to achieve our State's goals.

What has impeded prevention initiatives previously—here in Maryland and across the nation—is difficulty in following the dollars across a complex health system. If granted a SIM Model Testing award, Maryland will invest that funding to advance the science around modeling the impacts of community health initiatives as part of the Learning System. By investing in Maryland through a SIM Model Testing Award, CMS has the potential to build on Maryland's efforts to integrate public health and medicine at the operational level in order to develop a method to integrate public health and medicine at the financial and payment level.

What Makes Maryland's Approach Unique

Several key characteristics set Maryland's approach apart.

Whole person approach: Maryland is looking at healthcare delivery redesign models in an integrated way that focuses on the whole person – a patient's physical, behavioral and social needs.

Population approach: Our proposal is not limited to a segment of the population. It is neither payer-specific nor age-specific or disease-specific but, rather, targets people based on need.

The ability to move seamlessly between individuals to populations and back again: Both at the intervention level and the data level, our unit of outreach and analysis is the *individual* when an individual approach is most appropriate or the *population* when a population approach is most appropriate. For example, because our hospital encounter data is captured at the address level, we can aggregate the data and analyze it at a variety of levels -- including the neighborhood, county, regional, and state levels – which can be helpful for identifying geographic areas of highest need and other planning purposes. Conversely, we can also drill down to the individual patient level, which can be helpful for outreach and enrollment purposes.

Public health leadership: Our plan moves away from a medical model and makes public health the center point around which the transformation effort revolves. This is possible because – and unique among SIM States -- Maryland's healthcare delivery transformation efforts are being spearheaded by the Public Health Department. Equally importantly, this plan has the strongest possible backing from leaders at the highest levels in state government.

Evidence-based approach: Our plan is based on the only model from the Medicare Coordinated Care Demonstration project to show improved health outcomes **and** lower cost **and** stand the test of time. Maryland's State Healthcare Innovation Plan offers CMS the opportunity to scale that model and test it in a different geographic and demographic context. Use of such a rigorously tested model is a critical choice if we want a model that we know can work, not just a model that might work.

Asset-rich environment: Finally, although other states may be looking to develop similar models to ours, most do not have the robust foundation of ongoing innovations and data infrastructure to work with. Where other states plan an all claims payer database with master patient index capability, Maryland is already testing these advanced capabilities; where other states aspire to live hospital encounter data, Maryland has a tried and tested system which we can provide primary care providers alerts in real time whenever their patients are admitted or transferred to – or from – any Maryland hospital. This robust foundation will enable Maryland to rapidly engage in these efforts, whereas other states may be in earlier developments stages.

Taken together, our State Healthcare Innovation Plan sets us on a trajectory to realize the Triple Aim – better care, better health, and lower cost – by facilitating the evolution of Maryland's health care system towards one which is community-integrated and prevention-oriented. While Maryland's Modernized Hospital Payment model aligns hospital financial incentives to help make this evolution possible, it is the framework and infrastructure described in this State Healthcare Innovation Plan which will enable Maryland to succeed and not only meet – but beat – those ambitious quality improvement and financial targets.

2

Introduction

Where We Are and Where We Would Like To Go

Introduction

On January 10, 2014, the Center for Medicare and Medicaid Innovation (CMMI) announced its approval of Maryland's historic and groundbreaking proposal to modernize Maryland's all-payer hospital payment system. The model shifts away from traditional fee-for-service (FFS) payment towards global budgets and ties growth in per capita hospital spending to growth in the state's overall economy. In addition to hitting aggressive quality targets, this model must save at least $330 million in Medicare spending over the next five years.

The first of its kind in the nation, this new payment model also has significant implications for the entire health care delivery system. By moving away from volume-based payment, this model financially rewards rather than penalizes hospitals when they prevent avoidable hospitalizations and readmissions. As hospital care contributes to approximately 40% of the total cost of care in Maryland,[5] the realignment of hospital financial incentives is a necessary first step towards active hospital participation in the development of a prevention-oriented health care system capable of bending the health care cost curve through improved population health.

However, hospitals have limited control over the level of illness in the population and the need for admission. To succeed, Maryland must develop and implement a comprehensive approach to primary care and community health. This essential step is embodied in this proposal.

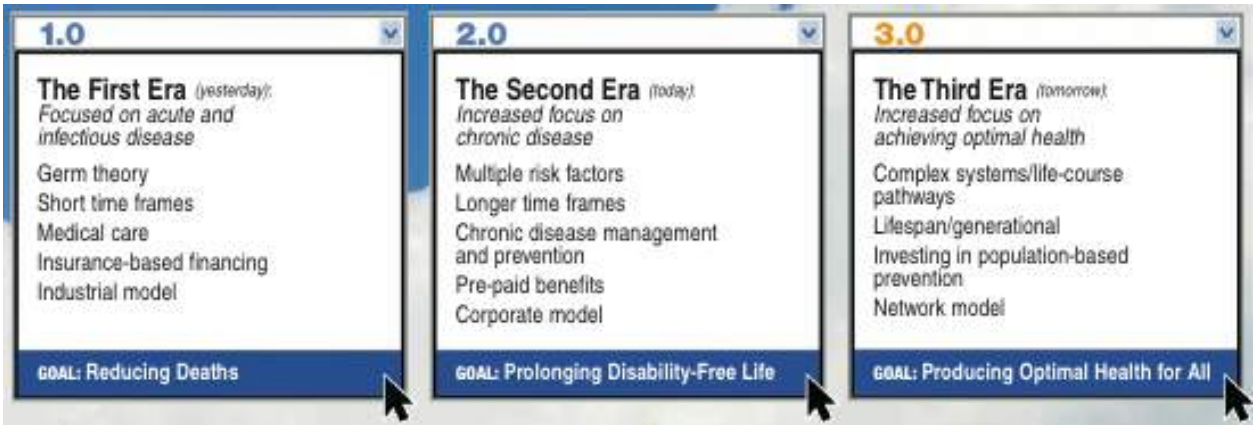
This State Healthcare Innovation Plan represents Maryland's vision for a transformed health care delivery system that will provide the tools and foster effective partnerships to meet – and beat – the ambitious financial and quality improvement goals put forward as part of Maryland's modernized all-payer hospital payment model. It begins with background information about Maryland – demographic information, information about the prevalence of chronic diseases and the costs associated with treating them, etc. -- to help contextualize where we would like our health care system to move towards relative to where we currently are.

We then present our plan for how we will facilitate the transformation of our health care delivery system into one which promotes health as well as it responds to illness: an evolution that several prominent public health leaders have referred to as the "third revolution in health" (figure 2-1) and which corresponds to what CMMI refers to as a "community-integrated health care system" (figure 2-2). This new system will enable the health care system to keep pace with the changing burden of disease through enhanced *vertical integration* within the health care system across the full continuum of care, as well as enhanced *horizontal integration* between the health care system and other sectors that are critical to patient health, like the public health, social services, and behavioral health systems.[6]

[5] According to information sourced from CMS Office of the Actuary by the CMS SIM TA team, total per capita health care spending in Maryland in 2009 was $7,492 of which hospital services accounted for $2,767 or 37%

[6] Halfon N et al (2007). Transforming the US Child Health System. *Health Affairs*, 26 (2) :315-330

Figure 2-1. The Evolving Health Care System



"Each era's system has had its own logic. The first was about saving lives through acute, emergency and rescue care, and public health safety. The 2.0 system is about prolonging life and decreasing levels of disability through chronic disease management and secondary prevention. And the concept for 3.0 is to move toward optimizing the health and well-being of the population. It's not that one usurps the next – we still need to fight infectious and chronic diseases. But we upgrade the system's capacity so that we can do more." *– Neal Halfon, UCLA Center for Healthier Children, Families & Communities*

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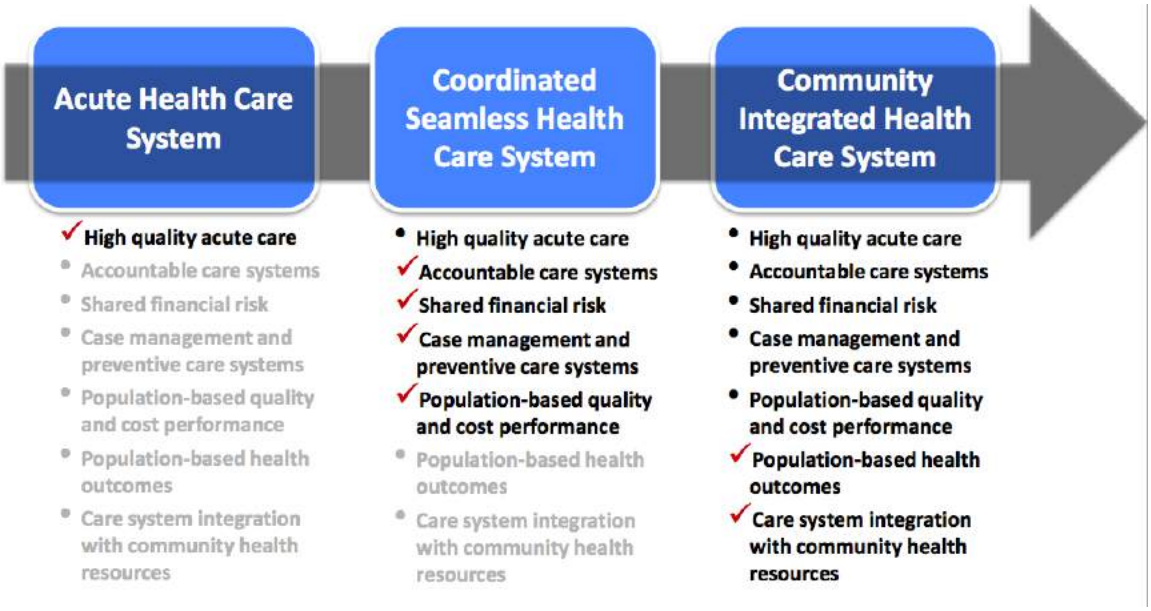
Figure 2-2. A Reformed Delivery System Will Support and Reward Those Who Deliver Improved Health of Populations



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2.1. Maryland by the Numbers

Maryland's population in 2012 was 5,884,563, with 13% of the population aged over 65 (compared to 13.7% nationally) and 22.8% under 18 (compared to 23.5% nationally). Roughly half of Maryland's population is concentrated in the Baltimore metro area, with a further 32% in the Maryland jurisdictions comprising the National Capital Area.[7] The racial distribution of the population is 62% white, 31% African-American, 6.5% Asian or Pacific Islander and less than 1% American Indian. Nearly 9% of the population (of any race) were of Hispanic origin.

Compared to the national average, Maryland has a lower rate of uninsured residents (11.6% versus 15.8% nationally). Of those with insurance, 59.3% had coverage through their employer or military, 10.6% through Medicaid/CHIP, 13.4% through Medicare, and 5.1% through the individual market (see Appendix 8.2).

When further examining Maryland's insurance market, a number of interesting characteristics differentiate it from that of other states (see Appendix 8.3). For example, the small group and large group health insurance markets appear to be more concentrated than is typical nationally, with only nine carriers for small group (all-state average 15) and 10 for large group (all-state average 14). More Maryland employers self-insure than in other states (43% compared to 37%). Finally, managed care penetration is generally higher in Maryland than elsewhere (e.g. 77% vs. 72% in Medicaid), except in Medicare (8% vs. 26%). These figures are all prior to implementation of the Affordable Care Act (ACA). Post-ACA Maryland has six carriers offering marketplace plans state-wide, which is close to the median number for states.[8] [9]

Prevalence of Chronic Illness in Maryland

According to the Centers for Disease Control and Prevention (CDC), over 3.6 million cases of the most common chronic diseases were reported in Maryland in 2013. Figure 2-3 shows the number of reported cases of each chronic disease by payer.

[7] The National Capital Region (NCR) was created pursuant to the National Capital Planning Act of 1952, 40 USC §71. The Act defines the NCR as the District of Columbia; Montgomery and Prince George's Counties in the State of Maryland; Arlington, Fairfax, Loudon, and Prince William Counties in the Commonwealth of Virginia; and all cities existing in Maryland or Virginia within the geographic area bounded by the outer boundaries of the combined area of said counties (e.g., Alexandria, Manassas, Manassas Park, Rockville). http://www.fema.gov/office-national-capital-region-coordination-0/national-capital-region-overview

[8] State Marketplace Profiles, Maryland, Kaiser Family Foundation, 2013, http://kff.org/health-reform/state-profile/state-exchange-profiles-maryland/

[9] An Early Look at Premiums and Insurer Participation in Health Insurance Marketplaces, 2014, Kaiser Family Foundation, http://kaiserfamilyfoundation.files.wordpress.com/2013/09/early-look-at-premiums-and-participation-in-marketplaces.pdf

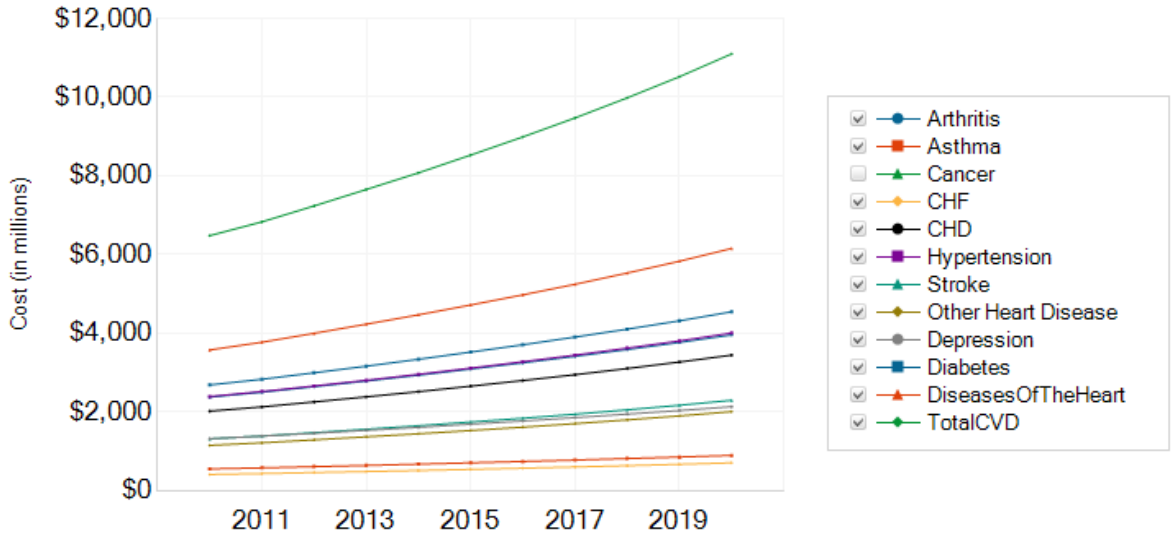
Figure 2-3. Number of People with Chronic Disease in Maryland

Chronic Disease	Total Chronic Disease Patients (% of Population)	Medicaid	Medicare	Private Insurance
Arthritis	837,200 (14.9%)	110,400 (14.6%)	310,400 (41.9%)	618,100 (14.6%)
Asthma	255,600 (4.5%)	62,300 (8.2%)	45,200 (6.1%)	192,400 (4.5%)
Cancer	237,100 (4.2%)	23,100 (3.1%)	124,400 (16.8%)	195,400 (4.6%)
Congestive Heart Failure	41,200 (0.7%)	10,900 (1.4%)	22,100 (3.0%)	17,500 (0.4%)
Coronary Heart Disease	253,400 (4.5%)	39,700 (5.2%)	147,400 (19.9%)	164,700 (3.9%)
Hypertension	1,097,700 (19.5%)	121,200 (16.0%)	439,900 (59.4%)	813,000 (19.2%)
Stroke	74,600 (1.3%)	17,700 (2.3%)	47,200 (6.4%)	41,000 (1.0%)
Other Heart Disease	154,000 (2.7%)	21,200 (2.8%)	91,200 (12.3%)	106,000 (2.5%)
Depression	343,600 (6.1%)	62,100 (8.2%)	77,600 (10.5%)	238,200 (5.6%)
Diabetes	405,500 (7.2%)	57,200 (7.6%)	166,600 (22.5%)	278,900 (6.6%)

Source: CDC, Chronic Disease Cost Calculator, Version 2, 2013

The cost of treating these conditions – without taking into consideration other secondary health problems they cause – was about $15 billion, with costs projected costs to increase if we do not transform our health care system into one which can more effectively address prevention and care management (figure 2-4).

Figure 2-4. Projected Costs for Common Chronic Diseases



Source: CDC, Chronic Disease Cost Calculator, Version 2, 2013

Indeed, for the past several years, Maryland's health care expenditures per capita have been consistently higher than the national average (figure 2-5).

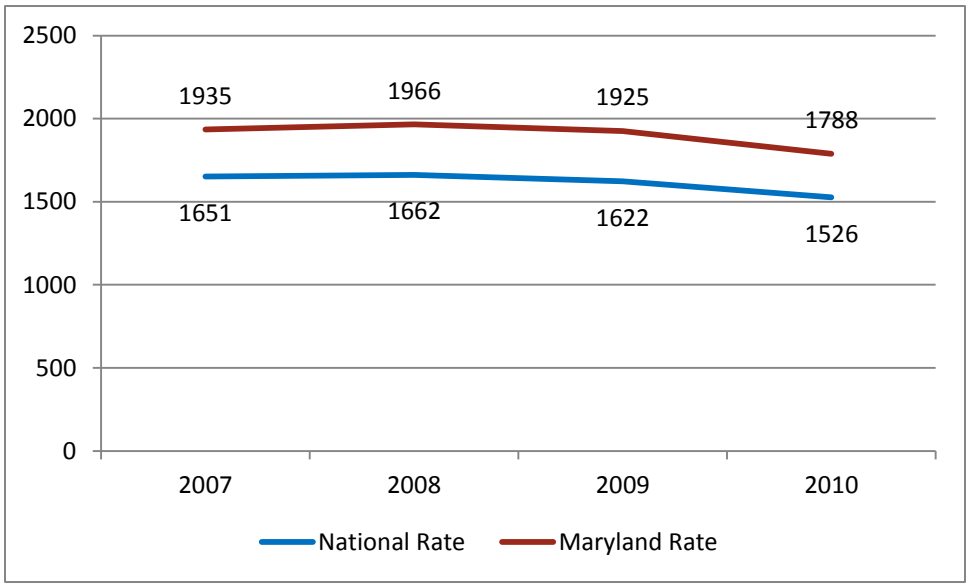
Figure 2-5: All-Payer Per Capita Medical Expenditures, Regional and National, 2006-2009

Total Medical Expenditures	2006	2007	2008	2009
Maryland	$6,534	$6,881	$7,205	$7,492
United States	$6,028	$6,318	$6,566	$6,815

http://www.cms.gov/NationalHealthExpendData/downloads/resident-state-estimates.zip

Maryland's rate of preventable hospitalizations has also been consistently higher than the national average, as measured using AHRQ's Prevention Qualify Indicators (PQIs) (figure 2-6). As PQIs measure hospitalizations for "*ambulatory care sensitive conditions*" – conditions for which access to high quality outpatient care can potentially prevent the need for hospitalization or for which early intervention can prevent complications or more severe disease –preventable hospitalizations are an important indicator of where efficiencies can be realized.

Figure 2-6. Preventable Hospitalizations: How Maryland Compares to the Nation



To better understand who our highest cost patients are, we analyzed Maryland's hospital encounter data in more depth.[10] We calculated total cost of care for each Maryland resident admitted to any Maryland hospital in 2012, including inpatient, emergency department, and hospital-based outpatient charges. We then segmented that data and focused on those patients who comprised the top 10% of our residents according to total charges.

[10] Maryland's hospital encounter data covers hospitalizations that occur only in Maryland. Therefore, patients who may reside in Maryland but obtain their hospital care elsewhere (for example, in Washington DC, Delaware, or Pennsylvania) will not be captured in this data or in these analyses.

Our analysis suggests that there are about 138,000 "super-utilizers" in Maryland who together cost about $6.5 billion in total hospital charges, or 43% of total hospital charges for the state. Almost 30% of these patients had 3 or more hospitalizations in 2012, with one patient having as many as 138 visits to the emergency department and 153 admissions to the hospital.

Roughly half of the super-utilizers in Maryland were 21-64 years old, with the elderly 65+ comprising 46% of the super-utilizers and children ages 20 and below comprising 5%. Almost half were either Medicare FFS beneficiaries or Medicare-Medicaid dual-eligibles, while roughly 30% were covered by a commercial health plan.

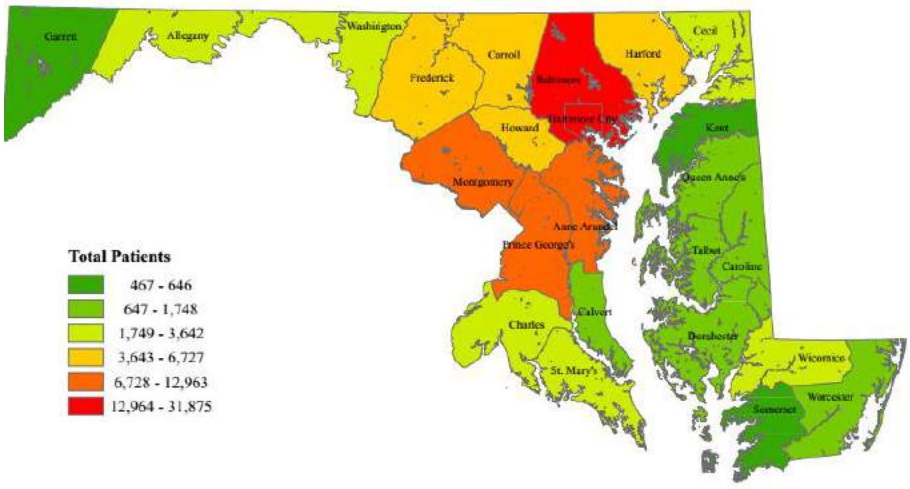
Figure 2-7. Super-Utilizers in Maryland by Age Group and by Payer

Age Group	Total Super-Utilizers	Percent	Payer	Total Super-Utilizers	Percent
0-20	7,339	5.3%	**Commercial**	39,661	28.7
21-64	67,595	48.8%	**Medicaid FFS**	7,631	5.5
65+	63,473	45.9%	**Medicaid MCO**	13,814	10.0
			Medicare FFS	50,907	36.8
			Medicare MA	1,961	1.4
			Dual Eligible	15,434	11.2
			Other	3,036	2.2
			Self-Pay/Charity Care	5,971	4.3

Source: Maryland Hospital Discharge Data, Health Services Cost Review Commission (HSCRC)

Finally, the geographic distribution of the super-utilizers is shown in figure 2-8.

Figure 2-8. The Super-Utilizers by Jurisdiction



Source: Maryland Hospital Discharge Data, Health Services Cost Review Commission (HSCRC)

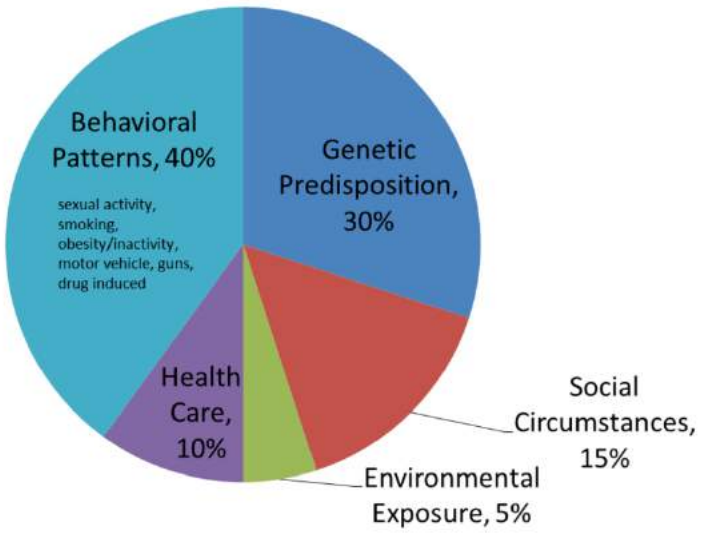
Moving Towards 3.0: A Community-Integrated Health System for Optimal Health

In light of this population health need in Maryland – and in order to succeed in the goals of Maryland's modernized all-payer hospital payment system – Maryland must develop and implement a comprehensive approach to primary care and community health. Maryland's State Healthcare Innovation Plan, as presented in this document, discusses our vision and actions to achieve our financial and health goals.

A health care system's ability to bend the cost curve through improved population health is greatly amplified when it is well integrated with--and leverages--the resources available in the broader community where patients live, work, and play. The more that patients can be effectively, more proactively, and comprehensively served in "upstream" and lower-cost settings of care -- like a primary care clinic or the patients' home, school, or workplace -- the more accessible and cost-effective the care is likely to be. Moreover, effective community-clinical partnerships with non-clinical community-based assets like schools, transportation authorities, public health departments, and social services providers can improve the ability to intervene on social and environmental determinants of health and reduce unnecessary health care utilization.

This integration of health care with the broader community is particularly important because there are several risk factors such as socio-economic status and environment that account for an estimated 90% of the determinants of poor health and premature death and are difficult to address efficiently and effectively within the traditional confines of the health care system (see figure 2-9).[11]

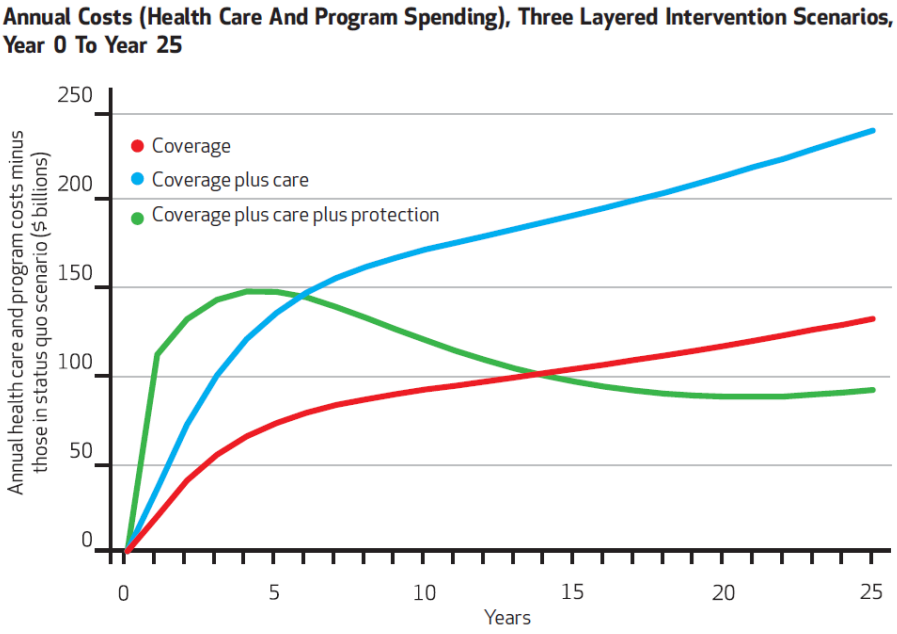
Figure 2-9. Health is Not Just Health Care[11]



[11] Steven A. Schroeder, *New England Journal of Medicine*, Sept 20, 2007

Indeed, micro-simulation models have shown that only those health reform strategies that combine public health approaches with medicine are successful in improving population health and bending the health care cost curve (figure 2-10).[12]

Figure 2-10. Improving Population Health and Lowering Cost Requires a Better Integration of Public Health and Medicine[12]



This is especially true for our most vulnerable patients with complex health needs who often account for a disproportionate share of our health care spending.

In moving towards "3.0," Maryland aims to facilitate the state-wide transformation of our health care system into one which is prevention-oriented and truly patient-centered -- a health care system that recognizes a one-size-fits-all approach is unlikely to succeed: what might work well for a young healthy patient may not be effective for an elderly patient with multiple co-morbid conditions. For this reason, we have segmented Maryland's population into four tiers of health need (figure 2-11), with three corresponding strategies to meet those needs (figure 2-12).

[12] Milstein, et al. "Why Behavioral and Environmental Interventions are Needed to Improve Health at Lower Cost". *Health Affairs* 2011.

Figure 2-11. Target Population and Corresponding Strategies

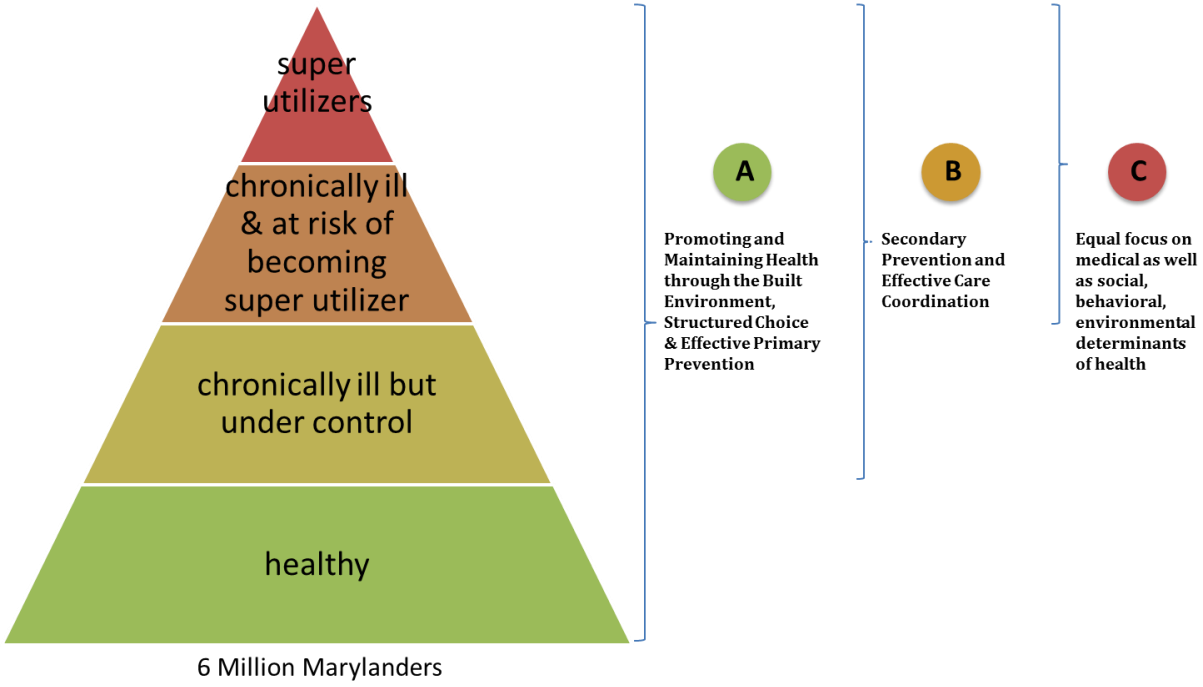
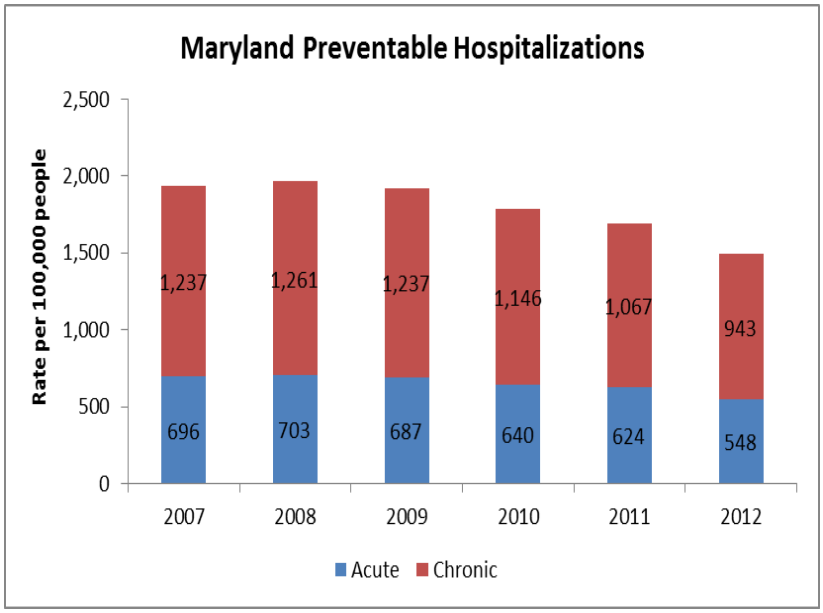


Figure 2-12: Strategies for Every Level of Health Need

Health Need	Strategy	Examples of Effective Interventions	What Will Change Under SIM
Healthy	A Primary prevention and traditional public health	• Core public health services • USPSTF grade A/B preventive services • Making the healthy choice the easy choice through behavioral economic approaches and effective town planning	• Integration with Department's efforts to secure Public Health Accreditation • Monitoring uptake of USPSTF A/B preventive services • Enhanced public health surveillance
Chronically Ill (either under control or at risk of becoming a super-utilizer)	B Secondary prevention and effective care coordination	Patient-Centered Medical Homes (PCMH)	• Increased enrollment in a PCMH • Evidence-based standards to define PCMHs • Consistent metrics • Behavioral health integration
Super-Utilizer or Chronically-Ill and At-Risk of Becoming a Super-Utilizer	C Equal focus on medical as well as social determinants of health	Community-Integrated Medical Homes (CIMH)	A "neighborhood" around every medical home--community-based wraparound services and supports to be able to better address a patient's non-medical and medical determinants of health

In Maryland, roughly twice as many preventable hospitalizations occur for chronic conditions than for acute conditions (figure 2-13). Nationally, the rate of preventable hospitalizations have been consistently higher for the two lower-income quartile neighborhoods compared with residents of the two highest-income quartiles.[13]

Figure 2-13. Preventable Hospitalization by Type



Source: Maryland Hospital Discharge Data, Health Services Cost Review Commission (HSCRC)

As such -- and in order to be successful under Maryland's modernized all-payer hospital payment model -- the focus of the State Innovation Model (SIM) Design work has been on building out Strategy B and C and then aligning the work of the Public Health Department -- much of which focuses on primary prevention and traditional public health -- to complement this work.

In the context of this approach to target population selection, having the potential for a positive ROI correlates with populations that also typically receive poor quality care, have higher rates of health disparities, have challenges related to accessing care, and are more vulnerable to poor health outcomes and avoidable suffering. As such it is appropriate from the standpoint of being accountable for improving public health to focus extra resources toward these vulnerable populations, with the long-term goal being to flatten out the pyramid over time.

[13] http://www.cdc.gov/mmwr/preview/mmwrhtml/su6001a17.htm#fig1

Strategy A: A Foundation of Effective Public Health and Primary Prevention

For those Marylanders who are healthy, our strategy is to support them in staying healthy through effective primary prevention and health promotion. The State's Public Health Department and our 24 Local Health Departments will continue to carry out our traditional public health work around the three core functions of public health and the 10 essential services.

To strengthen the quality of the services we provide, DHMH will pursue accreditation through the Public Health Accreditation Board (PHAB) and develop quality improvement processes and strategies to meet our objectives. We plan to align our PHAB objectives and performance measures with those we report to the Secretary and Governor through a process called "StateStat." http://dhmh.maryland.gov/statestat/SitePages/Home.aspx. In January 2013, DHMH submitted to PHAB its Letter of Intent to apply for accreditation and anticipates submitting a full application later this year.

DHMH also remains committed in its support of Local Health Departments in their own pursuit of voluntary accreditation. To date, five Local Health Departments have submitted their full application to PHAB. A further 15 Local Health Departments are either planning to submit a statement of intent or are working on their full applications.

Additionally, we will continue to strengthen the State Health Improvement Process (SHIP) with better data tools and analytic supports. Through a pilot with Trilogy and its innovative community health data platform called Network of Care, our Local Health Improvement Coalitions (LHICs) will be able to visualize SHIP data in a variety of different ways and to link evidence-based interventions with each health indicator, thereby assisting LHICs in community planning and in tracking the effectiveness of their programs. Additionally, we will enhance our public health surveillance capabilities so that they can be better integrated with the SHIP data and become data points that DHMH and LHICs can use to facilitate more effective state and community-level planning and action.

Finally, we will track uptake of select U.S. Preventive Services Task Force (USPSTF) grade A/B recommendations – evidence based preventive services that have been reviewed by a panel of esteemed experts and deemed to provide important protective effects that promote health -- and aim for 80% uptake.

Strategy B: A Patient-Centered Medical Home for All Marylanders

For Marylanders who are chronically ill, these primary prevention efforts – while necessary and important – are not sufficient to maintain health,prevent complications from their diseases and prevent avoidable hospital and ER admissions.

Primary care has been widely recognized as the bedrock of an effective and efficient health care system for its ability to promote access to care, coordinate care, and to faciliate early management of health

problems.[14] In turn, advanced primary care practice models like the Patient-Centered Medical Home (PCMH) have been put forward as promising team-based models of primary care, intended to improve the quality of care provided within primary care setttings.[15] [16] [17]

Our strategy for this patient population will be to improve access to advanced primary care models like the PCMH and to support them in achieving higher levels of performance.

Strategy C: A Neighborhood for Every Home

While these primary and secondary prevention efforts are critical for a robust prevention-oriented health care system, they are nevertheless not sufficient to most effectively help the "super-utilizers" -- that subset of our population who are the most vulnerable and who account for a disproportionate share of total health care spending in Maryland. The appropriate strategy for this target group would be to expand beyond traditional health care to include partners in in the community in order to more effectively address their underlying social, behavioral, and environmental determinants of health.

"The next phase of PCMH development should focus on its strategic deployment for the care of high-utilization patients with multiple chronic comorbidities, frequently with concomitant mental illness, and often with poor social support."

Thomas Schwenk. (2014). The Patient-Centered Medical Home: One Size Does Not Fit All. *Journal of the American Medical Association*. 311(8): 802-3.

At the center of our model design is the "Community-Integrated Medical Home" (CIMH) which integrates patient-centered primary care and innovative community health initiatives to improve individual and population health. The CIMH will facilitate warmer handoffs between care transitions within the health care system (whether that be from the hospital to home, from skilled nursing facilities to hospitals, or even in between primary care provider visits), as well as between the health care system and other sectors that are important to patient health like the social services, public health, and behavioral health systems. In the CIMH model, community health teams will provide complementary public health and community-based wraparound services and supports to participating primary care providers and their most vulnerable patients, thus providing a "neighborhood" that is supportive of each medical home (figure 2-14).

[14] Starfield B, Shi L, Macinki J (2005). Contribution of Primary Care to Health Systems and Health. *The Milbank Quarterly*. 83(3): 457–502

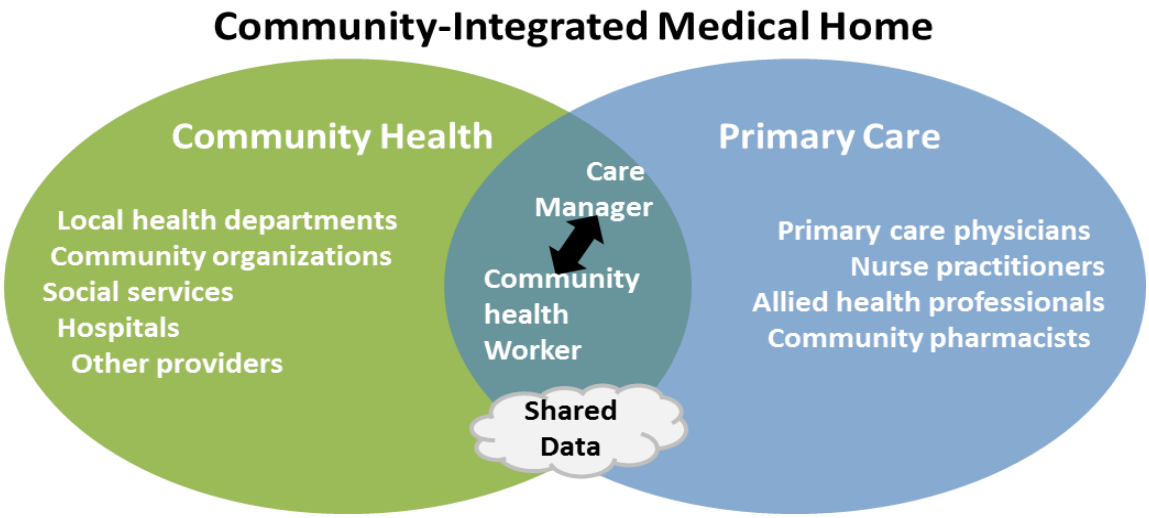
[15] Stange KC, et al. (2010). Defining and measuring the patient-centered medical home. *Journal of General Internal Medicine*. 25:601-12.

[16] Sia C, et al (2004). History of the medical home concept. *Pediatrics*.113: 1473-8.

[17] Kilo CM, Wasson JH (2010). Practice redesign and the patient-centered medical home: history, promises, and challenges. *Health Affairs (Millwood)*. 29: 773-8.

The CIMH is not a new "intervention," per se. Rather, it is best conceived of as a flexible model of care or a framework that will enable Maryland to coordinate, refine, and expand services, supports, and delivery reform efforts – many of which already exist in Maryland -- so that they can build upon each other and create the synergies required to realize their full potential impact.

Figure 2-14. Maryland's Community-Integrated Medical Home Model



In the treatment of childhood asthma, for example, an approach that combines medical (e.g. medication reconciliation) and non-medical interventions (e.g. improving indoor air quality in the home by eliminating allergens, pests, and mold) is likely to be more effective than a clinical or community intervention in isolation (figure 2-15). Within the CIMH framework, Maryland's Patient-Centered Medical Homes (PCMHs), Medicare Accountable Care Organizations (ACOs), Chronic Health Homes, and Federally Qualified Health Centers (FQHCs) will be expanded and strengthened to provide the clinical interventions in figure 2-15. Maryland's school-based health centers (SBHCs) will also be supported in

Figure 2-15. Example: Clinical-Community Integrated Intervention for Asthma

Community-Based Interventions	Clinical Interventions

• Assessment and maintenance of indoor air quality (in home/school)
• Patient/family education and follow-up in the home
  ◦ Inhaler technique
  ◦ Appropriate use of medication (long-term vs. quick relief)
  ◦ Use of peak-flow meter
  ◦ When to go to ER vs PCP
	• Medication provision and reconciliation
	• Develop asthma action plan
	• Care coordination between primary care and secondary/tertiary care

developing their capacity to provide advanced primary care services and function as a medical home for their students, and potentially their broader community where primary care shortages persist. Similarly, several community-based organizations and local health departments currently provide the community-based public health interventions described in figure 2-15. Finally, as the ER visit or the hospital admission for asthma often serves as the "sentinel event" that signals the need for additional services and supports within the community for patients who may be only loosely connected to care, hospitals play a critical role in helping to identify the patients who would benefit most from a community-integrated approach. The CIMH provides a framework to engage and coordinate these efforts in a deliberate and systematic way. The exemplar provided in section 3.3 depicts in greater detail what a community-integrated approach to asthma could look like, including the roles that primary care providers, school nurses, local health improvement coalitions, and hospitals might be.

Asthma is by no means the only condition amenable to a CIMH approach. Another example could be low-income chronically-Ill patients who forgo necessary medications because they cannot afford the copays. Many of these patients are eligible for income assistance through the Supplemental Nutrition Assistance Program (SNAP) or Temporary Assistance for Needy Families (TANF) but have not applied for the benefits. Social services navigators and outreach workers throughout Maryland – working alongside public health nurses -- could be leveraged to provide the community-based interventions in figure 2-16, complementing the clinical interventions provided by PCMHs, ACOs, Health Homes, and FQHCs.

> **"Treating … medical problems without addressing underlying social, behavioral, and human services barriers and needs produces costly, unsatisfactory results – both for the patient and the programs providing and paying for care. Conversely, addressing all of these issues and incorporating them into a coordinated patient-centered, comprehensive care plan should end the cycle of costly crisis care."**
>
> Hennepin Health: A Social Disparities Approach to Health and Health Care
>
> http://www.hennepin.us/~/media/hennepinus/residents/health-medical/documents/hennepin-health-proposal-110711.pdf

In fact, any patient population or health condition that would benefit from expanded community-based clinical care coordination in-between primary care visits or from services and supports that are typically beyond the scope and reach of the traditional health care system (e.g. social services, housing, transportation) is a candidate for a CIMH approach.

We will use a variety of mechanisms to identify patients who might benefit from this type of community-integrated approach, including "hot spotting" tools made possible by Maryland's robust data infrastructure as well as physician and hospital referrals. In turn, each individual patient interaction will be logged so that we can learn from our

Figure 2-16. Example: Clinical-Community Integrated Intervention for Medication Adherence Among Low-Income Chronically Ill

Community-Based Interventions	Clinical Interventions
● Assessment of eligibility for social services ● Outreach and assistance with application process ● Ongoing monitoring to ensure that benefits do not "term" and lead to disruptions in benefit receipt ● Ongoing medication reconciliation and adherence monitoring in the home setting	● Medication provision and reconciliation ● Care coordination between primary care and secondary/tertiary care

outreach and intervention efforts, identify more quickly any patterns that emerge, and formulate more effective solutions. For example, mapping the locations where individual home environmental remediation efforts were necessary might reveal "clusters" of activity. If a cluster appeared within whole housing units or near suspected environmental hazards, this data would suggest that an integrated systems approach – perhaps with DHMH working together with Maryland housing or environmental authorities -- could more efficiently address the root cause of the health problems than a patient-level approach in isolation, thus assuring the conditions necessary for good health. Likewise, we will develop mechanisms that will allow us to leverage the insights and experiences of front-line staff in helping to identify systemic barriers that can be more effectively addressed at the state-level.

In this way, individual interactions can become additional data points for public health surveillance and effective collective action in our community-integrated learning health system, thus facilitating the ability to weave effortlessly between individual-level and population-level approaches to most effectively address the needs of our residents.

Because the CIMH is the centerpiece of Maryland's Health Care Innovation Plan, we dedicate all of Chapter 3 to describing it in greater detail. The CIMH stands on four pillars: Primary Care, Community Health, Workforce Development, and Strategic Use of Data. Chapter 3 describes each pillar in detail, and how the CIMH will build on the wide array of innovative payment and delivery reform efforts underway across the state. Figure 2-17 provides a sampling of just some of the various innovative models currently being tested throughout the state.

Finally, the CIMH model will initially focus on Medicare FFS and dual-eligible patients, given that there is no systematic care management offered to these individuals despite the need (see figure 2-7). SIM will fill this much-needed gap. At the same time, participation in the CIMH program will be open to all patients and payers, as discussed in Chapter 3.

Figure 2-17. Maryland's Robust Data, Delivery Reform and Payment Reform Landscape

Delivery and Payment Reform Models	Data Infrastructure
• **PCMH** – single-carrier programs as well as multi-payer program • **Medicare ACOs** – fifteen Medicare ACOs approved in Maryland • **All-Payer Hospital Payment Model** – shifts hospital payment away from fee-for-service models to global budgets and quality improvement targets • **Health Enterprise Zones** -- aims to address persistent health disparities in five targeted areas across the state • **State Health Improvement Process** (SHIP) – Local Health Improvement Coalitions spanning the state and supported with data on core measures of population health at the state and county levels	• **CRISP –** Maryland's statewide health information exchange: live ADT feeds from all Maryland hospitals; most lab data (including Quest/LabCorp); imaging data; "master patient index" capability • **Hospital Encounter and Payment Data –** utilization, demographics, diagnostic information, hospital charges (in Maryland, charges ≅ cost) • **EHR adoption:** 50% of primary care providers have adopted EHRs, including 100% of FQHCs. • **All payer claims database (APCD) –** currently contains all commercial claims (and Medicare data, under a state DUA arrangement) • **Virtual Data Unit—**Maryland's version of the Health Data Initiative – public health surveillance data, vital statistics, etc.

2.3: Creating the Infrastructure Necessary to Sustainably Adopt and Scale-Up Models with Demonstrated Success

Maryland is fortunate to be actively engaged in health reform and to have so many innovative delivery and payment reform models being implemented and tested. Maryland has also made significant investments in its data infrastructure. Powering the effective transformation of our health care system will be the development of a Learning System that will enable us to more effectively and systematically learn from this experimentation and more quickly scale the models that demonstrate effectiveness.

The CIMH model represents the first of what will be several ongoing and systematic attempts by Maryland's Department of Health and Mental Hygiene (DHMH) to facilitate "sense-making," or organizing system improvement efforts at a state level in a way that provides greater clarity of shared purpose, shared evaluation, and capabilities for scaling care delivery innovations.

Through the deployment of the CIMH model, we will be able to develop the mechanisms to more systematically catalogue all of these efforts, identify gaps and unmet needs, coordinate efforts so that we can realize synergies and additive impacts across them, leverage shared resources, reduce duplication of effort, and then rigorously and rapidly evaluate and identify the interventions that are working and bring them to scale.

Serving as a "public health integrator"—to bring multiple programs and entities together in order to more efficiently manage and improve population health—is a critical function that Maryland's DHMH is uniquely positioned to fill. As a state-level entity, DHMH has the ability to plan and implement at a larger scope than individual organizations, to work across sectors and partner with other state-level agencies, and to also combine actions with statutory and regulatory levers.

In Chapter 4, we describe the Learning System in greater detail. More specifically, we describe how we will evaluate the CIMH model – not only in the traditional sense but also throughout implementation to enable model refinement, execute any necessary mid-course corrections, and to guide staging and scale-up. We also discuss how we will evaluate the CIMH as one among many innovations underway in Maryland, including the modernized all-payer hospital payment model.

2.4: Interaction of CIMH with the Hospital Waiver

Maryland's Modernized Hospital Payment model and the CIMH model are mutually dependent on each other for their individual success. Both are necessary components of an overall strategy for population health improvement while bending the health care cost curve, but neither one would be sufficient on their own. For example, community-integrated health care systems would not succeed in the long-term if hospitals continued to be financed on a pay-for-volume basis and thereby financially penalized for working with their community partners to prevent avoidable hospitalizations and readmissions. By the same token, while hospitals are a major health delivery and financial driver, hospitals alone cannot foster the complete package of large-scale system reforms required to achieve our State's goals.

In this way, the CIMH works synergistically with the efforts under the Modernized All-Payer Agreement. Here we describe several ways in which SIM efforts drive toward our State's aims and discuss how these initiatives enhance, but do not duplicate, efforts of hospitals under the All-Payer Agreement.

Over a 5-year period beginning on January 1, 2014, the Modernized All-Payer Agreement commits our State to limiting annual all-payer per capita total hospital cost growth to 3.58 percent, the 10-year compounded annual growth rate in per capita gross state product. Assuming an early 2015 start date for SIM, SIM will coincide with years 2-4 of the Waiver.

In addition, Maryland committed to explicitly reduce Maryland's Medicare per beneficiary total hospital cost growth over five years to at least $330 million less than the national Medicare per beneficiary total hospital cost growth over five years. As SIM will initially focus on Medicare FFS and duals, SIM initiatives and efforts under the modernized all-payer waiver will support our State's goals under the Modernized All-Payer waiver agreement.

To achieve these cost savings goals, the State will realign hospital financing shifting virtually 100 percent of hospital revenue into global payment models. Global payment models provide incentives for hospital-based health systems to vigorously support the CIMH model in their region and play an active and productive role in the Local Health Improvement Coalitions and other community-based partnerships.

During the five year performance period, Maryland has also committed to improving the quality of care

Maryland residents receive as measured by reductions in readmissions and a 30% cumulative reduction in hospital-acquired conditions (HACs). Accordingly, delivery reform efforts under way as a result of the Hospital Waiver have tended to focus on the acute episode in the hospital or the 30-day window following hospital discharge. However, the figure below illustrates why the focus on readmissions and HACs – while necessary – are not themselves sufficient to fully meet the requirements of the Hospital Waiver.

Figure 2-18 below shows that of the 57,173 hospital admissions that occurred in Maryland hospitals in January 2013, only 7,027 – or 12% -- were readmissions. The readmission rate is higher for the patients who comprised the top 10%, whose hospital admissions accounted for 17% of all admissions. However, of the 9,960 admissions they had, only 3,973 – or 40% -- were readmissions. SIM will be the "incubator" to implement and test innovative delivery models like the CIMH to address the initial admission and not just the readmission – to prevent avoidable hospitalizations in the first place --through longitudinal and comprehensive patient-centered care coordination that includes clinical, public health, social services, and behavioral health approaches.

Figure 2-18 Patient Utilization by Admissions for January 2013

% Patients	**# Patients**	**# Admits**	**# Readmits**	**% Total Admits** Admits/Total Admits	**% Total Readmits** Readmits/ Total Readmits	**Readmit Rate** Readmits/ Admits
Total	52,459	57,173	7,027	100%	100%	12%
1%	525	1,643	919	3%	13%	56%
5%	2,623	5,839	2,600	10%	37%	45%
10%	5,246	9,960	3,973	17%	57%	40%
50%	26,230	30,944	5,687	54%	81%	18%

Source: CRISP

By January 1, 2017, Maryland will be required to submit to CMS a plan to move the Modernized Waiver away from hospital focused financial success tests to a total cost of care financial success test. SIM, with a focus inclusive of the social determinants of health, will test initiatives that may be brought to statewide scale under a total cost of care hospital waiver, so that Maryland is ready when that total cost of care financial success test is imposed.

Driver	Potential Hospital Efforts in a Modernized All-Payer Model	State Innovation Model Efforts
Smoother Care Transitions through enhanced virtual	• Focus is care transitions between institutions (SNFs, LTCs, and hospitals – i.e. Medicare Part A)	• Focus is on all transitions of care, including the role of primary care to prevent avoidable hospital and ER use and to coordinate care in the event of

Driver	Potential Hospital Efforts in a Modernized All-Payer Model	State Innovation Model Efforts
integration of service providers		admission, transfer, or discharge (i.e. Medicare Parts B and D included) • SIM will be working to enhance the effectiveness of primary care through improved performance monitoring, behavioral integration, and the provision of wraparound community-based services and supports in order to better address underlying social, behavioral, and environmental determinants of health and unnecessary hospital and ER utilization.
Scope of patient engagement	• Focus is on the 30 day window after discharge	• Focus is longitudinal, covering the patient's life-span and geared towards preventing the avoidable admission in the first place
Build infrastructure to facilitate coordination, leverage resources, and bring innovations to scale	• Hospitals may review internal systems and data continuing to look for sources of efficiency. • Hospitals may use peer benchmarking systems to review hospital operational practices. • As centers of innovation, hospitals may publish findings to share effective strategies with other hospitals.	• Coordinate and disseminate data across multiple providers (whereas hospital has a partial view of care) • Coordination between established community entities and hospitals, best practices, facilitation of peer to peer learning • Coordinate public agencies: mental health, acute care, public health, substance abuse, social services • Bring tested initiatives to scale • Sharing best practices and outcomes, learning collaborative – across provider types
Reform system payment	• Focus is on developing innovative payment practices within regulated space	• Focus is on aligning payment to facilitate the coordination of efforts/collaboration between mental health, public health, acute care, social services

An effective CIMH model in Maryland will serve to support, prepare, and enable more health care providers to assume higher levels of financial risk for health care services in the future. This will be brought about by enhanced use and analysis of data, effective models of community-based interventions, a proven financial track record, and favorable impacts on the health outcomes of vulnerable populations. The modernized hospital payment model will greatly support and accelerate the CIMH model by reducing the potential downside impact of an effective CIMH model on hospital financial stability. By complementing the CIMH model in this way, the waiver provides an incentive for hospital-based health systems to vigorously support the CIMH model in their region and play an active and productive role in the Local Health Improvement Coalitions (LHICs) and other community-based partnerships.

2.5: A Roadmap for Success

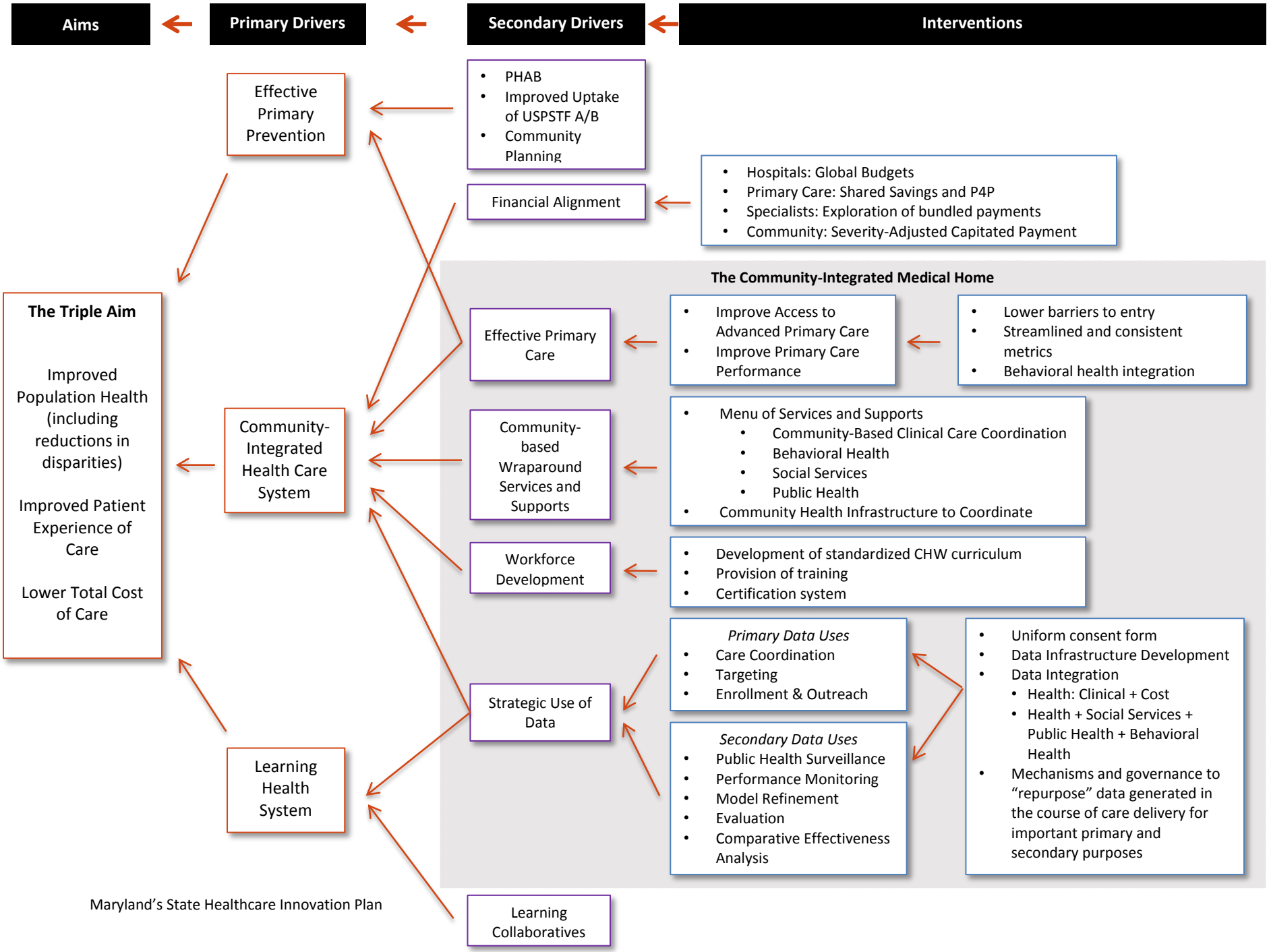
Achieving transformation of this magnitude as described in this Innovation Plan will require effective governance, the use of multiple levers available to us at the state-level, and incremental roll-out of the CIMH model to best assure success.

We discuss our plans for effective governance in Chapter 5 and how we will effect the changes described in this plan in Chapter 6. We conclude in Chapter 7 with a discussion of several key features of Maryland's State Healthcare Innovation Plan that we believe are distinctive among SIM states and place us on a trajectory for success in improving population health, improving patient experience of care, and bending Maryland's health care cost curve.

2.6: Driver Diagram

The driver diagram in Figure 2-19 depicts the drivers and interventions that will directly feed into and enable Maryland to be successful in meeting this three-part aim.

Figure 2-19. Driver Diagram



3

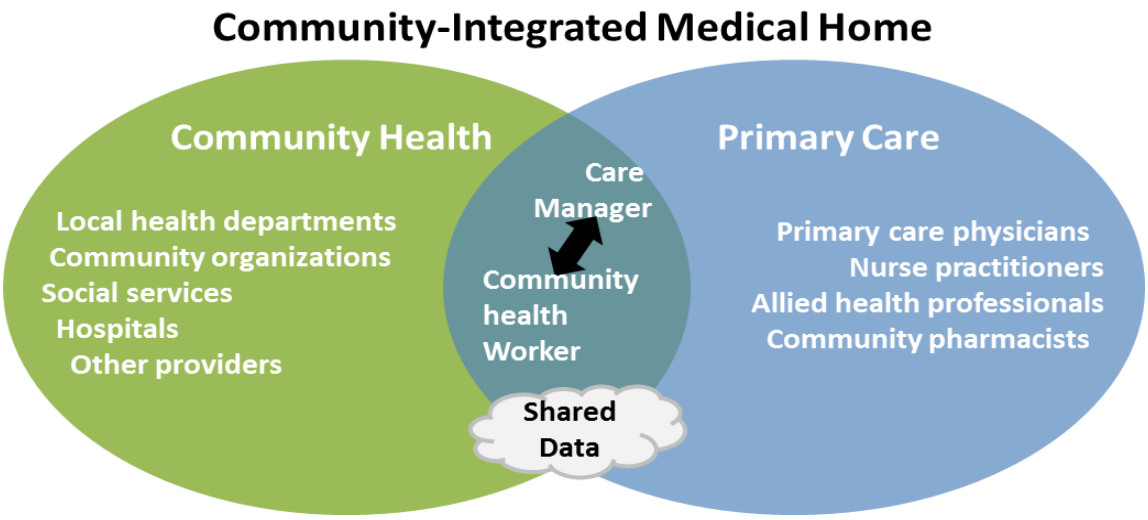
The Community-Integrated Medical Home

The Community-Integrated Medical Home

The state of Maryland envisions a transformed health system that integrates patient-centered primary care with innovative community health initiatives – a model which we call the "Community-Integrated Medical Home" (CIMH). This health care delivery reform model has its basis in the patient-centered medical home (PCMH), but the scope of the proposed CIMH model is larger and more comprehensive than the PCMH and other advanced primary care models. The CIMH program moves away from a strictly medical model for improving health to a personalized, team-based approach that is integrated with a community health infrastructure tasked with linking patients to social care and supported by a robust data infrastructure to facilitate local health planning and outreach.

When the state of Maryland submitted its proposal to CMMI for a SIM Model Design award, Maryland's modernized all-payer hospital payment model had not yet been approved by CMMI. However, we have always considered the CIMH model to be a critical tool in assisting Maryland's hospitals in meeting – and exceeding – the financial and quality improvement goals put forward as part of that payment model. In addition to coordinated, team-based care that emphasizes strong primary care and care management, we envisioned the traditional medical home integrated with an enhanced community health infrastructure—which includes hospitals as an integral community health partner (figure 3-1)—to focus on prevention, early intervention, ongoing patient management, and strong support services between encounters with the health care system.

Figure 3-1. The Community-Integrated Medical Home Model



In this section, we describe the four pillars that comprise the CIMH model and then introduce the CIMH Public Utility, which will be tasked with streamlining the administrative activities of the CIMH program and the analytical work to support hospitals, health care providers, and community health teams. We conclude with description of a community-integrated approach to childhood asthma as a way to illustrate how all of the various components of the CIMH model would work together.

3.1: The Four Pillars of the Community-Integrated Medical Home

The four pillars that comprise the CIMH model are (1) primary care, (2) community health, (3) workforce development, and (4) strategic use of data. This proposed CIMH model takes existing and newly-proposed delivery reform initiatives and streamlines them into a larger, cohesive framework that integrates community health and primary care.

Pillar #1: Primary Care

Primary care has been widely recognized as the bedrock of an effective and efficient health care system for its ability to promote access to care, coordinate care, and to faciliate early management of health problems.[18] In turn, advanced primary care practice models like the Patient-Centered Medical Home (PCMH) have been put forward as promising team-based models of primary care, intended to improve the quality of care provided within primary care setttings, as well as to promote linkages to care post hospital discharge to prevent readmissions.[19] [20] [21]

In this section, we will describe the current primary care landscape in Maryland and what will change under SIM. The levers Maryland will use to make this possible are discussed briefly in this section but are covered more in-depth in Chapter 6.

Maryland's Current Advanced Primary Care Landscape

The Maryland Health Care Commission (MHCC) operates two types of PCMH programs at the state-level: a Multi-Payer PCMH program and several single-carrier PCMH programs, the largest of which is administered by CareFirst. Participating payers are listed in figure 3-2. Because these programs operate a shared savings payment model, they can be considered Maryland's counterparts to Medicare's Accountable Care Organizations (ACOs).

[18] Starfield B, Shi L, Macinki J (2005). Contribution of Primary Care to Health Systems and Health. *The Milbank Quarterly*. 83(3): 457–502

[19] Stange KC, et al. (2010). Defining and measuring the patient-centered medical home. *Journal of General Internal Medicine*. 25:601-12.

[20] Sia C, et al (2004). History of the medical home concept. *Pediatrics*.113: 1473-8.

[21] Kilo CM, Wasson JH (2010). Practice redesign and the patient-centered medical home: history, promises, and challenges. *Health Affairs (Millwood)*. 29: 773-8.

Maryland Multi-Payer Patient-Centered Medical Home Program (MMPP). In 2011, Maryland began a 3-year program administered by MHCC to test a PCMH model of care within 52 primary and multispecialty practices and federally-qualified health centers (FQHCs) located across the state. The state Medicaid program is also a participating payer with a significant caveat; there are no fixed transformation payments to FQHCs, although Medicaid does participate in shared savings. In addition, the Federal Employee Health Benefit Plan (FEHBP), the Maryland state employee health benefits plan, TRICARE, and private employers such as Maryland hospital systems have voluntarily elected to offer this program to their employees.

CareFirst Patient-Centered Medical Home. In 2011, CareFirst Blue Cross Blue Shield launched its primary care medical home program. Based on lessons learned in their medical home pilot, the program incentivizes primary care providers to focus on the needs of chronic patients and those at greatest risk for chronic diseases. Incentives are similarly based on a fixed component for setting and monitoring care plans as well as shared savings based on quality and cost outcomes. To date, approximately 300 medical care panels with approximately 3,300 primary care providers are participating in the program. In June 2012, CareFirst received a $24 million Health Care Innovation Award from CMS. The grant will serve 25,000 Medicare beneficiaries in Maryland as part of their Patient Centered Medical Home.

Figure 3-2. Existing Medical Home Programs

Multi-Payer PCMH Program	Single-Payer PCMH Program
• Aetna • CareFirst BlueCross BlueShield • Cigna • Medicaid • Tricare • United Healthcare	• CareFirst BlueCross BlueShield • Cigna

Additionally, seven FQHCs in Maryland are participating in CMMI's FQHC Advanced Primary Care Practice Demonstration and 15 Medicare ACOs have been approved throughout the state. Several of Maryland's Medicaid managed care plans also provide PCMH look-alike programs.

Goals for Primary Care & What Will Change Under SIM

Current MHCC estimates indicate that roughly 50% of Maryland's primary care providers are participating in some form of PCMH program. Maryland's goal for improving the accessibility and quality of primary care is for 80% of all Marylanders to have a primary care physician (PCP) that is participating in an accredited medical home program. We will also aim to improve PCMH program design (with an emphasis on program standards and performance metrics) and PCMH performance, particularly around behavioral health integration.

Improved Program Design

The reasons why PCPs choose not to participate in PCMH efforts are varied. Chief among them relate to the administrative burdens that often come with PCMH participation, including the steps and documentation required to become "certified" as a PCMH provider and other reporting requirements. These administrative burdens are magnified by the fact that different payers and programs often adhere to different standards, each with their own requirements and performance metrics. These requirements tend to be especially difficult for independent and small practices, which together comprise about 50% of primary care practices in Maryland. For these reasons, Maryland will focus on improving PCMH program design in two main areas: standards and accreditation as well as quality measurement.

Standards and Accreditation

Multiple PCMH programs have emerged throughout the nation, each with their own definitions of what it means to be a "patient centered medical home." Figure 3-3 lists just a few of the most recognized national PCMH standards. In turn, states have taken a variety of approaches to PCMH accreditation.[22] Some states, like Vermont and Colorado, have adopted one or more of these national standards. Others, like Oregon and Nebraska, have created their own "home-grown" standards. Still others, like North Carolina and Arkansas, have taken a flexible approach to PCMH standards and have viewed a combination of standards equally favorably.

Figure 3-3. National PCMH Programs and Program Recognition Tools[23]

Sponsoring Organization	Program Recognition Tool	Administrative Burden	Total Items/Time to Complete	Tested for Validity/Re-liability
National Committee for Quality Assurance (NCQA)	NCQA's PPC-PCMH	Heavy	170 items/ 40-80 hours	No
	NCQA's PCMH 2011	Heavy	149 items/ 40-80 hours	No
Accreditation Association for Ambulatory Health Care (AAAHC)	AAAHC's Medical Home	Moderate	238 items/ unknown	No
Joint Commission	Joint Commission's Primary Care Medical Home	Moderate	52 items/ 2-3 day site visit	No
Utilization Review Accreditation Commission (URAC)	URAC Patient Centered Health Care Home	Moderate	86 items/ unknown	No
TransforMED	TransforMED's Medical Home IQ	Light	139 items/ 2.5 hours	No
Center for Medical Home Improvement	Center for Medical Home Improvement's Medical Home Index	Light	100 items/ 20 minutes-1 hour	Yes (pediatric version)

[22] Based on a nation-wide analysis of state PCMH certification practices by the CMS SIM TA Team.
[23] Burton RA, Devers KJ, Berenson RA. *Patient-Centered Medical Home Recognition Tools: A Comparison of Ten Surveys' Content and Operational Details*. Urban Institute: Washington, DC. 2012.

While the overall evidence for medical homes suggests improved care processes and patient experience, there is no clear evidence that any particular set of medical home standards is superior in terms of improving outcomes and reducing costs.[24] Indeed, the only care coordination program in Medicare's Coordinated Care Demonstration to improve health outcomes and reduce net health care costs was Health Quality Partners' (HQP) Advance Preventive Services model.[25] In this model, participating PCPs had only three basic requirements: (1) responding to communications about their patients initiated by the program's nurse care managers on an as-needed basis; (2) making medical records available to the nurse care managers and chart auditors; and (3) assisting in case-finding of potentially eligible individuals on their patient panels.[26] Even with this markedly parsimonious set of standards, HQP was able to achieve a statistically-significant 25% reduction in mortality in randomized-control trials.

Findings like these suggest that basic PCMH design features may be just as likely to result in improvements as highly structured national standards that create undue barriers to entry. For this reason, Maryland will implement a set of flexible standards that will allow for a much larger and more diverse set of PCPs to participate in PCMHs while creating a Learning System (see section 4) that will enable us to learn from this variation and refine these standards over time as the evidence-base grows more robust and more definitive.

Moving forward, Maryland's approach to certification will be flexible until we gather enough evidence around

"[F]ew peer-reviewed publications have found that transforming primary care practices into medical homes (as defined by common recognition tools and in typical practice settings) produces measureable improvements in the quality and efficiency of care…. The elements of practice transformation necessary to produce desired changes in patient care may be different from the capabilities assessed commonly by research surveys and certification tools."

Friedberg et al (2014). Association Between Participation in a Multipayer Medical Home Intervention and Changes in Quality, Utilization, and Costs of Care. *Journal of the American Medical Association*. 311(8): 815-25.

[24] Jackson GL, Powers BJ, Chatterjee R, et al (2013). The Patient Centered Medical Home: A Systematic Review. *Annals of Internal Medicine*. 158(3):169-178.
[25] Brown RS et al (2012). Six Features Of Medicare Coordinated Care Demonstration Programs That Cut Hospital Admissions Of High-Risk Patients. *Health Affairs.* 31(6): 1156–1166
[26] Coburn KD et al (2012). Effect of a Community-Based Nursing Intervention on Mortality in Chronically Ill Older Adults: A Randomized Controlled Trial. *PLoS Med* 9(7): e1001265.

which standards most reliably lead to improved health outcomes and lower cost. The approach will be inclusive of all existing standards currently in use in Maryland in order to minimize disruption to ongoing PCMH efforts: these include the standards currently being used by Maryland's Medicaid managed care plans, the NCQA standards in use in Maryland's MMPP program, as well as the standards being used in the single-carrier PCMH programs sponsored by CareFirst and Cigna. Additionally, all 15 Medicare ACOs and all Maryland FQHCs participating in Maryland PCMH programs and/or CMMI's FQHC Advanced Primary Care Practice Demonstration will be deemed certified.

While allowing for great flexibility, we will also establish a meaningful floor for PCMH certification as described below. These standards are geared towards addressing the needs of the highest risk, most complex patients requiring more intensive and community-integrated care coordination and are intended to provide greater definition around dimensions like "access to care," "data sharing," and "care coordination" that are featured in almost all national PCMH standards but may be ill-defined.

1. **PCMH domain: Enhance Access to Care and Continuity of Care → Maryland standard: Accept Medicare and Medicaid.** Hospital encounter data show that Medicare and Medicaid patients are more likely to be high-risk and in need of community integrated care. Among super-utilizers in Maryland – defined as patients with three or more hospitalizations in the past year – 51% are Medicare beneficiaries, 8% are Medicaid beneficiaries, and 16% are dual-eligibles.
2. **PCMH domain: Provide Self-Care Support and Community Resources → Maryland standard: Integrate Care Processes with Community Health Teams:** As part of the CIMH model, robust community-based wraparound services and supports will be provided by community health teams to assist PCPs in providing more intensive and comprehensive care coordination in-between visits and in community settings. Active participation with these community health teams will be a critical way to improve the quality of care provided to patients with complex health care needs. These community health teams will be described in greater detail in the following section (see "Pillar #2: Community Health").
3. **PCMH domain: Measure and Improve Performance for Entire Patient Population → Maryland standard: Report a Minimum Core Set of CIMH Metrics:** A core set of metrics for all payers and practices will allow for consistent reporting, performance monitoring, and system-wide learning. These metrics have already been established through a consensus-based process involving providers, payers, and other stakeholders, with the goal of maximizing performance measurement while minimizing provider burden. More detailed information about performance metrics is included below.
4. **PCMH domain: Plan and Manage Care, Including Tracking and Coordinating Care → Maryland Standard: Connection to CRISP Encounter Notification System and Query Portal:** Practices will be required to enroll in the Encounter Notification System (ENS) and Query Portal offered by CRISP. The ENS provides a real-time alert to a patient's

provider when he or she visits the emergency department and/or is admitted, discharged, or transferred from inpatient care. Upon receiving an alert, for example, PCPs can begin working with their hospital and other community partners to proactively design an effective discharge plan to prevent readmissions. Moreover, through the CRISP query portal, PCPs may review a variety of patient information that will be helpful in care coordination such as medical records from a patient's visits to other providers, lab results, radiology reports, and discharge/transfer summaries. Use of these CRISP tools will foster better care transitions to and from a variety of care settings and continuous quality improvement in the practice.

Exclusivity Provisions

Because Maryland operates two types of PCMH programs – a multi-payer program and single-carrier programs -- another issue that has emerged is "exclusivity": for example, because CareFirst participates in the MMPP and has its own single-carrier PCMH program, primary care practices that participate in one program cannot participate in the other in order to prevent practices from "double-dipping." This can be problematic because it can adversely affect access to PMCHs. For example, if a PCP opted to participate in the CareFirst single-carrier PCMH program, that practice's CareFirst patients would have access to medical home services but those same services would not be available to patients with other types of coverage even though they receive care from the same PCP.

Using MHCC's existing authority to designate new single-payer programs, it is anticipated that the MMPP will dissolve in December 2015. In its place will be a single PCMH program based around multiple single-carrier PCMH programs but with streamlined requirements for quality measurement, community integration, and use of data tools. In this way, Maryland will create a *de-facto* multi-payer PCMH program that eliminates the need for exclusivity provisions. The CIMH Advisory Body (see chapter 5) will work with primary care providers to minimize disruption as we streamline the MMPP into this single-carrier framework.

Quality Measurement

Figure 3-5 presents the minimum core metric set that will form the basis of CIMH performance bonuses and will be a key data source for the learning system. The use of a common set of metrics will allow for enhanced quality monitoring and improvement at the practice level. When payers and PCMH programs use different measures, it makes it very difficult for practices to ascertain their performance across their entire patient panel. A common set of consistently defined core metrics will provide practices a 360-degree understanding of their entire patient population on the health indicators that matter most.

A common set of core metrics will also enable comparative analyses between practices that may be used to benchmark PCMH standards against quality and cost results. As discussed above,

there is little existing literature on which set of PCMH standards results in the best outcomes; this measurement approach will support both practice-level performance improvement and systems-level comparative effectiveness.

Criteria for Selection: Developing a core set of metrics was a major goal of the SIM Model Design process. The four major criteria for determining the metrics to be included in the core set are displayed in Figure 3-4. Based on these criteria, 35 metrics were chosen (see Figure 3-5).

Figure 3-4. Major Criteria for Determining Quality Metrics

1. Minimal administrative burden for provider reporting.

In order to reduce provider burden and permit the entry of a wide range of practices, core metrics should be automatically reported from existing data systems when possible.

2. Utilize metrics already being reported.

Priority should be given to metrics used in existing public health and health care quality initiatives, such as Medicare ACO, Meaningful Use, Million Hearts, CHIPRA, Health Choice, HEDIS/UDS, and Maryland PCMH initiatives.

3. Endorsed by national consensus organization.

Metrics should be endorsed by a major national quality organization (e.g. NCQA or NQF) to help ensure validity and clarity of definition.

4. Linked to evidence and Meaningful for Maryland.

Priority should be given to metrics that have been tied to improvements in health outcomes and lower cost, particularly for those conditions that carry highest mortality and morbidity in Maryland.

Measure Staging: Reporting requirements will be staged so that practices may enter the program even if they are unable to initially report all metrics. Initially, reporting requirements will only include *claims-based* measures using the APCD or *hospital utilization* data that can be generated through CRISP. This will allow reporting for all practices without adding reporting burden. At a future date, requirements will expand, first to include *clinically-enriched measures* (e.g. metrics that incorporate lab values) once CRISP is able to report them, and then to include *clinical measures* (e.g. those typically found in medical records). For more discussion of data infrastructure development please see the section entitled "Pillar #4: Strategic Use of Data."

Figure 3-5. Primary Care Core Measures

Adults			
Type	**NQF**	**Measure Description**	**Metric Type**
Utilization	52	Use of Imaging for Low Back Pain	Claims-based
	AHRQ	Preventable Hospitalizations – AHRQ PQI	CRISP-generated
Screening &	421*	Body Mass Index (BMI) Screening and Follow-Up	Clinical

Adults			
Type	**NQF**	**Measure Description**	**Metric Type**
prevention	41*	Influenza Immunization	Claims-based
	43*	Pneumococcal Vaccination for Patients 65 Years and Older	Claims-based
	31	Breast Cancer Screening	Claims-based
	34*	Colorectal Cancer Screening	Claims-based
	28*	Tobacco Use Assessment & Tobacco Cessation Intervention	Clinical
Cardiovascular conditions	66*	Coronary Artery Disease Composite: ACE Inhibitor or ARB Therapy - Diabetes or LVSD	Claims-based
	67*	Coronary Artery Disease: Oral Antiplatelet Therapy Prescribed for Patients with CAD	Claims-based
	74*	Coronary Artery Disease Composite: Lipid Control	Clinically-enriched
	70*	Coronary Artery Disease : Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction	Claims-based
	83*	Heart Failure: Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction	Claims-based
Ischemic vascular disease	68*	Ischemic Vascular Disease: Use of Aspirin or Another Antithrombotic	Claims-based
	75*	Ischemic Vascular Disease: Complete Lipid Panel and LDL Control	Clinically-enriched
Diabetes	55*	Diabetes: Eye Exam	Claims-based
	56*	Diabetes: Foot Exam	Claims-based
	61*	Diabetes: Blood Pressure Management	Clinical
	64*	Diabetes: LDL Management	Clinically-enriched
	59*	Diabetes: HbA1c Control	Clinically-enriched
Hypertension	18*	Hypertension: Controlling High Blood Pressure	Clinical
Asthma	47*	Use of Appropriate Medications for People with Asthma	Claims-based
Mental health and substance abuse	105*	Antidepressant Medication Management	Claims-based
	418*	Screening for Clinical Depression and Follow-Up Plan	Claims-based
	4	Initiation and engagement of alcohol and other drug dependence treatment	Claims-based
Children			
Type	**NQF**	**Measure Description**	**Metric Type**
Utilization	69	Appropriate Treatment of Children with Upper Respiratory Infection	Claims-based
	AHRQ	Preventable Hospitalizations: AHRQ PDI	CRISP-generated
	2	Appropriate Testing for Children with Pharyngitis	Claims-based
Prevention and screening	24*	Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents	Clinical
	38*	Childhood Immunization Status	Claims-based
	1392*	6+ Well Child Visits, 0-15 months	Claims-based
	28*	Preventive Care & Screening: Tobacco Use Assessment & Cessation Intervention	Clinical
Asthma	1	Asthma Assessment	Claims-based
	47*	Use of Appropriate Medications for People with Asthma	Claims-based
Mental health	108	ADHD: Follow-up Care for Children Prescribed ADHD Medication	Claims-based

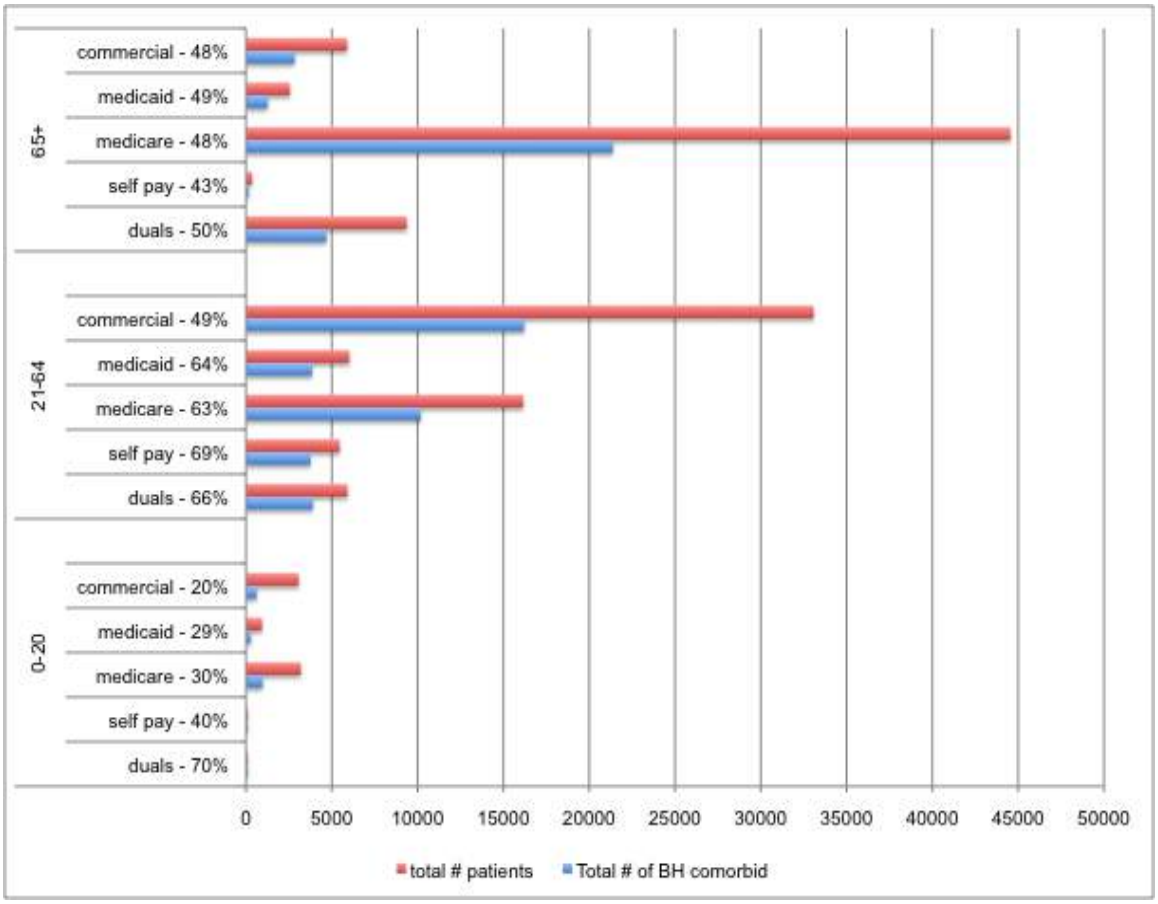
** HHS priority measure*

Finally, PCMHs will be attributed to an LHIC – either on the basis of their geographic location or based on the residence of their attributed patient populations and where they reside – and will be provided additional performance bonuses if they contribute meaningfully to the health of their communities at the LHIC level. In this way, we will begin to foster a sense of collective responsibility at the practice level for health at the community level.

Improved Performance of PCMHs -- Behavioral Health and Primary Care Integration

Among Maryland's super-utilizers, there is a very high prevalence of behavioral health conditions. Of our most expensive Maryland patients (i.e. those who had at least one hospitalization in 2012 and were among the top 10% by total charges), 51.3% had a behavioral health co-morbidity. The percentage is even higher among certain payer and age groups (see figure 3-6). The expanded primary care model within the CIMH is an opportunity to better address the needs of this population and, at the same time, reduce health care utilization in the highest cost patients.

Figure 3-6: Behavioral Health Comorbidity Among Maryland's Highest Cost Patients, By Age & Payer



Source: 2012 hospital encounter data from the Health Services Cost Review Commission

Building Upon Behavioral Health Models Already Underway In Maryland

Two notable interventions are currently under way in Maryland to improve the care that patients with behavioral health conditions receive.

Chronic Health Homes. The Chronic Health Home is an Affordable Care Act authorized program for Medicaid beneficiaries. In Maryland, the program is available to Medicaid and dually-eligible Medicaid-Medicare beneficiaries and focuses on the following populations: serious and persistent mental illness (SPMI), children and adolescents with serious emotional disturbance (SED), and individuals with opioid substance use disorders at risk for additional chronic conditions. A major goal of these programs is to enhance the integration of primary care and behavioral health services and to serve as a "medical home" for those patients who require intensive care management for behavioral health conditions.

Behavioral Health In Pediatric Primary Care Program. The Maryland Behavioral Health in Pediatric Primary Care Program (B-HIPP) aims to support primary care's role in the mental health system for children, youth, and their families. It provides:

1. Free phone consultation for PCPs to receive advice from a mental health specialist, including psychiatrists, psychologists, and clinical social workers at the University of Maryland and Johns Hopkins. Mental health topics covered include screening, resource and referral, and diagnosis and treatment.
2. Continuing education for PCPs and their staff to develop mental health knowledge and skills.
3. Assistance with local referral and resources to link families to mental health services in their community.
4. Co-location of social workers in primary care practices to provide on-site mental health consultation.

What Will Change Under SIM: Expanded Access and Coordination Across The Quadrants.

What is striking about these behavioral health programs is that by targeting Medicaid beneficiaries and children, they are not widely available to the commercially-insured, Medicare, or dual-eligible populations in Maryland despite the high levels of behavioral health co-morbidities present in these patient populations and which contribute to their hospital utilization (see figure 3-6).

Under SIM, these programs will be expanded so that they are available to more patients based on need rather than on insurance coverage. Additionally, the CIMH will help to foster a more systematic approach to how the care of patients with comorbid behavioral and somatic health needs is coordinated in order to ensure that patients receive the level of care they need and in the setting most appropriate for them.

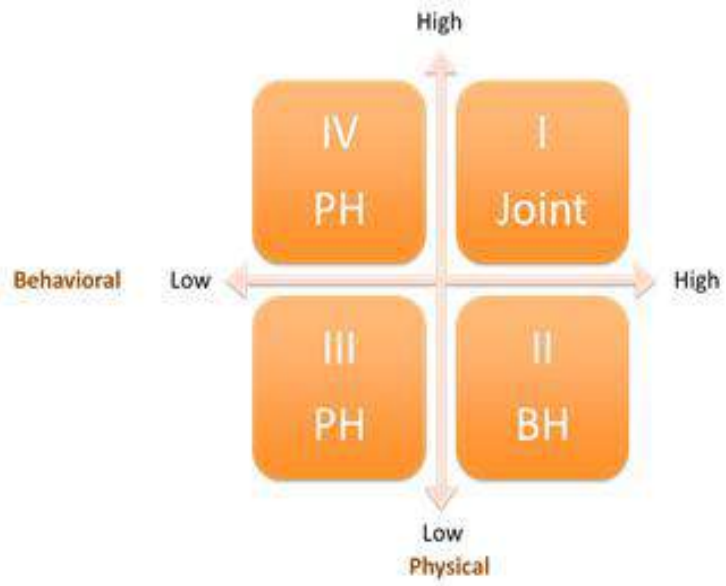
The treatment approach for individual patients will be based on the severity of both their physical and behavioral health conditions. The Four Quadrant Clinical Integration Model is a population-based planning tool developed under the auspices of the National Council for Community Behavioral

Healthcare (NCCBH) (see Figure 3-7). Each quadrant considers the behavioral health (inclusive of substance abuse and mental health) and physical health risk and complexity of the population subset and suggests the major system elements that would be utilized to meet the needs of the individuals within that quadrant.

Quadrant I. For those patients with high behavioral health and physical health needs – for whom a high degree of coordination between both health care and behavioral health systems will be required – SIM will enhance the community infrastructure available to primary care providers and behavioral health providers to ensure that the hand-offs between them are warm and as seamless to the patient as possible. This will be discussed in greater detail in the following section titled "Pillar #2: Community Health."

Figure 3-7. "Who is the Quarterback?" The Four Quadrant Clinical Integration Model

I. The population with high risk and complexity in regard to both behavioral and physical health (care is a joint responsibility between behavioral and physical health providers)
II. The population with high behavioral health risk/complexity and low to moderate physical health risk/complexity (the behavioral health provider is the quarterback).
III. The population with low to moderate risk/complexity for both behavioral and physical health issues (the PCP is the quarterback)
IV. The population with low to moderate behavioral health risk/complexity and high physical health risk/complexity (the PCP is the quarterback).



Quadrant II. Patients with high behavioral health needs but low physical health needs will be referred to – and encouraged to enroll in – Maryland's Chronic Health Homes. These Health Homes will serve as the patients' medical home, with physical health and other community based supports wrapped around it. For example, just as B-HIPP provides behavioral health consultation services for primary care providers, a reciprocal service could be developed to provide behavioral health providers the opportunity to receive consultations, training, and other

resources to assist in the treatment of somatic conditions. Additionally, Chronic Health Homes could be scaled up with SIM funding to include not just the Medicaid patient population but also the Medicare and commercially-insured patient population who suffer from severe and persistent mental illness.

Quadrants III and IV. Patients with low behavioral health needs will be referred to – and encouraged to participate in – Maryland's PCMH programs. Behavioral health care delivered in the primary care setting may be provided by the PCP or, in practices with larger care teams, PCPs in coordination with social workers or licensed alcohol and drug abuse counselors. For PCPs without these professionals in-house, these resources will be made available through community health teams to work alongside the PCP where appropriate. Community health teams are described in more detail in the next section called "Pillar #2: Community Health."

Screening, brief intervention, and referral to treatment (SBIRT) will form the basis of substance use treatment for patients. This comprehensive, integrated, public health approach to treating early stage substance use disorders is well suited for primary care settings. The initial screening may be conducted in less than 10 minutes and the intervention and treatment options indicated by screening results are completed in significantly less time than traditional substance use care. Multiple studies have shown SBIRT to be highly effective at reducing problem drinking and at least short-term reductions in drug and tobacco use.[27]

Primary care providers can be uncomfortable treating behavioral health in primary care settings, particularly substance abuse disorders. Programs like B-HIPP will be expanded to help raise the comfort level of primary care providers to treat behavioral health conditions in primary care settings. For example, B-HIPP could be expanded to provide consultation for adult behavioral health care issues and to be available for patients with commercial or Medicare coverage or are dually-eligible for Medicare and Medicaid.

Payment Model & Payer Participation

The payment structures for existing PCMH programs will continue. Private payers, Tricare, and Medicaid will continue to negotiate payments, bonuses, and other terms with practices through the existing MMPP structure through 2015, which functions as an ACO given its multi-payer shared savings arrangement. The single payer programs will also continue with their own negotiated arrangements with practices, with oversight from MHCC.

With payment structures for the MMPP and private payer programs remaining intact, state efforts will focus on integrating Medicare beneficiaries into our state delivery reform efforts. As mentioned earlier,

[27] Substance Abuse and Mental Health Services Administration (SAMHSA). White paper on Screening, Brief Intervention, and Referral to Treatment (SBIRT) in Behavioral Healthcare. Available at http://www.samhsa.gov/prevention/sbirt/SBIRTwhitepaper.pdf.

these patients are disproportionately represented among the super-utilizers and chronically ill at-risk of becoming super-utilizers based on analyses of hospital encounter data (figure 2-7). Moreover, these patients are not enrolled in any large-scale care management programs in Maryland.

The approach for integrating Medicare in existing state delivery models will be similar to the Multi-Payer Advanced Primary Care Practice (MAPCP) initiative operated by CMMI, while the approach for integrating existing state delivery models into Medicare programs will be similar to the approach used in CMMI's Comprehensive Primary Care Initiative (CPCI). For Medicare fee-for-service (FFS) beneficiaries, Maryland and CMS will negotiate payments, bonuses, and other terms through the MMPP structure. The negotiation of Tricare's participation through the MMPP will serve as a model for initiating Medicare FFS participation.

Pillar #2: Community Health

While all of the mechanisms described above will improve advanced primary care practice in Maryland, perhaps the most important way that SIM will improve the efficacy of PMCHs is through the provision of important community-based wrap around services to provide a supportive "neighborhood" around each medical home. This enhanced community health infrastructure will serve as a critical extension of both primary care and hospitals to ensure that all the needs of their patients – the clinical as well as the social, behavioral, and environmental determinants of health – are effectively addressed upon hospital discharge and in between office visits. As hospitals begin to develop their strategies for reducing readmissions, for example, community health teams will help to facilitate the execution of care plans developed by hospital discharge planners and PCPs.

Evidence to date regarding the impact of PCMHs on health outcomes and cost remains mixed. A number of recent systematic literature reviews and analyses have suggested that PCMH effectiveness is limited by the fact that resources are not sufficiently targeted, with a generic care coordination regimen and payment model that is inadequate to address the full range of services and supports that super-utilizers need.[28] [29] [30]

[28] Jackson GL, Powers BJ, Chatterjee R, et al (2013). The Patient Centered Medical Home: A Systematic Review. *Annals of Internal Medicine*. 158(3):169-178.
[29] Friedberg et al (2014). Association Between Participation in a Multipayer Medical Home Intervention and Changes in Quality, Utilization, and Costs of Care. *Journal of the American Medical Association*. 311(8): 815-25.

In an editorial to the most recent PCMH literature review in the *Journal of the American Medical Association*, Thomas Schwenk commented, "High-risk and high-utilization patients would likely benefit from detailed health risk assessment; integrated and intense comorbid disease management programs; assigned health care teams with multiple approaches to outreach and monitoring, including new smartphone technologies, home visits, and family and caregiver support and education; special post-hospital care protocols; and enhanced access and tracking of emergency department care." While this may be true, delivering the breadth of these types of services is a tremendous responsibility to place on primary care providers who already feel stretched to capacity.

"As organized today, primary care is mission impossible. Most primary care practices attempt to meet the disparate needs of heterogeneous patients with a single 'one size fits all' organization approach. This leads to frustration for patients and the clinicians who attempt to serve them…. We must deconstruct primary care, which is not a single set of services but a group of services delivered to meet the different needs of multiple subgroups of patients."

Michael Porter et al (2013). Redesigning Primary Care: A Strategic Vision to Improve Value By Organization Around Patients' Needs. *Health Affairs*. 32(3): 516-25.

As such, for the subset of our patients for whom advanced primary care in a PCMH is necessary but not adequate to keep them healthy and out of the hospital once they have been discharged; either because they require more extensive community-based clinical care coordination in-between clinic visits – or because they have substantial non-clinical needs that are adversely affecting their health and are difficult to address in a clinic setting or a biomedical approach alone -- wraparound services and supports will be provided in order to complement and extend the reach of the PCMH and hospital.

This section will first describe what those community-based interventions are, followed by a discussion of how we intend to provide them. The CIMH model will require an enhanced community health infrastructure to deploy these wraparound services to the target population that may be socially and physically complex and have issues that cannot all be addressed by primary care providers alone. We will describe the current community health infrastructure in Maryland and how that will be enhanced under SIM. Hospitals could certainly choose to develop this community health infrastructure on their own -- and in some communities, this strategy may make the most sense given the investments and resources a hospital may have already made and is providing to its community. However, for other communities and hospitals, a more efficient and cost-effective approach might be to leverage the resources that are already available in the broader community and partner with those organizations like schools, social services providers, local health departments, and other community-based organizations who already have deeply rooted relationships with many of our most vulnerable patients and have

[30] Michael Porter et al (2013). Redesigning Primary Care: A Strategic Vision to Improve Value By Organization Around Patients' Needs. *Health Affairs*. 32(3): 516-25.

developed the expertise in delivering home and community-based care provision. In this section, we describe both options.

Menu of Community-Based Services and Supports

The wrap around services will be comprised of community-based preventive interventions with evidence of effectiveness and a positive ROI that are not feasible to deploy in clinical settings or are best deployed in community-settings. These services include, but are not limited to, community-based clinical care coordination, public health interventions, behavioral health coordination, and social services supports. Through validated patient needs assessments, community health teams will determine the appropriate mix of services to provide for each patient, drawn from this menu and tailored to each patient.

Data from published and unpublished sources as well as the direct experience of individuals and organizations in Maryland that have implemented similar programs are valuable resources in helping to select best-in-class programs. Absent unequivocal stand-alone evidence of an effective community intervention for a target population, the most promising models that do exist will be adopted and adapted.

> **"The most effective public health programs are based on an evidence-based technical package … of proven interventions [that] sharpens and focuses what otherwise might be vague commitments to 'action' by committing to implementation of specific interventions known to be effective. It also avoids a scattershot approach of using a large number of interventions, many of which have only a small impact."**
>
> *Thomas R. Frieden, CDC*
>
> Thomas R. Frieden. (2013). Six Components Necessary for Effective Public Health Program Implementation. *American Journal of Public Health*: e1-6.

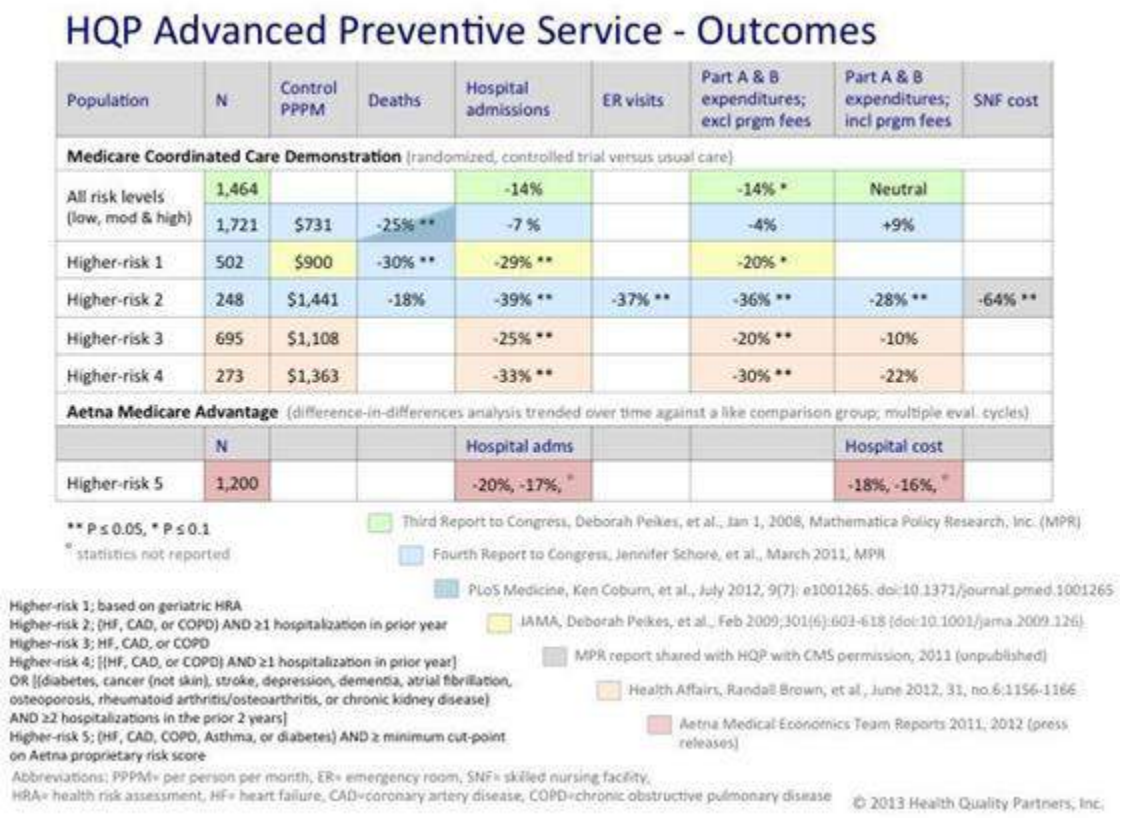
Community-Based Clinical Care Coordination

Clinical care coordination in the community setting where patients live, work, and play will complement and extend the reach of office-based primary care and comprises a critical component of the CIMH model. Unlike traditional care coordination that is office-based or telephonic and time-limited or episodic (e.g. 30 days following hospital discharge), the approach taken by the CIMH will be longitudinal and community-based and assess and address other factors that may be impacting an individual's health status such as their living environment, social service needs, behavioral health needs, and any other non-medical needs.

The community-based clinical care coordination model will be based on the **Health Quality Partners (HQP) Advanced Preventive Services (APS) model** (hereafter referred to as "the HQP model"). The HQP model is the only disease management program of Medicare's Coordinated Care demonstration to show

improved outcomes and lower cost.[31] [32] Figure 3-8 summarizes the results of many evaluations of the HQP model published to date. As such, this model will be the minimum standard for all community-based clinical care coordination for Medicare FFS or dual-eligible patients in the CIMH model. For other patient populations, the HQP model will be replicated or adapted in its entirety along with the behavioral health and other social service resources to address the individual's medical and non-medical needs.

Figure 3-8: Results from HQP's Advanced Preventive Service Model



HQP Advanced Preventive Service - Outcomes

Population	N	Control PPPM	Deaths	Hospital admissions	ER visits	Part A & B expenditures; excl prgm fees	Part A & B expenditures; incl prgm fees	SNF cost
Medicare Coordinated Care Demonstration (randomized, controlled trial versus usual care)								
All risk levels (low, mod & high)	1,464			-14%		-14% *	Neutral	
	1,721	$731	-25% **	-7 %		-4%	+9%	
Higher-risk 1	502	$900	-30% **	-29% **		-20% *		
Higher-risk 2	248	$1,441	-18%	-39% **	-37% **	-36% **	-28% **	-64% **
Higher-risk 3	695	$1,108		-25% **		-20% **	-10%	
Higher-risk 4	273	$1,363		-33% **		-30% **	-22%	
Aetna Medicare Advantage (difference-in-differences analysis trended over time against a like comparison group; multiple eval. cycles)								
	N			Hospital adms			Hospital cost	
Higher-risk 5	1,200			-20%, -17%, °			-18%, -16%, °	

** P ≤ 0.05, * P ≤ 0.1

° statistics not reported

Higher-risk 1; based on geriatric HRA
Higher-risk 2; (HF, CAD, or COPD) AND ≥1 hospitalization in prior year
Higher-risk 3; HF, CAD, or COPD
Higher-risk 4; [(HF, CAD, or COPD) AND ≥1 hospitalization in prior year] OR [(diabetes, cancer (not skin), stroke, depression, dementia, atrial fibrillation, osteoporosis, rheumatoid arthritis/osteoarthritis, or chronic kidney disease) AND ≥2 hospitalizations in the prior 2 years]
Higher-risk 5; (HF, CAD, COPD, Asthma, or diabetes) AND ≥ minimum cut-point on Aetna proprietary risk score

Abbreviations; PPPM= per person per month, ER= emergency room, SNF= skilled nursing facility, HRA= health risk assessment, HF= heart failure, CAD=coronary artery disease, COPD=chronic obstructive pulmonary disease

Third Report to Congress, Deborah Peikes, et al., Jan 1, 2008, Mathematica Policy Research, Inc. (MPR)

Fourth Report to Congress, Jennifer Schore, et al., March 2011, MPR

PLoS Medicine, Ken Coburn, et al., July 2012, 9(7): e1001265. doi:10.1371/journal.pmed.1001265

JAMA, Deborah Peikes, et al., Feb 2009;301(6):603-618 (doi:10.1001/jama.2009.126)

MPR report shared with HQP with CMS permission, 2011 (unpublished)

Health Affairs, Randall Brown, et al., June 2012, 31, no.6:1156-1166

Aetna Medical Economics Team Reports 2011, 2012 (press releases)

The major components of the HQP model, a community-based nursing led advanced preventive care model, have been described at length elsewhere but can be divided into intervention components and management elements (see Appendix 8.4). These services are provided by HQP nurse care managers through in-person contacts (home visits and office visits and in groups) and through telephone monitoring and follow-up and continue indefinitely for as long as the patient remains enrolled in the program.

[31] Coburn, K.D., Marcantonio, S., Lazansky, R., Keller, M. and Davis, N. (2012) 'Effect of a community-based nursing intervention on mortality in chronically ill older adults: a randomized controlled trial', *PLoS Med*, 9(7), p. e1001265

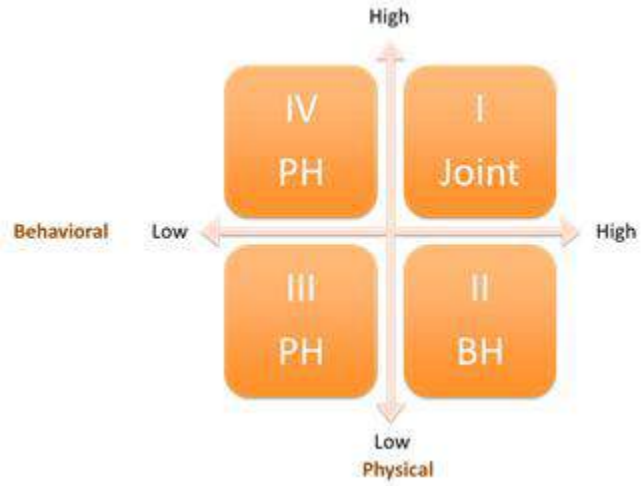
[32] Brown, R.S., Peikes, D., Peterson, G., Schore, J. and Razafindrakoto, C.M. (2012b) 'Six features of Medicare coordinated care demonstration programs that cut hospital admissions of high-risk patients', *Health Aff (Millwood),* 31(6), pp. 1156-1166.

HQP's nurse care managers begin with a thorough needs-assessment using validated assessment tools. Based on a patient's individual needs, an individual care plan and an action plan is developed using a toolkit of evidence-based interventions that is customized for each patient. For example, a patient with diabetes with a BMI >30 might receive the following services as part of his/her care plan – medical reconciliation and management; education and self-management training; nutritional education and counseling; and enrollment in a weight loss management group – while another patient, perhaps an elderly patient at-risk of fall-related injuries – might receive in-home seated exercise training and enrollment in a FallProof group as part of his/her care plan.

Behavioral Health Coordination

Currently, complex patients with both physical and behavioral health needs often do not receive the appropriate care for their condition and thus find themselves in a crisis that requires hospitalization. As described in the previous section ("Pillar #1: Primary Care"), the CIMH model will attempt to ensure that patients with both physical and behavioral health needs get the care they need in the most appropriate setting. Where patients can effectively be managed in primary care settings because their behavioral health needs are of a low severity, those patients will be treated primarily in the PCMH (Quadrants III and IV). Conversely, where patients have high behavioral health needs and low physical health needs, the behavioral Health Home will serve as the "medical home" for those patients (Quadrant II).

The CIMH will also facilitate better coordination and "warm handoffs" between somatic and behavioral health care. This will be particularly important for patients with both high behavioral and physical health needs, who will need to be effectively co-managed between systems (Quadrant I). While some health systems in Maryland have achieved complete behavioral health integration with primary care -- and others have co-located behavioral health services in primary care settings -- these arrangements tend to be the exception rather than the norm. Moreover, patients often move between quadrants as their conditions get better or worse.



Health care providers need support to connect patients to the appropriate care setting and services once patients have presented with a condition that requires additional consultation or expertise. When patients present in the health care system with behavioral health needs, they are often categorized as "emergent" or "non-emergent" when, in fact, their needs fall in between these two poles. As such, PCPs will sometimes refer their behavioral health patients to the ER or hospital, only for the patient to be

turned away because their condition was not truly emergent. Similarly, when hospitals and ERs determine that a patient has a non-emergent condition, they often do not know where to refer these patients. To support more effective community-based referrals, comprehensive inventories of behavioral health services available within communities will be developed, and the services will be placed on along a "continuum of care" spectrum so that health care providers can have a more nuanced understanding of where to send their patients depending on the acuity of the behavioral health need.

Social Services

To more effectively address social determinants of health, social services will be engaged at the state and local levels as bona fide health care partners within the CIMH framework. By ensuring that a person's basic needs – food, housing, income, etc. -- are better met through improved uptake of available social services, the CIMH model will improve that person's health and reduce total cost of care by minimizing avoidable hospitalizations and ER visits.

Maryland CIMH will adapt lessons learned from **Hennepin Health** in Minnesota and the **Vermont Blue Print for Health** regarding the integration of social services for high-utilizing patient populations. The Hennepin Health model supports the role of a social service navigator who is employed to serve as a liaison between primary care office-based care coordinators and all existing social services and programs. In addition, the social service navigator also works to identify systems barriers and elevate these issues to the policy level. This allows appropriate leadership to convene and make system-wide changes to improve access and efficiency. One example of a systems level issue identified by the social service navigator was lapses in program enrollment for many individuals. Once lapsed, it required considerable effort for staff to re-enroll program participants and created significant disruption for the individual. In response, Hennepin Health upgraded its data system to alert care coordinators when benefits would term, thus allowing them to start the process of renewing enrollment sooner. This resulted in greater care continuity for the individual and a reduction in staff time and effort to re-enroll individuals.

> **"What is often dismissed as 'patient non compliance' is really a social service need that is not being met."**
>
> *Jennifer DeCubellis, Hennepin Health*

Hennepin Health was so effective and realized such a significant return-on-investment that they were then able to use the savings to invest in social services that were not readily available but were desperately needed. Housing is one example of a purchased service for homeless individuals that had been hospitalized. Previously, homeless patients often remained in the hospital even after they were stabilized because there was nowhere to safely discharge them. Hennepin Health recognized that this was not a good use of resources for the hospital and not ideal for the patient. By negotiating priority status through existing housing programs and by purchasing housing units, Hennepin Health enabled homeless individuals to be discharged as soon as they were stabilized and to continue to recover in one

of their housing units. Similarly, Hennepin Health was able to invest its savings to establish a sobriety center for substance-abuse patients who would otherwise have ended up in the ER or hospital.

The Maryland Department of Human Resources (DHR) is the state's primary social service agency. Some of the programs and services that DHR provides include: adult and child protective services, energy assistance (Maryland's Low-Income Home Energy Assistance Program -- LiHEAP), State Nutritional Assistance Program (SNAP), foster care, temporary cash assistance (Maryland's Temporary Assistance for Needy Families program -- TANF), new immigrant services, and medical assistance enrollment.

DHMH has already initiated conversations with DHR to spread some of the key design features of Hennepin Health and Vermont Blueprint for Health in Maryland. Other types of social services and supports that the CIMH will explore are vocational rehabilitation programs and partnerships with corrections and the justice system, all of which were identified by Hennepin Health and Vermont Blueprint representatives as particularly critical to the well-being of safety-net populations.

Public Health Interventions

Maryland's Local Health Departments have extensive experience working with community partners to deploy public health interventions that are essential to the CIMH model. Additionally, our Local Health Departments and community-based organizations have a long history of -- and expertise in -- successfully connecting with individuals in the community in ways that the medical delivery system does not. Successful evidence-based public health interventions will be part of the menu of community-based services and supports, examples of which are provided below.

> The **Reducing Asthma Disparities** program is a home and school based environmental health remediation programs that address childhood asthma by deploying community based outreach to families and caregivers of asthmatic school aged children. Outreach workers of identified asthmatic children are provided with home visits and a room by room assessment is conducted. The assessment is shared with the child's primary care provider and together with the outreach team an action plan is created for the individual and their family. As well as addressing the individual's clinical needs the program provides families and caregivers non-medical needs that impact asthma such as new bedding and pillow cases, cleaning supplies and a vacuum cleaner and funds are also available for small home improvements such as carpet removal.
>
> The **Maternal Child Health Home Visiting Program** targets parents and care givers to improve the growth and development of children. These evidence-based home visiting programs are made available in the home, and in group settings for some areas and help families strengthen attachment, provide optimal development for their children, promote health and safety, and reduce the potential for child maltreatment. Five evidence-based home visiting programs are in use in Maryland: Nurse-Family Partnership, Healthy Families America, Parents as Teachers, HIPPY, and Early Head Start.

The **HIV Care Program** links individuals to local treatment services, medication and case management and social services. The Center for HIV Prevention and Health Services supports local health departments, hospitals and community-based health care providers to offer a wide variety of treatment and care services to people living with HIV and AIDS across Maryland. These health care and support services fill gaps in care faced by those with low-incomes and little or no insurance. The Center for HIV Prevention and Health Services also administers the Maryland AIDS Drug Assistance Program (MADAP) to ensure that people living with HIV have access to the medications they need to stay healthy.

Maryland's Existing Community Health Infrastructure: The State Health Improvement Process

The CIMH model will require an enhanced community health infrastructure to deploy these wraparound services. Foundational to this effort will be the public health infrastructure developed as part of Maryland's State Health Improvement Process (SHIP).

> **"Public health is increasingly complex, with key roles played by public- and private-sector partners that are critical to sustaining and improving the population's health. Coalitions are often essential to progress… Partners can supplement available human or financial resources and can support and undertake critical activities."**
>
> *Thomas R. Frieden, CDC*

Thomas R. Frieden. (2013). Six Components Necessary for Effective Public Health Program Implementation. *American Journal of Public Health*: e1-6.

Launched in September 2011, SHIP is both an approach to improving health outcomes at state and local levels and a robust public health measurement system which aims to improve population health and reduce disparities by catalyzing and aligning local action on key dimensions of population health (figure 3-9). As part of SHIP, 20 Local Health Improvement Coalitions (LHICs) have been established that span the state and bring together public health, health care, and other community leaders to identify their community's priority health needs and develop local health improvement action plans to address them in collaborative ways that would not be possible if each partner acted in isolation. In establishing LHICs across Maryland, the intent was to more systematically foster partnerships between public health, medicine, and other community-based services at the community level, in the recognition that developing an effective community-integrated health care system would not be possible if public health and medicine continued to work independently within their traditional silos.

The evolution of each LHIC varies across the state and each coalition continues to define an approach that

Figure 3-9. State Health Improvement Process – 2013 Update

Category	Measure	Progress
Overall Goal	Increase **life expectancy**	
Healthy Beginnings	Reduce **infant deaths**	
	Reduce the percent of **low birth weight** births	
	Reduce **sudden unexpected infant deaths (SUIDs)**	
	Reduce the **teen birth rate**	
	Increase the % of pregnancies starting **care in the 1st trimester**	
	Increase the proportion of children who receive **blood lead screenings***	
	Increase the % entering **kindergarten ready to learn**	
	Increase the percent of students who **graduate high school**	
Healthy Living	Increase the % of adults who are **physically active**	
	Increase the % of adults who are at a **healthy weight**	
	Reduce the % of **children** who are considered **obese**	
	Reduce the % of **adults** who are **current smokers**	
	Reduce the % of **youths** using any kind of **tobacco product**	
	Decrease the rate of **alcohol-impaired driving fatalities**	
	Reduce new **HIV infections** among adults and adolescents	
	Reduce **Chlamydia** trachomatis infections	
Healthy Communities	Reduce **child maltreatment**	
	Reduce the **suicide** rate	
	Reduce **domestic violence**	
	Reduce the % of young children with **high blood lead levels**	
	Decrease **fall-related deaths**	
	Reduce **pedestrian injuries** on public roads	
	Reduce **Salmonella** infections transmitted through food	
	Reduce the number of **unhealthy air days**	
	Increase the number of **affordable housing** options	
Access to Health Care	Increase the proportion of persons with **health insurance**	
	Increase the % of adolescents receiving an **annual wellness checkup**	
	Increase the % of individuals receiving **dental care**	
	Reduce % of individuals **unable to afford to see a doctor**	
Quality Preventive Care	Reduce **deaths** from **heart disease**	
	Reduce the overall **cancer death rate**	
	Reduce **diabetes**-related emergency department visits	
	Reduce **hypertension**-related emergency department visits	
	Reduce **drug-induced deaths**	
	Reduce ER visits related to **mental health conditions**	
	Reduce ER visits for **addictions-related conditions**	
	Reduce the number of hospitalizations related to **Alzheimer's disease**	
	Increase the % of **children** with **recommended vaccinations**	
	Increase the % **vaccinated** annually for **seasonal influenza**	
	Reduce hospital emergency department visits for **asthma**	

	The updated measure on track to meet/ met the Maryland 2014 Target
	The updated measure is moving toward the Maryland 2014 Target
	Updated measure is not moving toward the Maryland 2014 Target
	Data for update is pending

works best in their community. For example, one LHIC is a 501(c)(3) organization with the ability to fundraise, hire staff such as community health workers, benefit from tax incentives, and be led by a Board of Directors representing organizations that are part of the coalition. Another LHIC is integrated with the local health department, which provides dedicated staffing for the coalition. In other cases, the LHIC has formed more slowly and developed other mechanisms for planning and engaging the community.

The CIMH model will strengthen Maryland's community health infrastructure by identifying best practices from the most effective LHICs, which are characterized by a history of working closely and productively with their public health partners as well as their hospital health system, primary care providers, behavioral health, school systems, and social services. Using these best practices, each LHIC will be supported in developing an LHIC Charter to further define the key elements of an effective LHIC in the areas of governance, leadership, stakeholder engagement, operations, and accountability.

Through these efforts, DHMH will help to raise the tide for all LHICs and narrow the gap between the more robust and developed LHICs and those that have only recently formed. In the meantime, not all LHICs are equally well-positioned to assume the broader responsibilities of coordinating and deploying the community-based wraparound services described in this section. LHICs with less experience coordinating services across sectors and across geographies may not be as able to fulfill this ambitious role.

What Will Change Under SIM: Community Health Hubs

For this reason, Community Health Hubs (CHHs) will be established to identify the organization or coalition of organizations best suited to deploy the community-based wraparound services. CHHs are local or regional units responsible for overseeing and managing community health teams (CHTs) to implement the community interventions described earlier. CHHs will be selected through a competitive RFP process to allow local assets to apply for this role.

Organizations eligible to apply as a CHH will include: local health departments, LHICs, hospitals, community-based 501(c)(3) organizations, and collaborative partnerships between these entities. As such, in some – but not all – communities, the LHIC and the CHH will be one in the same.

Where this is not the case, the LHIC and CHH will work together to ensure alignment with community identified priorities and strategies and to track and monitor progress. The LHIC will continue to be the entity in the community chiefly responsible for convening stakeholders, planning, prioritizing, aligning strategies, and tracking population health outcomes. The LHIC will also be responsible for having a comprehensive and up-to-date inventory of resources, services and current contacts for the CHH to access in coordinating care for their patients.

The CHH, in turn, will identify barriers and gaps in serving the target population and will work with the LHIC to engage community partners to provide policy and system solutions to eliminate barriers or fill gaps. When barriers identified go beyond the authority of the LHIC to resolve at the local level, these issues will be elevated to DHMH so that we can work with our sister agencies to find appropriate solutions.

The CHH will be responsible for the following activities:

- deployment of intervention to target population,
- oversight/management staff,
- ensure fidelity to evidence based intervention model(s),
- engage and report on quality assurance/quality improvement activates,
- data monitoring, tracking and reporting,
- collaboration with Local Health Improvement Coalitions
- participate in learning system to share data and improve processes.

A CHH may directly hire, train, manage, and deploy staff required to implement the community-based wraparound services or it may contract with other resources in the community capable of providing such services. In either case, the CHH will be primarily accountable for service quality, effectiveness, and efficiency. The target populations served by the CHH and the services they need will ultimately determine the full staffing pattern at each CHH.

CHH Interactions with Patient-Centered Medical Homes

The CHH is meant to literally wrap around the PCMH and assist the medical home in meeting the non-medical needs of the patient as well as the medical needs that can effectively be served in the community setting. Primary care providers that meet the CIMH PCMH minimum threshold will be able to partner with their CHH. The CHH will need to work closely with PCMHs within their communities and regions to deploy CHT and wrap around services to identified individuals in the target population. The CHH will identify and contract with PCMHs to define the roles and responsibilities, determine mechanisms for data sharing, and tracking and monitoring progress.

The need for community based clinical care coordination in the Maryland context will differ across the state based on geography and the availability of existing services, resources, and access to primary care. The CHH will develop agreements with PCMHs participating in the CIMH model and agree upon the scope of clinical care coordination services provided by CHTs.

This tailored approach is important to meet the specific clinical needs of the individual, but also to align clinical services provided to the patient to prevent duplication of effort. For example one primary care office may have care coordination services are already in place. In this case, the CHT will conduct home visits and only provide limited scope of clinical service, but work closely with the care coordinator at the

primary care practice to support or reinforce what is already in place clinically and provide access to non-medical services and resources. However, in areas of the state where there is limited or no primary care services for individuals, the CHH CHT will need to link patients to care and provide more comprehensive community based care coordination and support services.

CHH Interactions with Hospitals

As described above, hospitals will be eligible to apply to serve as the CHH for their communities. For some communities, therefore, the CHH and the hospital may be one and the same. Additionally, several LHICs are co-chaired by local health departments and hospitals. Where these LHICs are selected to serve as the CHH, hospitals will play significant leadership roles within their CHHs.

Where either of these scenarios is not the case, the CHH will interact closely with hospital discharge planners to facilitate and support care transitions. Where there are outpatient programs offered by the hospital to the community, the CHHs will also ensure that those are part of the inventory of community resources so that the hub can link patients to those resources where appropriate.

Finally, when hospitals identify patients who they believe would benefit from receiving wraparound services and supports, hospitals will be able to refer patients to the CHHs.

CHH Performance Measures

All CHHs will report on a standard set of core performance measures, like time to first visit following enrollment, time to first visit after hospital discharge, time to completion of an initial assessment, etc.

Additionally, each CHH will be required to report on process and outcome measures specific to the particular types of community-based interventions deployed and patient populations served. Once CHHs are selected, target populations are identified, and interventions are selected, specific performance measures for each CHH will be finalized, most likely during the early part of the ramp-up period in Year 1 for launching the CIMH model in Maryland. These measures will also be aligned with – and feed into -- the core SHIP population health indicators (figure 3-9).

Payer Participation & Payment Model

All CHHs will be required to address the needs of Medicare FFS and Duals given that there is no systematic care management offered to these individuals in Maryland, despite the need (i.e. 67% of the patients with 3 or more hospitalizations in 2012 were Medicare FFS or Duals patients). SIM will fill this much-needed gap. In addition, CHHs will be required to select at least one other super-utilizer population (e.g. children with poorly-managed asthma; HIV-positive individuals lost to follow-up; etc.).

The model will be open to all other payers on a "pay and/or play" basis. We plan to also engage our own State's employee health benefits plan and try to engage at least one other ERISA plan.

- "Play" means that the payer chooses to enroll their super-utilizer population into the CIMH model
- "Pay *and* Play" means that the payer chooses to enroll their super-utilizer population into some components of the CIMH model (e.g. the social services intervention) but not all (e.g. they may already be doing intensive clinical care management in community settings)
- "Pay" means that the payer chooses to continue offering their own services.

Core performance measures will be established along with targets based on what the evidence base suggests are feasible outcomes to expect (cost savings as well as quality improvement). These will become state-wide benchmarks that are used as part of an integrated evaluation.

For payers that opt to participate (i.e. "play" or "pay and play"), all fees for the community interventions utilized will be paid for out of SIM dollars in the first 3 years. Pending a positive ROI at the end of the 3nd year, payers will begin to pay for the intervention in years 4 and beyond.

Payers that choose not to participate (i.e. "pay") will provide the data necessary to evaluate their performance against established benchmarks. At the end of year 2, if their performance does not meet the benchmark, the payers will agree to participate (i.e. "play") in year 3 and beyond at their own cost.

CHHs will be financed on a capitated severity-adjusted "case rate" basis, based on what it costs to deploy the set of interventions appropriate for their specific target populations. Capitated payments will promote efficiency among CHHs while also providing the necessary flexibility CHHs will need – and which FFS fee schedules cannot provide – to tailor the set of services to the needs of each patient served.

Pricing will also be a la carte so that payers who opt to "pay and play" can select which services they would like to purchase from the menu of services and supports and only pay for those items their patients make use of.

Pillar #3: Workforce Development

In contrast to a health system where fragmented health care delivery is reinforced by reimbursement structures that support discontinuous delivery of care, the CIMH framework seeks to develop a responsive, patient-centered health system delivering continuous and comprehensive care to patients. To achieve this aim, the CIMH will reach out to the people who struggle to

get benefit from healthcare available to them with CHWs acting as critical connectors between the hospital system, the public health infrastructure and primary care teams.

The CHW may be utilized in a number of ways in the CIMH model. They may be embedded in care teams within a primary care practice or as part of the CHH CHT and work primarily as a trusted member of both the care team and the community to support individual engagement with CHT and the primary care providers.

Several hospitals and reform initiatives in Maryland are already employing CHWs as part of their care delivery teams, including several of Maryland's Health Enterprise Zones and the J-CHIP program operated out of Johns Hopkins University Hospital and funded through a CMMI grant. The CIMH will build on these initiatives by leveraging their expertise in the development of a standardized state-wide CHW training and certification program, as well as the analysis and stakeholder engagement that DHMH has already conducted during the CIMH planning process to review the evidence-base.[33] This will ensure that CHWs – wherever they may be employed – will have a consistent and reliable skill set, including the knowledge of the breadth of community resources they will need to effectively connect patients with care and community. This will also lift the burden off of these hospitals and programs to develop their own CHW training programs. Community colleges in Maryland have a successful history of working with hospitals and the health care system to develop the stream of allied health professionals required for an effective and efficient health care delivery system in Maryland: the CIMH will leverage this partnership to continue to build out the workforce required for a community-integrated health care system.

Developing a Statewide Standardized Training Program for Community Health Workers

With their roots in community development, and embedded in the community and culture in which the patient lives, CHWs have the potential to link across the clinical and non-clinical needs of the individual patient. For example, as culturally competent mediators between health providers and the members of diverse communities CHWs are uniquely well placed for promoting the use of primary and follow-up care for preventing and managing disease.[34]

The CHW role as envisioned in the CIMH framework will require skills to identify patient needs, provide some direct care under the supervision of a licensed clinician, nurse, or social worker, support individual linkages to clinical and non-clinical services, to advocate for patients and their families, and interface effectively with both clinical and non-clinical providers. These key functions the core competencies associated with them are listed in figure 3-10.

[33] Quigley L, Matsuoka K, Montgomery K, Khanna N, Nolan T (2014). Workforce Development I Maryland to Promote Clinical-Community Connections that Advance Payment and Delivery Reform. *Journal of Health Care for the Poor and Underserved* 25 (1: February 2014 Supplement), 19-29.

[34] Brownstein, J.N., Hirsch, G.R., Rosenthal, E.L. and Rush, C.H. (2011b) 'Community health workers "101" for primary care providers and other stakeholders in health care systems', *J Ambul Care Manage*, 34(3), pp. 210-220

Figure 3-10. CHW Functions and Core Competencies

CHW Function	Core Competencies
1. Build trust and communication with individuals and their families	● Communicate effectively with patients and families in a culturally competent manner and respecting patient confidentiality ● Communicate effectively with individuals and their identified families and community members about individual identified and assessed needs, concerns, strengths, challenges and limitations. ● Create a non-judgmental atmosphere in interactions with individuals and their identified families. ● Engage individuals and community members in ways that establish trust and rapport with them and their families.
2. Needs identification and review	● Communicate effectively with health care and social service providers ● Identify and document client's health and social needs that are relevant to the client / population as well as the client's identified needs and priorities. ● Monitor progress on the Client and HUB team identified & planned targeted areas (e.g. food/insulin journal, daily weights, activity goals, socialization goals etc.). ● Use motivational interviewing techniques and health coaching to educate and support patients to achieve self-management goals
3. Build individuals' capacity to manage their health care	● Understand the most common chronic disease conditions ● Support individuals and their identified families and community members to utilize care and community resources. This may include accompanying clients to visits, appointments with community resources etc. ● Use appropriate educational materials as planned by the HUB team to engage and reinforce clients in health and wellness interventions and services. ● Develop and disseminate culturally and linguistically appropriate information to clients as outlined in joint team /client plan regarding available services and processes to engage in services.
4. Build community capacity	● Communicate systems failures that pose barriers to patients in the delivery of clinical and non-clinical services ● Identify and help create community resources that meet the needs of clients served including linkages to community services and other support systems.

In order to create the strong, statewide CHW workforce that will be needed for this work, Maryland will establish a standardized CHW Certification and Training Program, informed by well-established, evidence-based models from other states' experience and drawing on evidence from successful advanced primary care initiatives and existing Maryland expertise.

Curriculum Development

Towards this end, DHMH has partnered with Maryland's community colleges and has requested their assistance in drafting CHW curriculum standards based on the information provided above in Figure 3-10 and existing evidence base of CHW curricula from Ohio, Minnesota, Texas, and New York. DHMH will build on the experience of organizations across the state already engaged in the development and implementation of CHW training programs. These organizations include the Health Enterprise Zones (HEZ) grantees, hospitals, Universities/community colleges, the Area Health Education Centers (AHECs), Minority Outreach and Technical Assistance (MOTA) grantees and some Local Health Departments.

The curriculum will have a didactic classroom component as well as a practicum component that will allow the greatest exposure to the role. It is expected that on the job training will also be required after the CHW certificate has been awarded

Advisory Board

DHMH will also establish a CHW Advisory Board to help guide the development of a statewide CHW certification and training program. The Advisory Board will be a group of cross sector CHW experts that will provide recommendations on the CHW role and function, curriculum standards, standards for monitoring and evaluation of the program, and requirements of organizations and institutions that provide CHW training such as Community Colleges and other eligible institutions or organizations.

The Advisory Board will include: CHW content experts (academic and lay people), CHW employers (hospitals, clinical providers, health systems, local health departments, and community based organizations), CHW representatives, and consumers of CHW services.

Once a draft curriculum has been developed, DHMH will work with the Advisory Board to provide feedback on the standardized CHW curriculum developed by the Community Colleges. The Advisory Board will provide recommendations on CHW curriculum standards and curriculum content that will be provided to DHMH. The Advisory Board will also be asked to provide input on how the training should be rolled out, in light of the existing efforts already underway across Maryland to develop CHW training programs. For example, the Advisory Board may recommend a phased approached to implement the final DHMH approved standardized Maryland CHW curriculum. As part of such a plan, it may be prudent to grandfather in certain programs in the short-term while developing a long term plan to move towards one statewide curriculum under the Community Colleges and other eligible organizations that might still be deemed as sites to provide CHW training.

Given the identified role and competencies of CHWs, the Advisory Board will also be looking at the requirements of CHW supervisors, necessitating the development of competencies and training for supervisors also.

Provision of CHW Training

The curriculum will be provided locally and regionally across Maryland beginning in geographic areas that will be identified for the SIM Testing proposal. DHMH and Community Colleges will begin to test the curriculum in a pilot through SIM. Eligibility criteria for organizations and institutions to provide the CHW training will be developed. Organizations and institutions that meet the minimum criteria established will be designated by DHMH as CHW training sites to spread the training statewide, following the pilot period.

Administration and Oversight – Maryland DHMH

DHMH will provide oversight and administrative support to the infrastructure supporting CHW Certification and Training. Administrative and oversight activities will include:

- Policy development required to establish the statewide CHW training and certification requirements. The requirements will be based on Advisory Board-approved CHW curriculum standards.
- Convening the Advisory Board and implementing its recommendations.
- Monitoring and tracking outcomes from institutions providing CHW training and certification programs.
- Overseeing plans for local or regional phased approach for deploying CHWs statewide.
- Maintaining a workforce registry to track and monitor certified CHWs in Maryland.
- Providing estimates to training programs of supply of and demand for CHWs across the state.

Economic Development Through Workforce Development

Embedding CHW training in Maryland's community colleges is a deliberate strategy to encourage career growth while building the workforce of the future. Community Colleges currently provide a number certificate programs for allied health professions, thus playing a significant role in communities in expanding and growing the health care workforce. By placing the CHW Certification and Training program within the Community College setting, we anticipate that lay community members in CHW training will be exposed to other educational and career opportunities that they may not otherwise be exposed to, encouraging their career growth and earning potential in higher paying health professions. As CHWs "graduate" into these higher paying health professions, they could leverage their standing within their communities to help recruit the next wave of CHWs, thus building a pipeline of skilled CHWs while also spurring economic development within their communities and addressing income-related social determinants of health.

Innovations in Workforce Development

The workforce required to implement the CIMH model will utilize existing health professions in traditional and new roles as well as innovations to develop and leverage non-health related professions to meeting the clinical and non-clinical needs of individuals. This will require all professions to work to the top of their license and skills and to clearly define the role and scope for each profession as well as appropriate oversight and supervision. In addition, there may be opportunities to incorporate sectors of the workforce that are not traditionally part of a clinical care team or community based health intervention such as Community Health Workers (CHWs), residential counselors or other social service providers.

One aspect of applied R&D that we will pursue is to thoughtfully experiment with adjusting workforce roles, in particular greater use of CHWs to deliver Community Interventions, in an effort to make best-in-class interventions more scalable, more effective, and less costly.

The structure of the CIMH as proposed will allow thoughtful, disciplined applied R&D trials regarding intentional variations to staff models for Community Interventions. For example, figure 3-11 crosswalks those functions currently performed by a RN in the HQP model for chronically ill older adults with those that might feasibly be reassigned to a trained CHW. It is not possible to know whether such a change to this model will make it more effective or preserve effectiveness while reducing intervention cost, but it

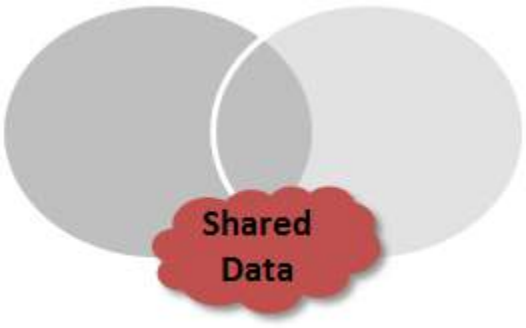
Figure 3-11. Crosswalk of HQP Model Functions and Whether CHWs May Perform Them

Examples of HQP Interventions Conducted by Community Based Nurse	Possible CHW Activity
Intake Assessment	
Individualized Plan	
Action Plans	
Ongoing Assessments and Screenings	X
Care Transitions	
Education and Self-Management Training	X
Assessment and counseling for behavior change	X
Stress Management Education and Counseling	X

is an answerable question; typical of those that could be efficiently pursued by the full CIMH system being proposed.

Workforce development will also happen locally and may include expanding the role and function of non-clinical providers to serve the target population. One example may be in public housing units where a majority of residents are recipients of Medicare or are dual-eligibles. The current workforce providing care to the residents includes residential counselors, primary care providers, visiting nurse programs, the hospital system, and potentially a variety of social service providers. By first conducting an inventory of services, it may be determined that the best quality and most efficient delivery of services to residents may be to leverage the role of the residential counselor, enhance data sharing, and identify a lead care coordinator. Additional training of the residential counselor to administer a simple checklist while making home visits to high utilizing residents and sharing this information with the appropriate clinical team may increase care continuity and reduce the hospitalizations for those individuals.

Pillar #4: Strategic Use of Data



Building a robust data infrastructure and analytic capacity is essential to the success of the CIMH model. The primary function of the expanded data infrastructure and tools will be care coordination for patients as they receive care from multiple providers, including hospitals, primary care providers, and health care partners like schools, social service providers, and public health departments that have not traditionally been considered part of the

health care system. In addition to care coordination, secondary functions will include performance monitoring, planning and targeting of resources, enrollment, and evaluation.

Maryland is fortunate to have rich existing data resources that will serve as a foundation for the implementation for more advanced systems and tools to support delivery system reform efforts. Success in building new data functions will depend on cross-cutting efforts to enhance these existing data resources, integrate data from various sources, and build advanced analytic capacity.

This section includes a description of existing data system and proposed new data systems that will support these various functions. In addition, the table below presents a summary of the data functions as part of the CIMH and which systems will be used to carry out the functions.

Existing Data Infrastructure & Proposed Enhancements

Maryland starts with a robust data foundation to build on with many of the basic building blocks of the data infrastructure that will be needed to support the CIMH model already in place or in the process of being developed. These include CRISP, EMR adoption, hospital encounter and payment data, an all-payer claims database, the Health Benefits Exchange, our Virtual Data Unit, and a State Health Improvement Process.

All Payer Claims Database (APCD) - The Center for Analysis and Information Services (CAIS), a Center within the Maryland Health Care Commission (MHCC), has ongoing responsibility for managing a Medical Care Data Base, commonly referred to as the All-Payer Claims Database (APCD). It contains health services, prescription drug, and eligibility data from all private carriers in the state. In addition, annual Medicare eligibility and services data are included. It is currently used to generate consumer-focused reports on cost and quality, support MMPP functions, and for research studies.

The APCD is currently being made more robust to support of health care delivery reform initiatives and performance reporting, and these activities will continue. Other important enhancements include the addition of Medicaid data by 2015, as part of the program's updates to its MMIS system. Pharmacy benefit management (PBM) data will also be added to enable reporting on prescription claims-based measures state-wide without adding additional reporting burden on practices. Finally, later this year, the state anticipates applying to CMS to become a Qualified Entity, meaning that a wider range of Medicare data will be available for public reporting.

Chesapeake Regional Information Systems for our Patients. Maryland has one of the most advanced health information exchanges (HIEs) in the United States. Chesapeake Regional Information Systems for our Patients (CRISP) is the state-designated HIE. All Maryland acute care hospitals submit encounter data to CRISP. As a result, its capabilities include live admission/discharge/transfer (ADT) feeds from all Maryland hospitals, which power its Encounter Notification System (ENS). The ENS alerts participating PCPs in real time when their patients are admitted to or transferred/discharged from a hospital. This free service is available

to all primary care physicians and other providers with a direct care relationship with patients. Currently, over 3,000,000 patients are covered within the ENS, resulting in over 6,000 notifications every day.

In addition to hospital data, CRISP also contains lab data from 30 of the 46 hospital-based labs and Maryland's two main private labs, Quest and Labcorp. CRISP also contains radiology imaging data and has master patient index capability. The figure below highlights the extensive data available through CRISP.

Maryland providers can utilize the online CRISP portal to obtain discharge summaries, consultation and operative notes, lab results, transfer summaries, histories, and other information.

Figure 3-12. CRISP By the Numbers

Progress Metric	March 2014
Live hospitals	47
Live labs and radiology centers (non-hospital)	9
Live clinical data feeds	98
Identities in master patient index	~5.4 million
Lab results available	~29 million
Radiology reports available	~8 million
Clinical documents available	~4 million
Opt-outs	~2,000
Queries (past 30 days)	~14,000
Notifications	~6,000 per day
Participating physicians (query and notifications)	~1,200

Additionally, CRISP was selected as Maryland's Regional Extension Center for Health IT (REC) by the Office of the National Coordinator for Health Information Technology (ONC) with an objective of assisting 1,000 primary care providers to deploy Electronic Health Records (EHRs) and achieve meaningful use by 2014. Like other states, Maryland has been encouraging EHR adoption among providers from a low starting base. According to 2012 survey data, 49% of Maryland office-based physicians had adopted an EHR compared to 40% nationally.

With SIM Model Design funding, CRISP data were enhanced to include hospital diagnostic and payment data from the Health Services Cost Review Commission so that we can better track avoidable ER and hospital admissions and calculate costs associated with that utilization. CRISP data are also being used to better track not only intra-hospital readmissions but also those readmissions that happen between hospitals, critical for monitoring success under the Modernized Hospital Payment model. Finally, SIM planning funds were used to enhance CRISP's ability to generate geo-coded patient-level utilization maps for purposes of modeling different ways that patients might be attributed to hospitals based on their plurality of their care. This will be critical for developing population-based revenue models to develop global budgets under the

Modernized Hospital Payment model.

Planned enhancements to CRISP will include adding the capability to extract data effortlessly from EHRs using PopHealth, an open-source software service that can be used to source, standardize, aggregate, and report clinical outcome measures. This will enable primary care providers with EHRs to provide their data once and have their multiple reporting requirements taken care of for them. Additional planned enhancements include adding lab data from Maryland's independent labs to the CRISP database and piloting a method to standardize all lab data to the LOINC standard to enable state-wide performance monitoring using clinically-enriched measures and thereby reducing reporting burden for individual providers. CRISP will also use the master patient index technology for assigning an encrypted ID to claim data that will support hot spotting on the basis of full health care utilization data.

Public health data. DHMH has developed several mechanisms for repurposing the public health data collected routinely as part of the programs we administer and finding ways to share and combine them with other state agencies and the general public.

Virtual Data Unit— The Virtual Data Unit (VDU) is Maryland's version of the federal government's Health Data Initiative and publishes a wide range of public health data such as surveillance data and vital statistics from which population health performance can be extracted. Based within the Vital Statistics Administration, the VDU acts as a central hub for all Departmental health data and establishes standards for data collection and reporting. The VDU also provides a mapping facility for hospital discharge data by Zip Codes and 10 diagnostic groups and also maintains the state's health statistics website.

State Health Improvement Process (SHIP) – SHIP is both an approach to improving health outcomes at state and local levels and a robust public health measurement system which aims to improve population health and reduce disparities by catalyzing and aligning local action on key dimensions of population health. Under SHIP the state has introduced 41 measures of population health pegged to Healthy People 2020 goals. These measures are presented at the state and county levels and disaggregated by race and ethnicity where possible. Baselines, targets, and annual updates on these measures are provided to the state's 20 Local Health Improvement Coalitions (LHICs), which use this data to identify community health need and develop action plans relevant to improving the health of their communities.

This year, enhanced data supports and tools have been developed for the LHICs through a pilot with Trilogy and its innovative community health data platform called Network of Care. Migrating to this new platform is expected to have several advantages, including the following:

- Speed: Data updates can be provided on a rolling basis as the data become available.
- More information: In addition to the SHIP measures, Network of Care has amassed a number of different data that can be viewed at the county and state levels.
- Continuous Quality Improvement: When fully developed, users of the site will be able to click on any health indicator and instantaneously pull up a national database of

evidence-based model practices that have been shown to be effective in improving those indicators (see figure 3-13). It will also be possible for LHICs to submit their own interventions to the database, thus adding to the evidence base.

- Collaborative Learning: The Interactive Atlas feature (see figure 3-14) makes it much easier for LHICs to see how they are doing relative to the state, to other counties, and to SHIP and Healthy People benchmarks. Our hope is that LHICs can use this information to learn from each other and share best practices.

By enabling LHICs to visualize SHIP data in a variety of different ways and to link evidence-based interventions with each health indicator, these data tools can assist LHICs in their community planning and performance management efforts.

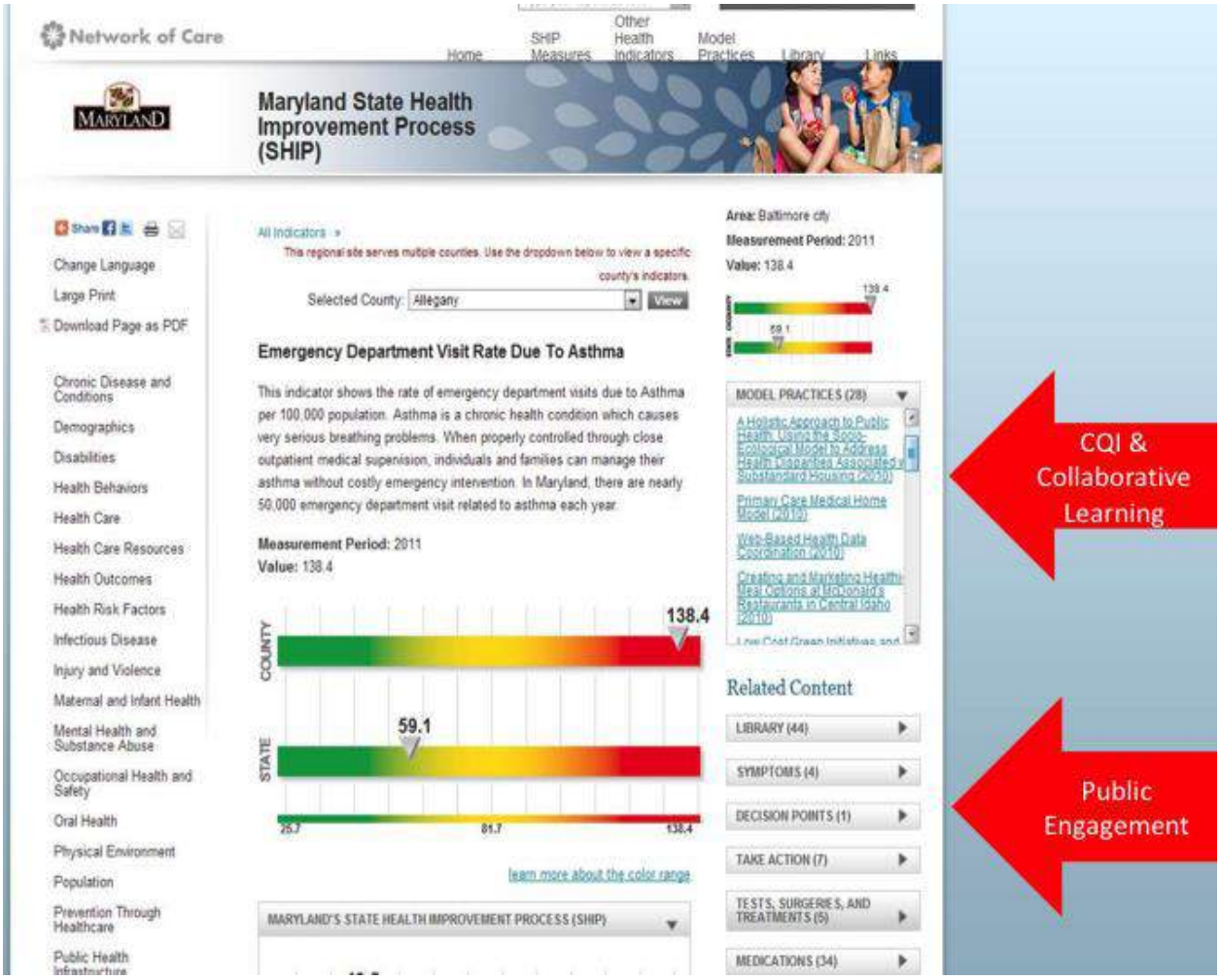
Proposed New Data Systems, Capabilities, and Tools

Operational Management System. Consistency and reliability of services in community-based field interventions is a challenge that the OMS does much to address. An Operational Management System (OMS) will be developed to assist all CHHs to implement the Community Interventions with fidelity. This makes it possible to determine the relative contributions of intervention design versus implementation execution to the effectiveness of the community interventions.

The OMS system will be designed to capture data from the field by using mobile devices related to CI-specified key processes, assessments, monitoring, education, and coordination of care tasks. These data will allow real-time assessment of the efficiency and service performance of CHHs. The OMS system will also provide access to reports using statistical process control charting, geospatial mapping, and other advanced forms of visual displays of information. Rounding out the utility of the OMS are modules designed to support staff training, a robust set of materials available for participant and family education, and policies, standards, and protocols for CHH operations and CI implementation. By being centrally provided, these critical elements will be made available to all CHH affiliated teams and PCMHs to improve the care to the vulnerable, chronically ill.

Data Integrator. The ability to link and integrate data at the patient, Hub, and system levels will be critical for effective care coordination and robust evaluation of the effectiveness of the CIMH model on improving outcomes and reducing costs. Patients with complex health needs are often part of multiple systems because they have multiple needs. In order to coordinate care effectively and provide a full picture of an individual's health, the data needs to be able to follow the patient across systems, including those that have not traditionally been considered health care providers such as public health, social services, schools, and behavioral health systems. Moreover, because health care value is a measure of health outcome relative to cost, it will be important to merge clinical and cost data in order to monitor our progress towards

Figure 3-13. Facilitating Continuous Quality Improvement by Linking Evidence-Based Practices to SHIP Health Indicators

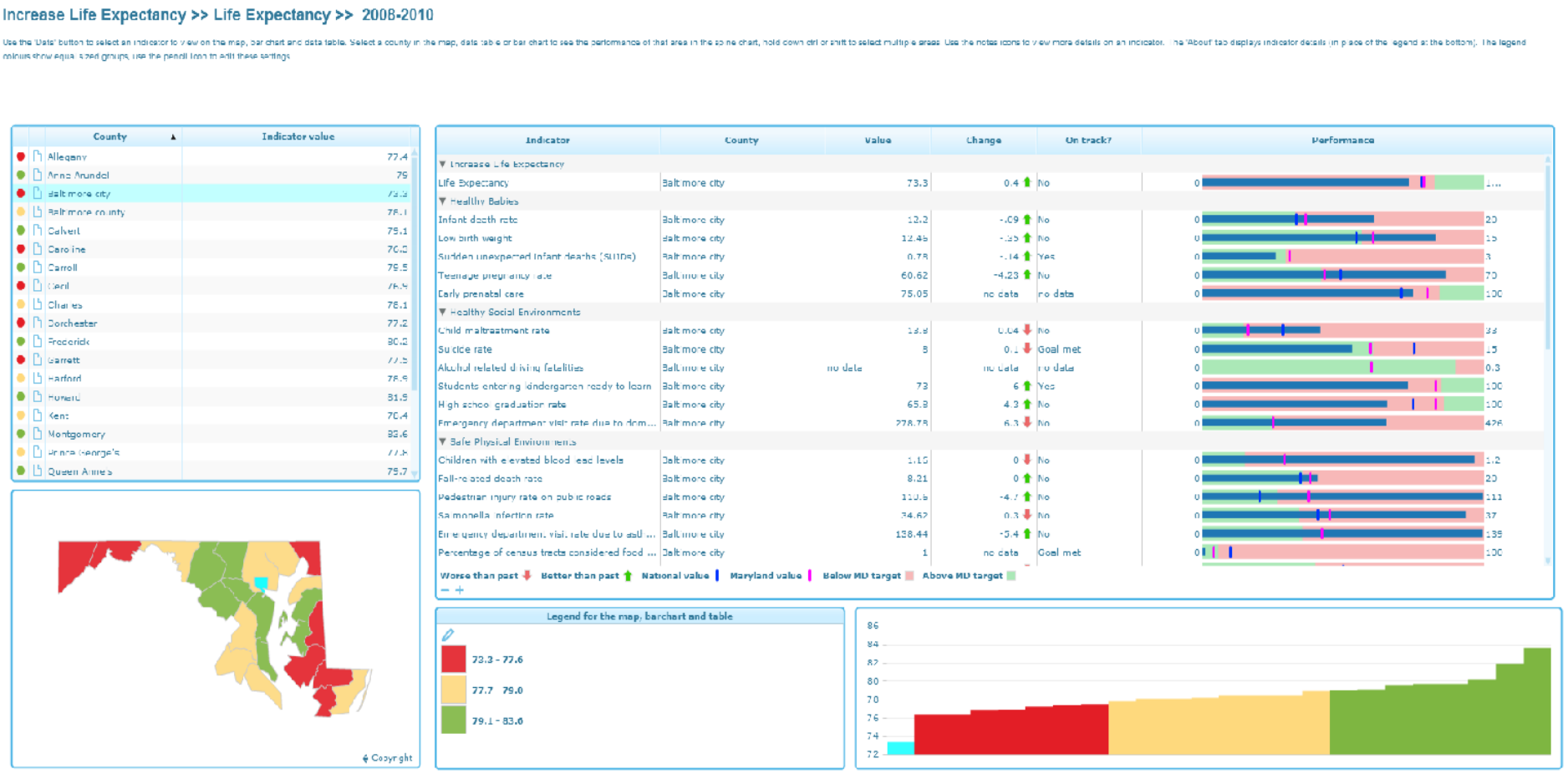


This screenshot from the new SHIP website – powered by Trilogy Network of Care – shows the rate of emergency department use due to asthma for Baltimore City (138.4) compared to the state (59.1). Intuitive, easy-to-understand visualizations of the data like this will assist LHICs in identifying priority areas of health need for their communities.

The new SHIP website also automatically pulls up a list of "best practices" customized for each SHIP population health indicator (see top red arrow). These best practices are evidence-based interventions that have been demonstrated to improve outcomes on this asthma indicator, which can then be used by LHICs to develop their local health improvement action plans and ensure that their strategies are based on the best available research.

Finally, the new SHIP website automatically pulls up a wealth of content related to each SHIP population health indicator which can be used to assist with public engagement (see bottom red arrow). For this particular indicator, content includes information related to asthma symptoms, recommendations for treatment and diagnostic tests, local peer support groups for asthma patients and their families, and links to information on how the public can get involved.

Figure 3-14. Network of Care's Interactive Atlas



With a click of a button, the new SHIP website can pull up this Interactive Atlas to help LHICs and communities more easily monitor their performance relative to each other as well as to state and national targets and averages.

http://ship.md.networkofcare.org/indicator_maps/Maryland-SHIP-InteractiveAtlas/atlas.html

achieving a high-value health care system. Finally, being able to assess total cost of care is critical to ensure that as costs are decreasing from one setting, they are not simply being shifted somewhere else. Likewise, if there are other beneficial services that are not traditional health care services, the ability to track costs across systems will enable us to see whether investments in one area (e.g. social services) might lead to lower cost of care overall.

Data Mashing for Enhanced Public Health Surveillance & "Hot Spotting". Leveraging these data integration efforts and building upon the encounter data collected through the Operational Management System, we will be able to log each individual patient interaction so that we can learn from our outreach and intervention efforts, identify more quickly any patterns that emerge, and formulate more effective solutions. For example, mapping the locations where individual home environmental remediation efforts were necessary for asthma patients might reveal "clusters" of activity. This health data can, in turn, be "mashed up" with environmental data or housing data to see if they match up with particular housing units or suspected sites of environmental hazards. In this way, interactions with individual patients can become additional data points for more effective public health surveillance and "hot spotting" that integrates health utilization data with other types of data to support effective collective action, thus

> **"[P]ublic health officials in Barcelona, Spain began to notice a series of asthma outbreaks that resulted in unusually high numbers of emergency room visits [which] remained a mystery… until they finally identified defective grain silos at the city's busy port complex. The silos had an inadequate filtering system and on days when soy beans were unloaded, allergen-laden dust from the beans escaped and caused widespread asthma attacks…**
>
> **"The key moment in the investigation," says 2006 Robert Wood Johnson Foundation Health & Society Scholar David Van Sickle, Ph.D., "was asking patients where their attacks began. When the team plotted the answers on a map, they could see the clustering near the harbor."**
>
> "Asthmapolis": RWJF Health & Society Scholar marries GPS to inhalers to capture data about asthma attacks and use information to identify causes.
>
> http://www.rwjf.org/en/about-rwjf/newsroom/newsroom-content/2010/06/asthmapolis.html

facilitating the ability to weave effortlessly between individual-level and population-level approaches to most effectively address the needs of our residents.

Learning System. Leveraging these data integration and surveillance efforts and expanding the capacity to assign identities across data sets, we will create a virtual "data warehouse" that will be capable of identifying the programs/interventions that each patient is receiving and then undertaking comparative effectiveness analysis at the systems-level to identify which – and which combinations of – interventions yield better outcomes at lower cost. This data will enable Maryland to more accurately conduct quasi-experimental evaluations that will help tease apart the proportional impacts of simultaneous and overlapping reform efforts, like the Modernized Hospital Payment Model and the CIMH. The Leaning System is described in greater detail in Chapter 4.

Unified Consent Form. Our most vulnerable patients are often enrolled in multiple social services and health care programs, each with their own case managers. These care coordinators need to be able to share data between systems to ensure that all care plans are aligned and for more effective outreach and service provision. However, confusion over privacy laws and what types of data can be shared and with whom can pose barriers to effective data sharing. A uniform patient consent form will be developed with oversight from the Attorney General so that there is one easy-to-understand form that works across health care, public health, behavioral health, and social services systems. It will build off of work HHS conducted with seven states and their attorneys general to develop such a uniform patient consent form (see Appendix 8.5). A system for tracking which patients have consented to different types of data sharing arrangements will also be developed so that all professionals involved in the care of shared patients can easily understand which types of data can be exchanged.

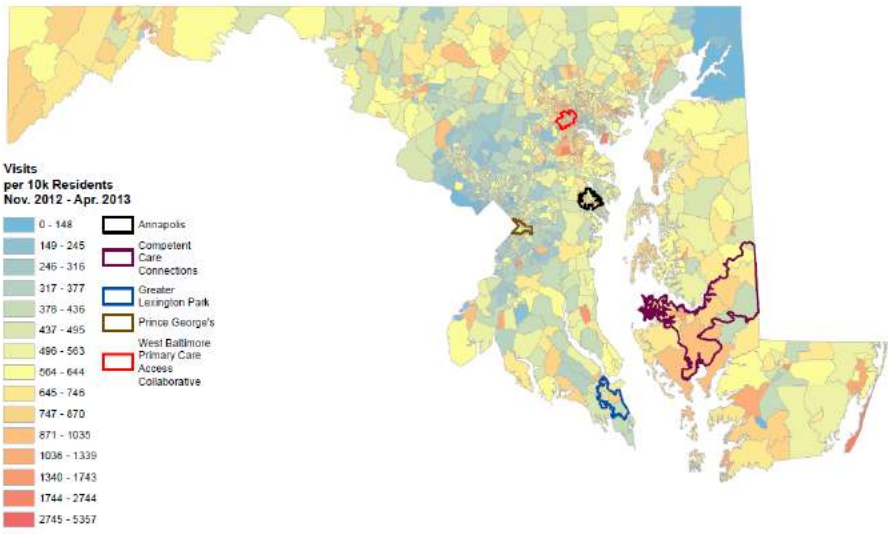
Data Systems to Support CIMH Functions

The following table describes the variety of new data functions Maryland's data infrastructure will be able to provide to support the CIMH.

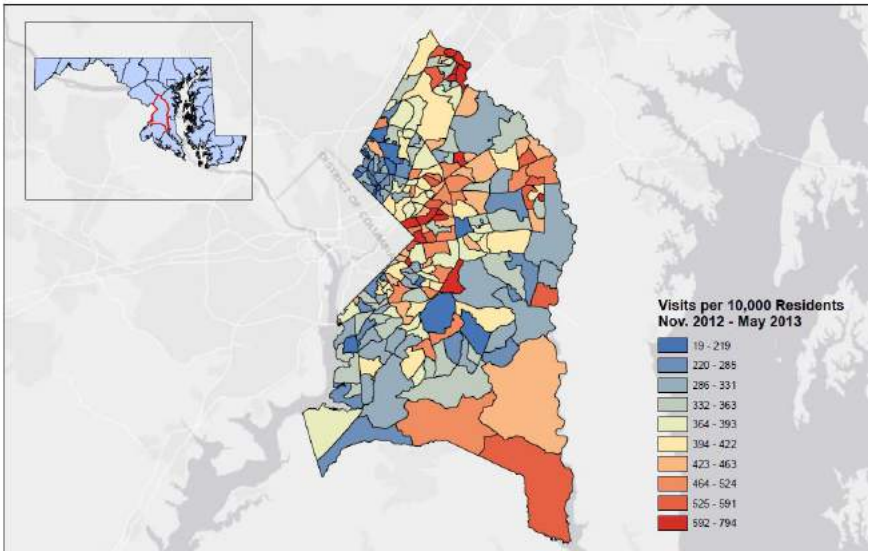
Data Functions	**Data System(s), Tools, and Capabilities Required**
Care coordination	
Superutilizers receiving advanced interventions as part of the CIMH will have complex health care needs and will be receiving care from a range of provider	CRISP, OMS, APCD, Data

Data Functions	Data System(s), Tools, and Capabilities Required
settings. In order to coordinate care effectively, clinical data needs to be able to follow the patient across providers and systems, including primary care, acute care, outpatient settings, and behavioral health providers. Ensuring that this care is integrated and that patient clinical information is shared across settings is essential to achieving better outcomes and lower costs in this population. The CRISP patient portal, Encounter Notification System, coupled with claims data and quality metrics from the APCD, will be a major asset for care coordination.	Integrator, Unified Consent Form
Planning and targeting	
As described in Section 6.2, the implementation of CHHs will be incremental. For the CIMH to be most successful, prevalence of superutilizers must be one factor that is taken into account when prioritizing where the initial CHHs will be placed. Using SIM model design funding, CRISP developed new analysis and mapping tools to help identify the "hot spots" of high utilization and costs at the Census tract level (see sample maps below). Both highly granular as well as aggregate mapping and reporting – at local, regional, and state levels – are all possible through CRISP's address-level data for encounters. As encounter messages flow into CRISP, reporting on hospital services, regional or community utilization, and trending analysis becomes possible. These tools will be used to help identify the locations of the first CHHs.	CRISP

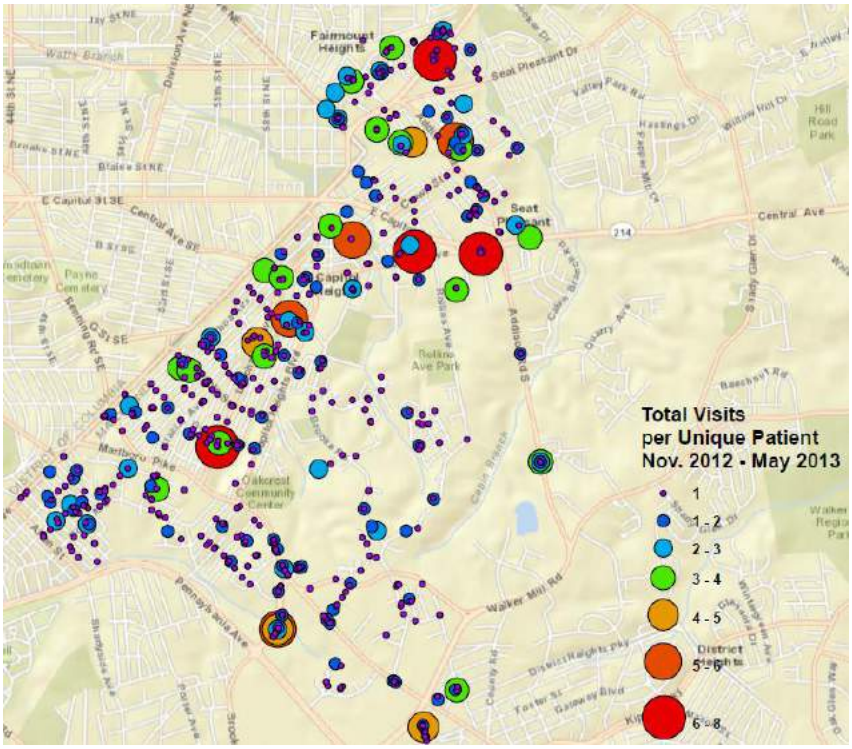
Inpatient Utilization By Census Tract – State-Level View



Inpatient Utilization By Census Tract – County Level View (Prince George's County)



Inpatient Utilization By Census Tract – Neighborhood View (Capitol Heights Area)



To protect patient privacy, the data points on this map are fictional and are for demonstration purposes only.

Data Functions	Data System(s), Tools, and Capabilities Required
Enrollment and Outreach	
Analyzing data in an aggregate fashion on a geographic basis provides the ability to conduct "hot spotting" in order to identify geographically defined areas with poor health outcomes or costly patterns of health service utilization to target intensification of community outreach and community interventions. Identifying and enrolling patients in the CIMH will involve two distinct tasks. Initially, retrospective analyses of CRISP's and HSCRC's hospital encounter and cost data will be used to identify individuals already meeting the super-utilizer criteria based on their prior history of hospital utilizations. Eventually, however, predictive modeling will be necessary to engage in preventive care and care management that will keep the chronically ill from becoming super-utilizers in the first place. Using the integrated data infrastructure that can leverage public health, behavioral health, social services, and health care data, we will begin to develop the capacity to identify with greater accuracy who these "at risk" patient populations are and enroll them into the CIMH pro-actively.	APCD, OMS, Public Health, CRISP, Data Integrator
Performance Monitoring	
A core set of quality metrics will be used to monitor performance of PCMHs and Community Health Hubs, as discussed in section 3.1 (see figures 3-5 and 3-9). The OMS will enable Community Health Hubs to collect and track both process and outcome measures and monitor their performance in executing evidence-based community interventions and improving health outcomes. For PCMHs, performance monitoring will begin with claims-based measures -- powered by the APCD -- and hospital and ER utilization metrics, powered by CRISP. As CRISP develops the capacity to standardize all lab data to the LOINC standard, performance measurement will shift to include clinically-enriched metrics that center around lab values (e.g. A1c results, lipid levels, etc.). For clinical measures that require EHRs, CRISP will develop the capacity to extract this data using PopHealth, as described earlier. Until then, the Community Health Hubs will assist with any necessary chart abstractions and exporting the clinical data contained in the OMS.	OMS, APCD, CRISP, Public Health, Unified Consent Form

Adults								
			Data Source					
Type	NQF	Measure Description	APCD	APCD + Rx	CRISP	CRISP + LOINC	EMR/Hub
Utilization	52	Use of Imaging for Low Back Pain	X				
	AHRQ	Preventable Hospitalizations – AHRQ PQI Composite			X		
Screening & prevention	421*	Body Mass Index (BMI) Screening and Follow-Up					X
	41*	Influenza Immunization		X			
	43*	Pneumococcal Vaccination for Patients 65 Years and Older		X			
	31	Breast Cancer Screening	X				
	34*	Colorectal Cancer Screening	X				
	28*	Tobacco Use Assessment & Tobacco Cessation Intervention*					X
Cardiovascular conditions	66*	Coronary Artery Disease Composite: ACE Inhibitor or ARB Therapy - Diabetes or LVSD		X			
	67*	Coronary Artery Disease: Oral Antiplatelet Therapy Prescribed for Patients with CAD		X			
	74*	Coronary Artery Disease Composite: Lipid Control				X	
	70*	Coronary Artery Disease : Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction		X			
	83*	Heart Failure: Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction		X			
Ischemic vascular disease	68*	Ischemic Vascular Disease: Use of Aspirin or Another Antithrombotic		X			
	75*	Ischemic Vascular Disease: Complete Lipid Panel and LDL Control				X	
diabetes	55*	Diabetes: Eye Exam	X				
	56*	Diabetes: Foot Exam	X				
	61*	Diabetes: Blood Pressure Management					X
	64*	Diabetes: LDL Management				X	
	59*	Diabetes: HbA1c Control				X	
Hypertension	18*	Hypertension: Controlling High Blood Pressure					X
Asthma	47*	Use of Appropriate Medications for People with Asthma		X			
Mental health and substance abuse	105*	Antidepressant Medication Management		X			
	418*	Screening for Clinical Depression and Follow-Up Plan	X				
	4	Initiation and engagement of alcohol and other drug dependence treatment		X			

Children							
			Data Source				
Type	NQF	Measure Description	APCD	APCD + Rx	CRISP	CRISP + LOINC	EMR/Hub
Utilization	69	Appropriate Treatment of Children with Upper Respiratory Infection	X				
	AHRQ	Preventable Hospitalizations: AHRQ PDI			X		
	2	Appropriate Testing for Children with Pharyngitis	X				
Prevention and screening	24*	Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents					X
	38*	Childhood Immunization Status	X				
	1392*	6+ Well Child Visits, 0-15 months	X				
	28*	Preventive Care & Screening: Tobacco Use Assessment & Cessation Intervention					X
Asthma	1	Asthma Assessment	X				
	47*	Use of Appropriate Medications for People with Asthma		X			
Mental health	108	Follow-up Care for Children Prescribed ADHD Meds		X			

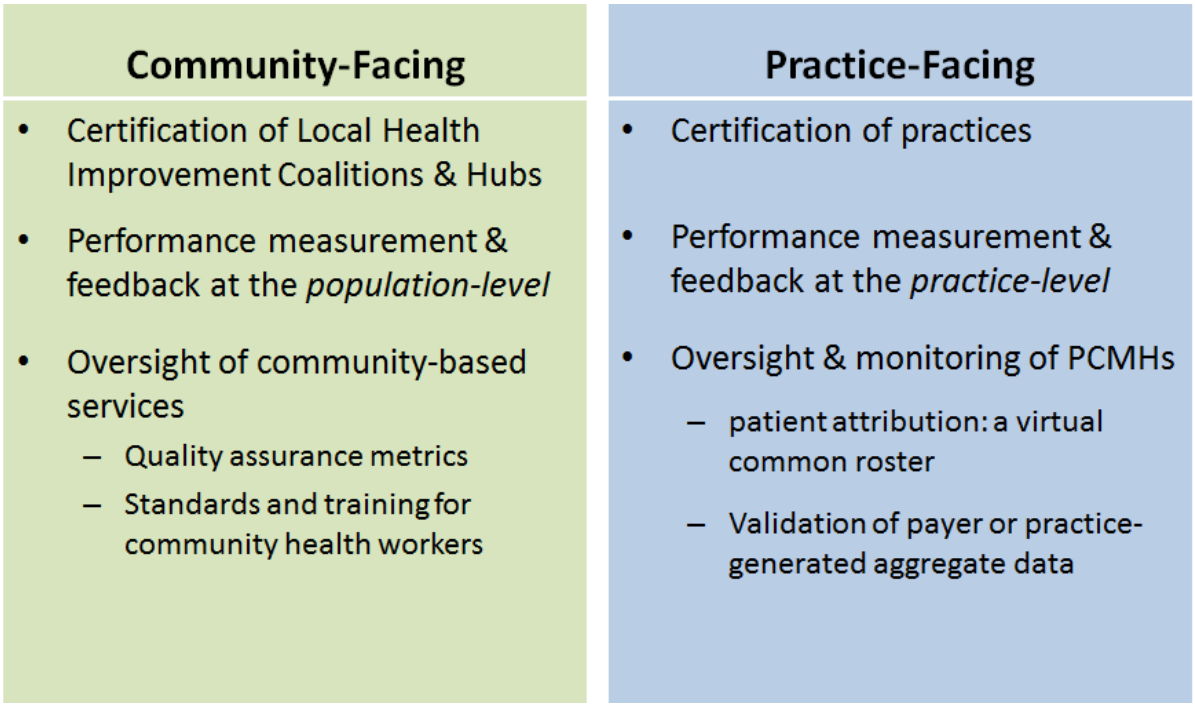
Data Functions	**Data System(s), Tools, and Capabilities Required**
Model Refinement	
It will be essential to monitor fidelity to the model across CHHs, identify quality issues, and continually improve processes as part of a "Learning System." The Learning System, which will incorporate OMS, APCD, CRISP, and public health data from all jurisdictions and CHHs, will enable us to fine-tune the initial assumptions around the CIMH model. For example, for predictive modeling, we begin with a definition of super-utilizer as patients with 3 or more hospital admissions in the prior year, hypothesizing that the best predictor of future use is prior use. With experience and more data, we can test whether there are better and more sensitive predictors of preventable utilizations. This system will also allow for learning from the variation in PCMH standards and assessing what the standards ought to be for certifying PCMHs that are predictive of better outcomes and lower cost.	OMS, APCD, Public Health, CRISP, Data Integrator, Learning System
Evaluation	
While the Learning System will be useful for ongoing quality improvement, the same sets of data will be useful for an overall evaluation of the effect of the model on	APCD, OMS, CRISP, Public

Data Functions	Data System(s), Tools, and Capabilities Required
quality, outcomes, and costs. Integrated data at the patient, Hub, and system level will allow for robust evaluation of the effectiveness of the model on improving outcomes and reducing costs. This effort will advance the science around attributing proportionate impacts from multi-modal/comprehensive interventions, especially for interventions that combine public health and health care approaches.	Health, Data Integrator, Learning System

3.2: Enabling Supports: Public Utility

To help streamline the administrative activities of the CIMH program and the analytical work to support hospitals, the primary care practices and community health hubs, a Public Utility will be created. It will have both a community-facing arm as well as a practice-facing arm to mirror the community and primary care components of the CIMH model. Figure 3-15 below highlights some of the core functions of the CIMH public utility.

Figure 3-15: CIMH Public Utility Core Functions



Guided by a multi-stakeholder advisory board (see chapter 5), the CIMH Public Utility will oversee the implementation of certain programmatic standards such as PCMH certification and patient attribution methodologies, as well as the selection and oversight of community health hubs. The Public Utility will also streamline the analytical, quality assessment, and quality improvement activities that will be required to support practices and community health hubs in meeting performance targets.

(a) **PCMH certification**. The CIMH Public Utility will keep track of the practices that meet the PCMH minimum requirements described in section 3.1 (Pillar #1). Primary care providers have already pursued a variety of different pathways towards certification, whether that be through NCQA, TransforMed, URAC, or Joint Commission standards. Given the flexibility Maryland will continue to provide -- including the deeming of Medicare ACOs, FQHCs, and Chronic Health Homes as PCMHs -- we anticipate that primary care providers will continue to pursue the pathway that seems the best fit for them, including the new statewide minimum standard. As such, the Public Utility will develop mechanisms for keeping track of the certification pathway

each participating practice has selected and whether the practice has met those certification requirements. This data will enable us to keep track of our progress in meeting our goal of 80% participation in a PCMH. It will also enable us to learn from the variation in PCMH standards by benchmarking the different certification requirements and assessing whether any particular set of standards is correlated with better health outcomes, patient experience, and lower cost. This data will help us refine PCMH standards moving forward in an evidence-based manner.

(b) **Community Health Hub selection**. The CIMH Public Utility will select Community Health Hubs through an RFP process and oversee their implementation and administration. The OMS discussed in 3.1 (Pillar #4) will enable the CIMH Public Utility to implement quality control monitoring capabilities centrally like post visit random phone surveys of participants to ensure accurate documentation and high quality service. By providing the CIMH Public Utility a means to monitor CHH performance in real-time and conduct aggressive root cause analyses, mid-course corrective action plans – and, if necessary, termination and reassignment of contracts -- can be pursued swiftly, fairly, and effectively when needed.

(c) **Patient Attribution**. In order for PCMHs and Community Health Hubs to know which patient populations they will be held accountable for, the CIMH Public Utility will establish standards for patient attribution, risk adjustment, patient selection, and other processes that are required for valid and reliable performance measurement. Similarly, patients can be attributed to hospitals for purposes of developing population-based revenue global budgets.

(d) **Quality Assessment and Continuous Quality Improvement**. In multi-payer programs, providers need consistent, actionable data in order to effectively manage their patient populations. Moreover, having a core set of quality metrics will help facilitate system-wide transformation by setting consistent expectations that foster alignment. Finally, the use of consistent core metrics will enable valid apples-to-apples comparisons that will be helpful in evaluation and benchmarking activities. Using the data infrastructure described in section 3.1 (Pillar #4) the Public Utility will create dashboards and reports based on the core metrics described in figure3-5 at the practice level, the community level, and the state level for performance monitoring and for the provision of technical assistance to facilitate continuous quality improvement.

(e) **Reports for the community**. A variety of feedback reports and dashboards will be created using the data in the APCD, CRISP, OMS, and SHIP to support hospitals, health care providers, communities, and LHICs in their community planning and performance monitoring efforts. For example, data from individual interactions collected in the OMS will be analyzed for any patterns that emerge. Where “clusters” appear that suggest environmental or other type of “systemic” root causes, the Public Utility will mash up this health data with other types of available data to help identify system-level approaches and then feed these reports and recommendations to the CHHs and LHICs for collective action at the community-level.

(f) **Other analytic supports**. The Public Utility will support the implementation and evaluation of the CIMH program through a number of advanced analytic activities including the identification and mapping of super-utilizers and "hot spots" through CRISP to assist with eligibility and enrollment, evaluation of the CIMH program as a whole, and the strategic use of data to support the development of a Learning System in Maryland capable of leading the way for the effective staging and scale-up of the CIMH program. The Learning System is described in further detail in chapter 4. Staging and scale-up is discussed further in section 6.2.

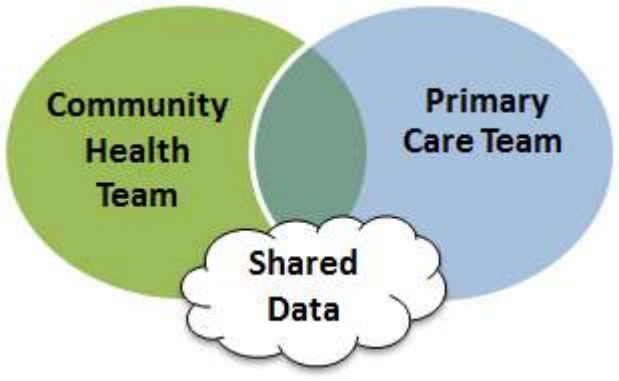
The CIMH Public Utility will be administered by two existing administrative entities already operating in Maryland: the Health Systems and Infrastructure Administration (HSIA) in the Department of Health and Mental Hygiene (DHMH) for the community-facing side of the Public Utility and the Maryland Health Care Commission (MHCC) for the clinical-facing side of the Public Utility. Created in 2012 in anticipation of health reform implementation and home to the Department's Office of Population Health Improvement and the Workforce Development Office, HSIA is well suited for overseeing the work of the Community Health Hubs (CHHs), the development and approval of Community Interventions used by the CHHs, population health measures applicable to the CHH jurisdictions and the integration and collaboration of community-level CIMH efforts with the Local Health Improvement Coalitions (LHICs). Likewise, the Maryland Health Care Commission (MHHC) is well suited for managing the PCMH component of the CIMH model, having already well-established stakeholder relationships, processes, and credibility for doing so, based on its role in the existing state-wide PCMH initiative and its role in administering the state's all-payer claims database.

To ensure alignment and an integrated approach across this bipartite structure, both HSIA and MHCC will have accountability for achieving a shared set of CIMH outcome goals and members of both bodies will work together to analyze data and prepare reports for joint decision-making. Additionally, a single CIMH Advisory Board with broad stakeholder representation will provide strong input to both groups. Governance of the Public Utility is described further in chapter 5.

Taken together, HSIA, MHCC, the CIMH Advisory Board, the Oversight Management System (OMS), the Learning System (LS), SHIP, CRISP, and the APCD bring a powerful new set of capabilities needed for improving population health that can be thought of as the CIMH Public Utility. The ability of the CRISP Encounter Notification Services to identify and track key clinical events (at present, hospitalizations and ER visits) for individuals within the populations cared for by PCMHs and CHHs is essential to the effectiveness of the CIMH model. This will allow case finding and outreach as well as intensification of service by both PCMH and CHH to individuals acutely in need of care transition support. Analyzing data in an aggregate fashion on a geographic basis provides the ability to conduct 'hot spotting' in order to identify geographically defined areas with poor health outcomes or costly patterns of health service utilization to target intensification of community outreach and community interventions. The capability of the APCD to measure changes in service usage and health care costs is essential to understanding how the CIMH is impacting health care costs. Taken together, these services deliver a statewide capacity to support and improve the health of all Marylanders in a manner consistent with a public utility.

The goal is to create a tightly engineered configuration of resources that provides a broad public good by enabling the CIMH model to improve the health outcomes of all Marylanders, while delivering additional services to vulnerable, chronically ill Marylanders at highest risk.

3.3: PUTTING IT ALL TOGETHER – A COMMUNITY-INTEGRATED APPROACH TO CHILDHOOD ASTHMA



The Community-Integrated Medical Home can work for patients with a variety of health conditions and needs. Here we provide an example of how the various component parts of the model would work together using pediatric asthma as an exemplar.

Asthma is a multi-factorial condition that highlights the potential effectiveness of the CIMH approach. The goals of asthma care are to obtain and maintain a status of well-controlled asthma through adherence to best practices of asthma management. Poor asthma outcomes including avoidable hospitalizations are preventable. Asthma is like many other conditions, especially ambulatory care sensitive conditions where optimal management requires coordination and communication.

Asthma care based on the *Expert Panel Report 3-Guidelines for the Diagnosis and Management of Asthma* guidelines includes environmental/trigger control, and family support (specifically to improve self-management, medication compliance and environmental remediation compliance and maintenance) and lead to asthma control and avoidance of costly hospitalizations and ED visits. The CIMH is able to address each of these factors and effectively meet the needs of persons with asthma or other complex multi-factorial conditions.

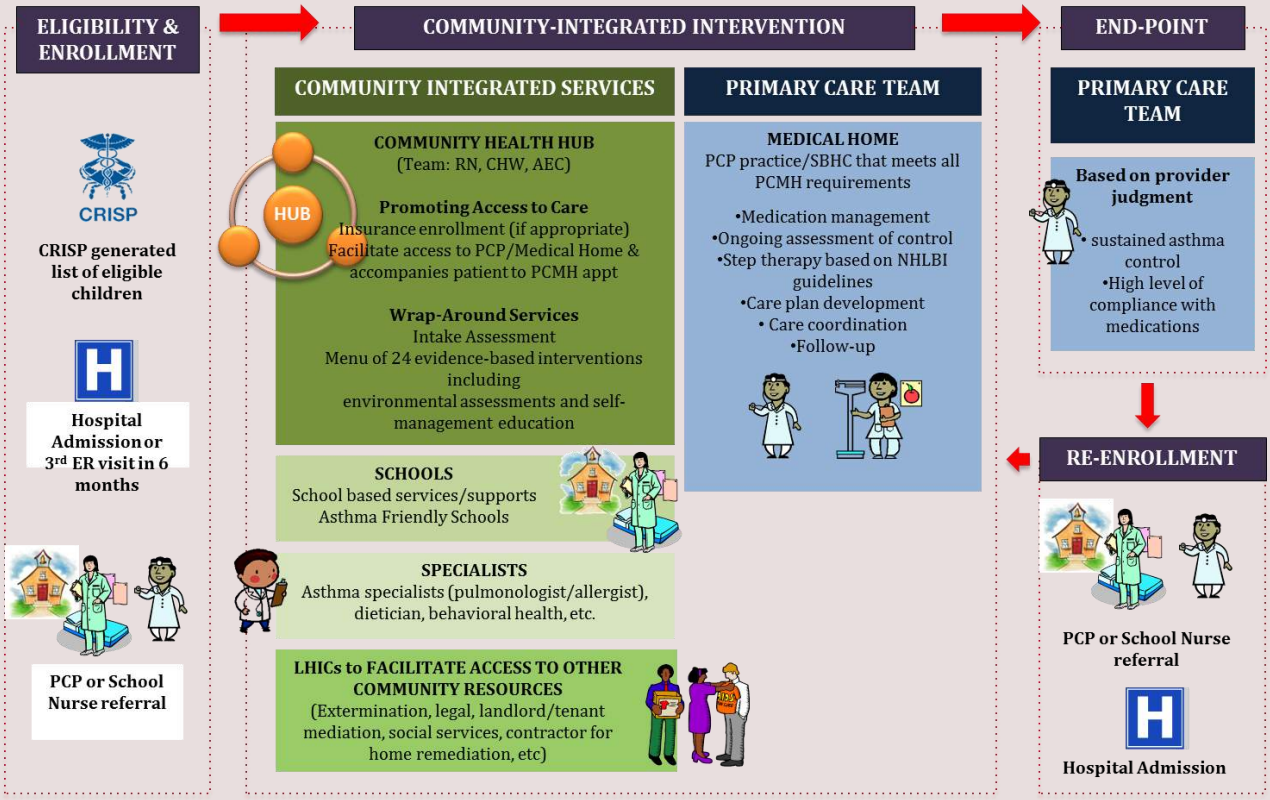
The CIMH can reduce asthma morbidity by addressing key barriers to effective asthma care. Based on the high level of asthma morbidity, approaches are needed to facilitate adherence to national asthma management guidelines. For example, Maryland asthma surveillance data show only 35% of children and 41% of adults were told to make environmental changes, yet 50-75% of persons identified modifiable asthma triggers present in their home.[35] In addition, it is not standard practice for providers to do home visits or assessments to determine allergen exposures primarily due to time constraints and inadequate resources. Materials may be provided for patients to do "self-assessments" of their home, but the only marker of effective home remediation is the clinical status of the patient including

[35] Asthma in Maryland 2012. Accessed at http://phpa.dhmh.maryland.gov/mch/Documents/Asthma%20in%20Maryland%202012.pdf

tests/questionnaires related to asthma control or subsequent hospitalizations or ED visits. Wrap-around services provided by the HUB support the PCMH and address these concerns. These supports define the community integration concept; the hallmark of the CIMH and defines the role of the HUB within the CIMH model.

Asthma care based on the CIMH model differs from usual asthma care. The CIMH is designed to facilitate communication, information sharing, and coordination between providers and patients. The CIMH also allows a comprehensive set of patient centered services routed in the community aimed to address social, emotional, behavioral and other non-medical determinants of health status and risk. Application of the CIMH approach to childhood asthma is represented in **Figure 3-16**.

Figure 3-16: Proposed Asthma Intervention



Each of the three parts of the intervention (eligibility and enrollment of the target population, community integrated intervention, and an endpoint with possible reenrollment) are linked through coordination provided by the HUB and data sharing through a performance monitoring system.

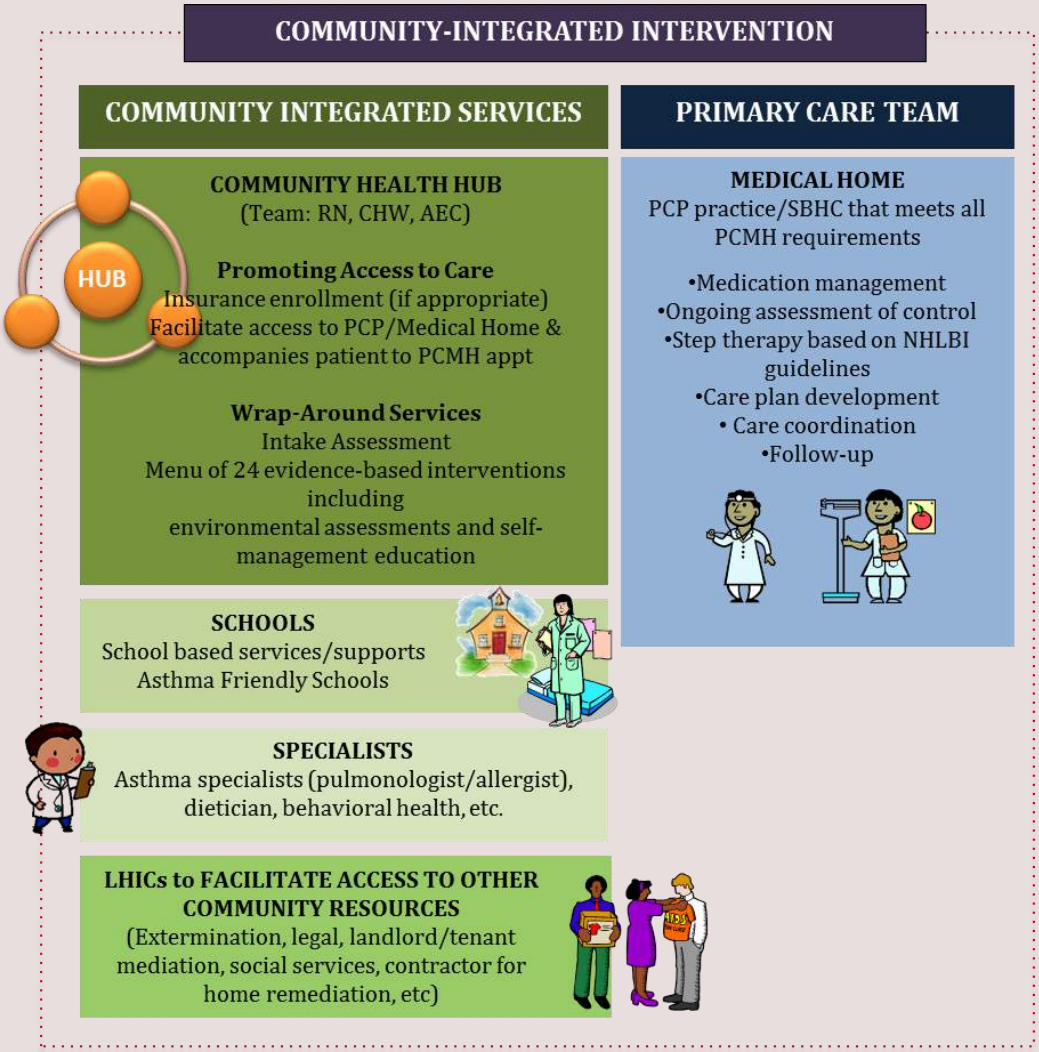
Eligibility and Enrollment

Patients are eligible for the intervention based on a set of criteria such as age, diagnosis of asthma, history of avoidable ER or referral from a primary care provider or school nurse. Enrollment occurs by communication to the HUB directly from CRISP, through CRISP from a hospital, or directly to the HUB from a provider or school nurse.

Community-Integrated intervention

The community- integrated intervention includes services provided by the primary care team in the MH and integrated with services provided by the HUB, school, and specialists. Services are augmented by access to community services facilitated by the Local Health Improvement Coalition (LHIC). The community-integrated model for an asthma intervention is depicted in **Figure 3-17**. The role of the MH is defined by the PCMH standards and includes communication and coordination with services provided by the HUB and others (e.g. schools, specialists, and other community providers). Specific asthma activities correlate with Maryland minimum PCMH standards.

Figure 3-17: The Community-Integrated Intervention



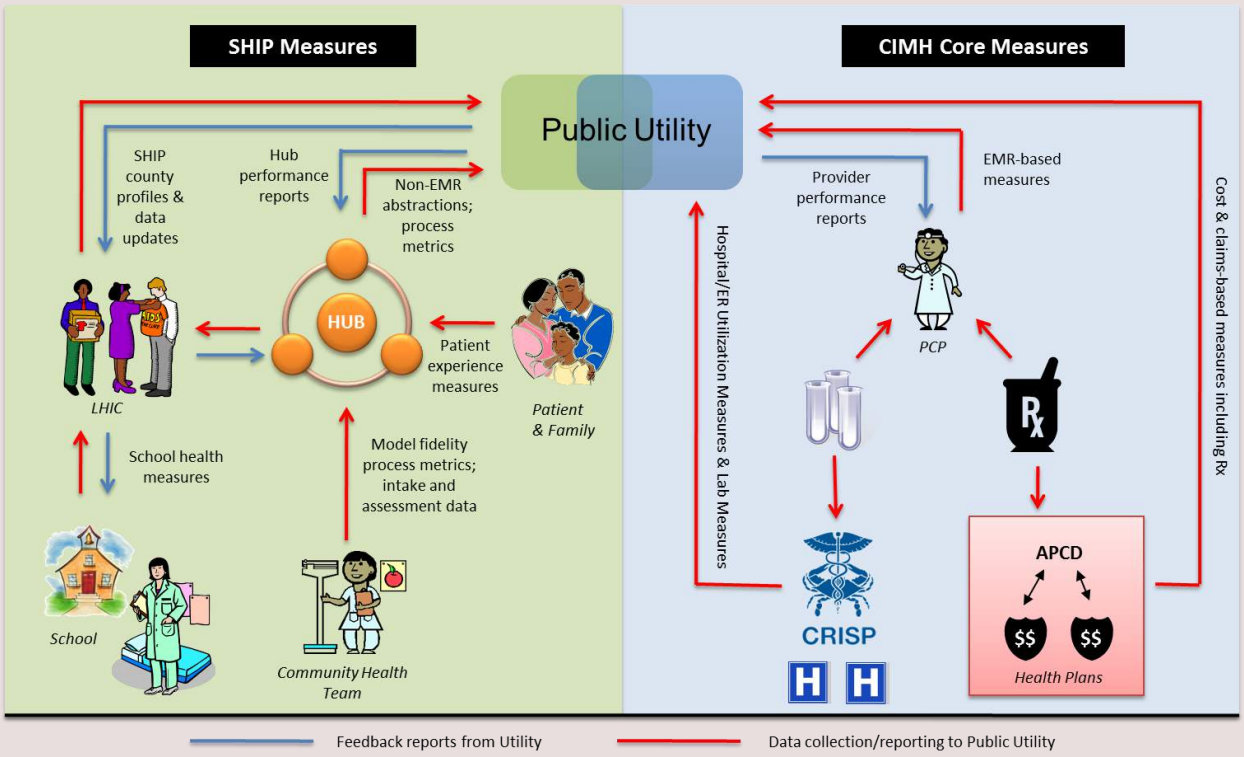
The HUB provides services in the patient's home including but not limited to: assessments of physical and mental health status, care planning and coordination, asthma self-management education, medication reconciliation. Services are provided by an RN and a CHW with asthma education certification (AE-C) guided by the medical home based on clinical status and in-home assessment results. This approach addresses issues of provider time constraints. School based services are provided and coordinated with the MH and the HUB.

A comprehensive environmental home environmental allergen assessment and remediation is a necessary part of asthma care. The CIMH model assigns this critical role to the HUB as one of the expanded services typically unable to be done by the MH to address barriers to environmental controls/allergen avoidance. Specific home remediation is determined by assessment and individualized based on need. This level of care is integral to the CIMH concept and is one of its defining features aimed to maximize care and reduce preventable hospitalizations.

Data Sharing and Integration

Data sharing and integration are key components of the CIMH. Bi-directional sharing between the MH, HUB, school, specialists, laboratories and hospitals allows real-time assessments of patient health status and will improve coordination while eliminating duplication (e.g. lab tests). Information shared will be used by the HUB, MH, and schools to inform patient care. **Figure 3-18** shows the types of data sharing proposed within a performance monitoring system.

Figure 3-18: Data Sharing and Performance Monitoring



The Public Utility functions as a performance monitoring tool to enable the tracking of patient

outcomes, cost, and service utilization. The data contained in the Public Utility will be used to provide performance feedback to MH providers. This will allow primary care providers to track their progress in meeting CIMH core measures and implement quality improvement and practice improvement activities to meet the measure targets.

Enhanced Public Health Surveillance

As care is delivered in this way to individual patients, this care provision will be logged and analyzed to see if any patterns emerge. Where "clusters" appear, the Public Utility will mash up this health data with other types of available data to help identify potential root causes and then feed these reports to the Hubs and LHICs for collective action at the state and community-levels. Being able to map "the geography of asthma" like this is critical for identifying and addressing environmental triggers of asthma at the community-level. An innovative community health data initiative called "Asthmapolis," for example, marries asthma inhalers with GPS capability. Every time participating patients take a puff of their GPS-fitted rescue inhalers, a geocoded message is delivered to a central data hub.[36] Aggregating this data across multiple patients and mapping it against other publicly available data – like known Superfund sites or construction sites – enables public health officials to spot clusters rescue inhaler use. Because rescue inhalers are only to be used on an as-needed basis when asthma symptoms flare up, clusters of these types of data points can be indicators of environmental triggers in the broader community that are best addressed through public health approaches that can get to the root cause.

[36] "Asthmapolis": RWJF Health & Society Scholar marries GPS to inhalers to capture data about asthma attacks and use information to identify causes. http://www.rwjf.org/en/about-rwjf/newsroom/newsroom-content/2010/06/asthmapolis.html

4

A Learning System to Monitor Progress and Spread What Works

A Learning System to Monitor Performance and Spread What Works

The implementation of the CIMH will be taking place in a healthcare landscape characterized by a large array of innovative delivery and payment reform models that are currently being tested throughout Maryland. All of these experiments hold promise, but most have been recently implemented and their effectiveness and ultimate value in transforming the health system to delivering on the objectives of the Triple Aim is yet to be determined. Many of these programs will require iterative cycles of refinement and improvement and even the most successful will face the challenge of implementing on a larger scale with sustained effectiveness. At a higher systems level, another consideration will be the degree to which combinations of program models are additive or synergistic in their health and financial impacts and are best combined to optimally serve a given population. It is also possible that some programs will have overlapping capabilities and when used together may add incremental cost without a commensurate improvement in health outcomes or a reduction in acute health care services and costs.

Building the capacity to more efficiently track existing and future efforts underway in Maryland and systematically understand the variations in service performance and effectiveness across them -- and in a manner that enables decision-makers to extract results quickly and disseminate the models that prove to be most effective -- is the overarching aim of the Learning System. Housed within the Public Utility, HSIA will have oversight and administrative accountability for the Learning System and its functions of data management, advanced analytics, evidence-based reviews, and collaborative learning facilitation, either directly or with the support of one or more contracted entities.

In this section, we discuss how the CIMH program will itself be evaluated as part of this Learning System, not only in the traditional sense of program evaluation (which typically occurs following completion of the award funding period), but also during implementation so that performance can be monitored in an ongoing way to enable mid-course corrections as necessary and guide the scale-up and staging of the CIMH program.

We then discuss how the Learning System will enable ongoing comparativeness effectiveness research at the macro systems-level, evaluating the CIMH as one intervention among many, including the Modernized Hospital Payment Model.

4.1: Evaluating the Community-Integrated Medical Home Model

Success for the CIMH program will be measured along seven objectives that correspond to each of the three dimensions of the Triple Aim.

Measures of Success

Specific measures are provided in the table below. Objectives 3-5 will be measured using the core PCMH measures in figure 3-5, while Objective 6 will be measured using the SHIP core measures in figure 3-9.

<table>
<tr><th>Triple Aim Dimension</th><th>CIMH Objective</th><th colspan="2">Measure</th></tr>
<tr><td>Total Cost of Care</td><td>• Objective #1: Reduce Total Cost of Care</td><td colspan="2">hospital and ER utilization will be monitored as proxies for total cost until a total cost of care metric can be developed or is endorsed by the NQF</td></tr>
<tr><td rowspan="6">Population Health</td><td>• Objective #2: Improve Access to Advanced Primary Care</td><td colspan="2">• # of PCPs participating in a Maryland certified PCMH program
• # of patients attributed to them</td></tr>
<tr><td rowspan="5">• Objective 3: Quality of care will improve
• Objective 4: Health outcomes will improve
• Objective 5: Uptake of USPSTF grade A/B preventive services improve</td><td>Adults</td><td>Children</td></tr>
<tr><td colspan="2">Utilization</td></tr>
<tr><td>• Use of Imaging for Low Back Pain
• Preventable Hospitalizations – AHRQ PQI Composite Measure</td><td>• Appropriate Treatment of Children with Upper Respiratory Infection
• Preventable Hospitalizations: AHRQ PDI Composite Measure
• Appropriate Testing for Children with Pharyngitis</td></tr>
<tr><td colspan="2">Screening & prevention</td></tr>
<tr><td>• Body Mass Index (BMI) Screening and Follow-Up*
• Influenza Immunization
• Pneumococcal Vaccination for Patients 65 Years and Older
• Breast Cancer Screening
• Colorectal Cancer Screening
• Tobacco Use Assessment & Tobacco Cessation Intervention</td><td>• Weight Assessment and Counseling for Nutrition and Physical Activity for Children/Adolescents
• Childhood Immunization Status
• 6+ Well Child Visits, 0-15 months
• Preventive Care & Screening: Tobacco Use Assessment
• Preventive Care & Screening: Tobacco Cessation Intervention</td></tr>
<tr><td colspan="2">Cardiovascular conditions</td></tr>
</table>

PCMH Core Metrics (See figure 3-5)

		• Coronary Artery Disease Composite: ACE Inhibitor or ARB Therapy - Diabetes or LVSD • Coronary Artery Disease: Oral Antiplatelet Therapy Prescribed for Patients with CAD • Coronary Artery Disease Composite: Lipid Control • Coronary Artery Disease : Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction • Heart Failure: Beta-Blocker Therapy for Left Ventricular Systolic Dysfunction	
		Ischemic vascular disease	
		• Ischemic Vascular Disease: Use of Aspirin or Another Antithrombotic • Ischemic Vascular Disease: Complete Lipid Panel and LDL Control	
		Diabetes	
		• Diabetes: Eye Exam • Diabetes: Foot Exam • Diabetes: Blood Pressure Management* • Diabetes: LDL Management • Diabetes: HbA1c Control	
		Hypertension	
		• Hypertension: Controlling High Blood Pressure	
		Asthma	
		• Use of Appropriate Medications for People with Asthma	• Asthma Assessment • Use of Appropriate Medications for People with Asthma
		Mental health and substance abuse	
		• Antidepressant Medication Management • Screening for Clinical Depression and Follow-Up Plan • Initiation and engagement of alcohol and other drug dependence treatment	• ADHD: Follow-up Care for Children Prescribed ADHD Medication
	• **Objective #6:** Improve Population Health	**Overall Goal**	Increase **life expectancy**
		Healthy Beginnings	• Reduce **infant deaths** • Reduce the percent of **low birth weight** births • Reduce **sudden unexpected infant deaths (SUIDs)** • Reduce the **teen birth rate** • Increase the % of pregnancies starting **care in the 1st trimester**

PCMH Core Metrics (See figure 3-5)

SHIP Core Metrics (see figure 3-9)

			• Increase the proportion of children who receive **blood lead screenings*** • Increase the % entering **kindergarten ready to learn** • Increase the percent of students who **graduate high school**
		Healthy Living	• Increase the % of adults who are **physically active** • Increase the % of adults who are at a **healthy weight** • Reduce the % of **children** who are considered **obese** • Reduce the % of **adults** who are **current smokers** • Reduce the % of **youths** using any kind of **tobacco product** • Decrease the rate of **alcohol-impaired driving fatalities** • Reduce new **HIV infections** among adults and adolescents • Reduce **Chlamydia** trachomatis infections
		Healthy Communities	• Reduce **child maltreatment** • Reduce the **suicide** rate • Reduce **domestic violence** • Reduce the % of young children with **high blood lead levels** • Decrease **fall-related deaths** • Reduce **pedestrian injuries** on public roads • Reduce **Salmonella** infections transmitted through food • Reduce the number of **unhealthy air days** • Increase the number of **affordable housing** options
		Access to Health Care	• Increase the proportion of persons with **health insurance** • Increase the % of adolescents receiving an **annual wellness checkup** • Increase the % of individuals receiving **dental care** • Reduce % of individuals **unable to afford to see a doctor**
		Quality Preventive Care	• Reduce **deaths** from **heart disease** • Reduce the overall **cancer death rate** • Reduce **diabetes**-related emergency department visits • Reduce **hypertension**-related emergency department visits • Reduce **drug-induced deaths** • Reduce ER visits related to **mental health conditions** • Reduce ER visits for **addictions-related conditions** • Reduce the number of hospitalizations related to **Alzheimer's disease** • Increase the % of **children** with **recommended vaccinations** • Increase the % **vaccinated** annually for **seasonal influenza** • Reduce hospital emergency department visits for **asthma**
Patient Experience of Care	• **Objective #7:** Improve Patient Experience of Care	• CG-CAHPS • Access to care: time to 3rd available appointment • "stickiness" of patient relationship to a PCP where a usual source of care did not previously exist	

State Health Improvement Process measures (see figure 3-9)
Proxies may need to be developed for the SHIP metrics that require a time horizon longer than the SIM Model Testing period

Of particular interest to Maryland health plans are methods to estimate the impact of CIMH on cost. This is an area that we spent additional time considering since we want the methodology to be rigorous enough that health plans find the results credible such that they will feel comfortable participating in the CIMH should our results demonstrate a return-on-investment.

To validate the benefit of Community Interventions and to justify ongoing funding of these programs, a robust estimate of their impact on total health care cost for the target populations served that is based on empiric evidence and goes beyond actuarial modeling is essential. There are multiple strategies and methodologies available for this purpose, all of which have significant limitations. In figure 4-1 below are some of the most widely applied methodologies and highlights of the pros and cons of each that were reviewed during the stakeholder planning process.

It is anticipated that the risk-adjusted application of the difference-in-differences model and inflation adjusted target pricing analysis will be most often deployed, in addition to actuarial modeling, to evaluate the financial impact of the CIMH. Where feasible, the wait list control (high-volume, short duration interventions), and propensity score matching (large sample size and available statistical expertise) methods may also be used. Although used less commonly for evaluating financial results, statistical process control methods can be deployed to assess operational program performance in the CIMH, and could be adapted for use as a quick way to assess major trends in financial performance.

Figure 4-1. Possible Evaluation Designs

Method	Description	Pros	Cons
Randomized Controlled Trial (RCT)	In its simplest form, a population meeting program eligibility criteria and agreeing to participate is randomly assigned to the treatment or control (usual care) group. Health service utilization and cost for both groups using claims data is compared over time (additional statistical adjustments are made as warranted when an imbalance of key baseline factors exists between groups despite randomization).	Most rigorous study design, which, if conducted properly and with sufficient sample size, eliminates most forms of bias. Offers the strongest possible assessment of a causal relationship and, with large sample sizes, provides a good estimate of the magnitude of the intervention-specific effect.	Costly, labor and time intensive, usually requiring IRB approval and participant informed consent. Adds significant operational burden to implementing organization – potentially impairing intervention deployment. Difficult to scale.
Propensity Score Matching	A statistical methodology applied to observational data to construct a control/non-intervention comparison group using a probability score derived	Avoids the need for a RCT. Lower cost. May be conducted retrospectively if key data is available. More valid causal inference than most direct	Complicated to undertake. Only accounts for observed and observable covariates. Unsuspected sources of bias may be inadvertently introduced.

Method	Description	Pros	Cons
	from a set of variables predictive of receiving the intervention.	matching methodologies.	Large samples sizes of overlapping populations of treated and untreated groups are required.
Wait List Control Group	Individuals who have agreed to use an intervention, but are waiting to do so may serve as a control group. If the groups are similar in other respects, an estimate of program effect can be made by comparing the outcomes of those receiving the intervention to those on the waiting list.	Eligible participants can be randomly assigned to immediate vs. wait list groups or such groups may form 'naturally' when demand for service outstrips program capacity. Avoids the ethical dilemma of completely denying a desired intervention to the control group.	Challenging to keep a stable waiting list group with longitudinal interventions that require longer time periods to achieve effectiveness. Waiting list participants may grow impatient and pursue 'off study' alternatives (contamination). Those voluntarily remaining on a wait list for a prolonged period may be atypical (unusually passive).
Difference-in-differences model	Measures the change in the differences between an intervention group and a comparison group over a defined time period.	No randomization required. Relatively straightforward conceptually – i.e., explainable to others. Commonly used in econometrics.	Requires all the assumptions needed in for the Ordinary Least Squares (OLS) model and a parallel trend assumption. May be challenging to construct a valid comparison group. Subject to certain biases. Assumes that membership in the two groups does not change over time. Assumes no force(s) differentially affect the control or treatment group. Other statistical 'best practices' apply to this evaluation model.
Inflation adjusted target pricing and analysis	A measure of outcome relative to a defined cost target. Answers the question of whether a minimum savings defined by target (discount) price is met. Equivalent to the methodology being used by CMS in the Bundled Payment for Care Improvement initiative.	Relatively straightforward conceptually. No randomization required. Various risk trim points for cases included can be defined.	Does not support analysis of a causal inference related to a specific intervention. As such may fail to provide a signal that a program is effective (even when it is) if other, countervailing forces overwhelm the intervention effect.

Balancing the Need for Demonstration, Spread, and Scale

The Learning System will seek to refine the theory underlying the CIMH using well designed experiments over a variety of contexts in Maryland. Continually learning about what interventions work, where, and for whom will assist state leaders in predicting which promising interventions could fruitfully be incorporated into the CIMH framework and brought to scale.

Tests of population health improvement strategies may be thought of along the lines of this formula:

Magnitude of Impact = reach x (efficacy of intervention x context)

As such, in selecting the Community Health Hubs and awarding SIM funding, the Public Utility will balance the need for demonstration, spread, and scale.

In many ways, the Community-Integrated Medical Home is an attempt to *spread* several evidence-based models that have been effective elsewhere and test their effectiveness in the Maryland context, such as Health Quality Partners' successful Advanced Preventive Service Model for chronically-ill Medicare beneficiaries and Hennepin County's successful Hennepin Health model for safety-net populations.

It is anticipated that the bulk of SIM funding would be reserved for such tests of spread. For example, Health Quality Partners' model has, to date, been implemented in a rather ethnically homogeneous population in suburban Pennsylvania: we would be very interested in testing whether the model remains as effective in very different geographic areas in Maryland, serving a more diverse patient population, and perhaps a working-age adult chronically-ill population. The Learning System will be primarily focused on assessing the extent to which interventions of proven efficacy in one context can translate into effective interventions in different *contexts*.

Applied R&D trials to improve upon these evidence-based models will also be launched, to include topics like the substitutability of CHWs and other physician and nurse extenders for health providers in the existing HQP model; methods to increase patient engagement and improve participation rates; and lowering intervention costs while maintaining effectiveness.

However, funding will also be reserved for tests of scale and demonstration. For example, in some jurisdictions, it may be that some components of the CIMH model or a different model altogether are being implemented and already demonstrating promising results. Where this is true, funding will be awarded to *scale* up those existing efforts and test the extent to which magnitude of impact can be improved through expanded *reach*. The Learning System will be primarily focused on assessing the extent to which effectiveness can be sustained across larger geographic areas or larger or different patient caseloads.

At the other end of the spectrum may be super-utilizer populations for which the evidence-base is not

well-developed. SIM funding will also be set aside for small pilots to *demonstrate* proof-of-concept around better models of care for these populations. The focus will be on testing the extent to which magnitude of impact can be improved through the development of efficacious interventions where none currently exist.

Performance Monitoring throughout CIMH Implementation

Effective evaluation of programs to improve complex systems requires a variety of approaches to supplement formal statistical analysis. In order to be successful in the final evaluation, Maryland will lay the groundwork for an infrastructure that enables rapid-cycle performance monitoring for continuous quality improvement and model refinement.

Leveraging Front-Line Staff and the Operational Management System to Identify Systemic Barriers

One key approach we will take is to leverage the insights and experiences of our front-line staff in helping to identify systemic barriers that can be most effectively addressed at the state-level. For example, we will develop mechanisms for the CHWs and social services navigators in our CHHs to identify the barriers they encounter on a consistent basis so that they can "bubble up" to the policy-makers at the state-level who can then institute more systemic fixes, thereby improving the efficiency of the CIMH workforce and increasing their professional satisfaction.

Data from individual interactions collected in the OMS will also be analyzed to see if any patterns emerge. Where "clusters" appear that suggest environmental or other type of "systemic" root causes of individual health problems, the Public Utility will mash up this health data with other types of available data to help identify system-level root causes and then feed these reports to the CHHs and LHICs for collective action at the community-level.

Rapid-Cycle Performance Monitoring and Continuous Quality Improvement

Also, because improvement on the CIMH evaluation metrics may take several years to manifest, we will complement these longer-term metrics with short-term metrics that will be monitored and fed back to participating primary care providers, CHHs, and LHICs on a quarterly basis. This data will enable ongoing performance monitoring and rapid-cycle feedback that will enable learning and mid-course corrections, as necessary, to promote success on the longer-term metrics.

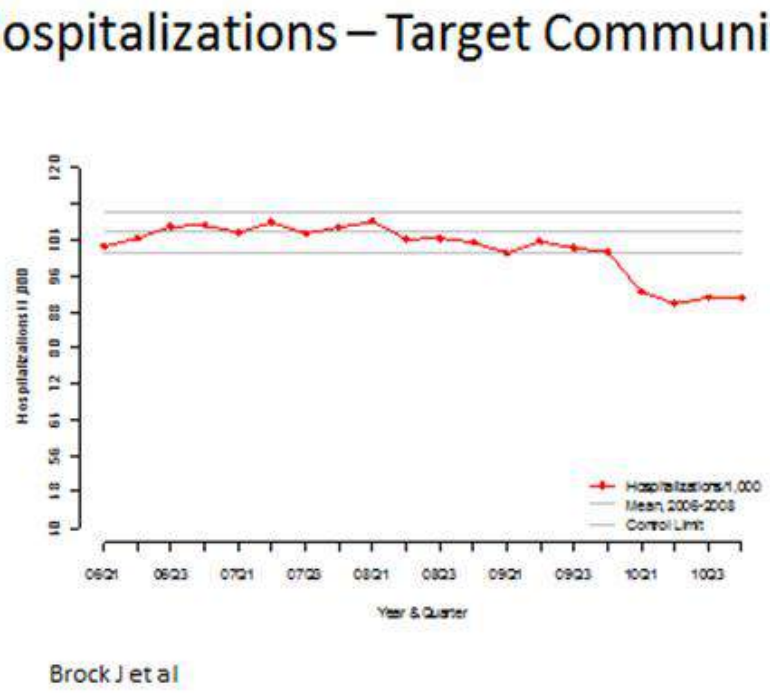
Analysis of data over time will be vital to understand the evolution of interventions facilitated by the financial or other policy mechanisms that are introduced as part of the program. Basic time series displays of key outcome measures are a start. More sophisticated analysis can be performed using Shewhart control charts (more aptly called process performance charts or learning charts).

Shewhart developed the approach to learning and improvement to provide an objective criterion for

deciding when a pattern of variation in the time series should signal further inquiry.[37] Figure 4-2 contains a Shewhart chart created as part of the community-based care transitions project that was designed by CMS. Hospitalizations per 1000 Medicare beneficiaries living in a defined geographic area was one of the outcome measures. Twelve quarters in 2006-2009 were used as the baseline for the project and eight quarters in 2009-2010 were used as the intervention period.[38]

The chart contains a center line at the average of the data and an upper and lower control limit computed as the center line plus/minus three standard deviations. A pattern in the time series (referred to as a "special cause" in quality improvement work) warranting further analysis is indicated by one point outside of the control limits or a sequence of eight points in a row above or below the center line.[39] In figure 4-2 it is seen that a special cause exists during the intervention period and persists for three more quarters.

Figure 4-2: Hospitalizations per 1000 Beneficiaries



Similarly, for the Community-Integrated Medical home, the Public Utility will monitor ER and hospital

[37] Shewhart WA. *Statistical Methods from the Viewpoint of Quality Control*. Washington, DC: Graduate School, Department of Agriculture; 1939

[38] Brock, J. et al. 2013 Association Between Quality Improvement for Care Transitions in Communities and Rehospitalizations Among Medicare Beneficiaries. *JAMA* Vol. 309 No. 4

[39] Wheeler DJ, Chambers DS. *Understanding Statistical Process Control*. 2nd ed. Knoxville, TN: SPC Press Inc; 1992

utilization and monitor these on an ongoing basis as follows. CRISP will first identify all super-utilizers (i.e. 3 or more hospitalizations in the prior year) and flag its data so that these patients are identified in the CRISP dataset. Those super-utilizers who are utilizing the hospital appropriately (for example, transplant patients who require ongoing hospital care) will be excluded. In turn, each community health hub will send its enrollment data to CRISP to indicate which of those remaining super-utilizers have enrolled in the CIMH program. CRISP will then run a report of hospitalizations and ER use of all super-utilizers on a quarterly basis for the Public Utility and stratify that analysis by county and enrollment in the CIMH.

These types of utilization reports will enable the Public Utility to monitor the extent to which community health hubs are successful in reducing hospital and ER use, compared to those super-utilizers who have not enrolled in the CIMH program. Additionally, the Public Utility will also leverage process data from the Operational Management System (see section 3.1 (Pillar #4)) to "control" for variations in outcomes that may be due to variations in model execution.

Dissemination through Learning Collaboratives

In order to spread learnings and best practices, the Public Utility will then use this data analysis to identify the counties or regions that appear to be achieving superior results and then engage in qualitative research to gain a better understanding of what may be leading to these results. Any qualitative data collected about the community's set up of the project, the organizational capabilities for improvement, and the interventions chosen for improvement will assist the analyst in determining whether the special cause was a result of system change or a less beneficial administrative change or distortion of the system.

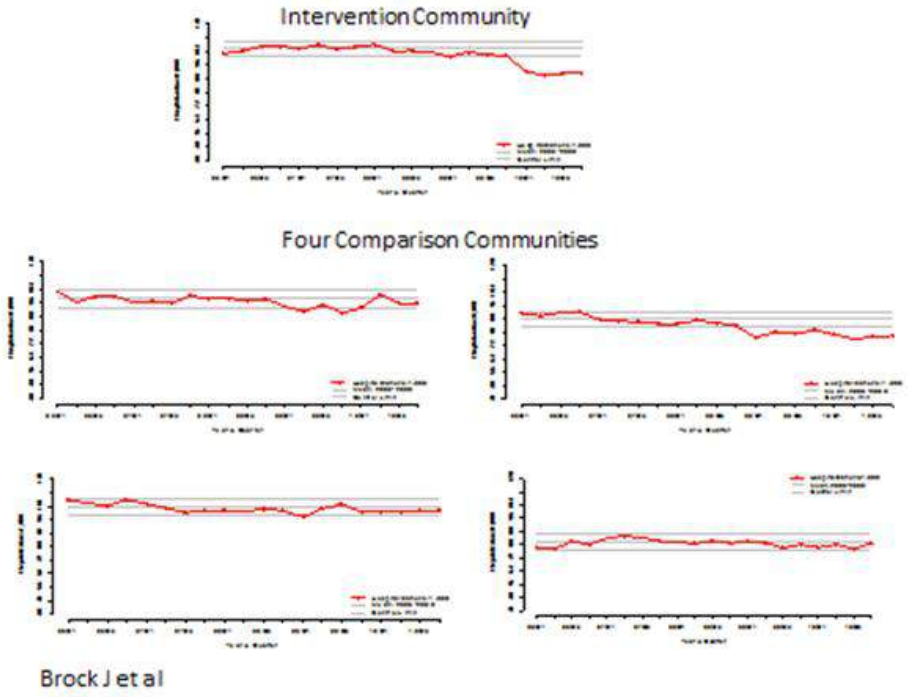
The Shewhart method will be applied to intervention sites as well as comparison sites, which may not be implementing a CIMH but is nevertheless producing superior results. For example consider the charts in Figure 4-3 for the intervention sites and its four comparison sites all plotted on the same horizontal and vertical scales, also from CMS' community-based care transitions project. The chart for the comparison site in the upper right corner in Figure 4-3 indicates a special cause reduction in hospitalizations during the intervention period.

The qualitative research team might pursue a line of inquiry for this comparison community like the following.

1. Was there intent to reduce hospitalizations either by community based care transition improvements or some other system changes?
    - If answer to #1 is no, what accounted for the reduction – an administrative change or a system distortion? End inquiry. Take the answer into account in the formal statistical analysis.
    - If the answer to #1 is yes, were the basics of the program team set up followed?

2. Using the elements of the PARIHS framework (or an alternative) assess the organizational capabilities for system improvement.[40] [41]
3. What was the mechanism-context interaction that best explains the improvement?
4. How does the mechanism-context pair for this comparison community compare to that seen in the corresponding intervention community?

Figure 4.3: Hospitalizations in One Intervention Community and Four Comparison Communities



These lessons learned or "best practices" will then be shared with other CHHs, counties and regions. Technical assistance will be provided so that these best practices can be incorporated into other delivery reform efforts, thus allowing the tide to rise and raise all boats over time.

Model Refinement and Scaling

As the Learning System generates these types of insights from both intervention and comparison sites --

[40] Kitson A, Harvey G, McCormack B. Enabling the implementation of evidence based practice: a conceptual framework. *Qual Health Care.* 1998;7(3):149-158

[41] Rycrojt-Malone, J. 2004. The PARIHS Framework—A Framework for Guiding the Implementation of Evidence-based Practice. *J Nurs Care Qual* Vol. 19, No. 4, pp. 297-304

and as patterns begin to emerge regarding particular portions of the CIMH model design -- the model will be refined as appropriate. For example, one aspect of applied R&D that the CIMH Public Utility will pursue is to thoughtfully experiment with adjusting workforce roles in an effort to make best-in-class interventions more scalable, more effective, and less costly. Another example is refinement around PCMH standards. The CIMH model will begin with a very flexible and inclusive approach to PCMH standards as discussed in section 3.1. If patterns begin to emerge over time, correlating specific standards with improved outcomes and lower costs, these insights will help to guide the refinement of future PCMH standard-setting.

Moreover, as Maryland's data infrastructure grows even more robust -- and more and different types of data are integrated with health data -- the reliability and validity of predictive analytics at the community level will also grow in precision. For example, CIMH targeting will start with a definition of super-utilizer as those individuals with 3 or more hospitalizations in the prior year. While prior utilization tends to be a fairly reliable predictor of future utilization,[42] [43] there is the possibility that the cohort of patients with 3 or more hospitalizations may not be a sensitive-enough proxy for our super-utilizers overall. With more and better-integrated data, we will eventually learn how to identify and outreach to the at-risk patients *before* they become super-utilizers through predictive modeling. In the meantime, we will monitor total cost of care for the top 10% and see whether that comes down as the outcomes for the cohort with 3+ hospitalizations improve.

4.2: The Learning System and Assessing the Macro-performance of Maryland's Health System

The Learning System will help to advance the science around the evaluation of complex and comprehensive approaches to population health improvement. What has impeded prevention initiatives previously—here in Maryland and across the nation—is difficulty in following the dollars across a complex health system. When there are fewer low birth-weight babies, for example, does the state budget benefit, or is it the Medicaid Managed Care Organizations? Or is it the hospital on a global budget? Adding to the complexity, the benefit mix is likely to vary from community to community, based on population characteristics, the service delivery model in question, and local market dynamics.

While the CIMH and the efforts underway as part of Maryland's modernized all-payer hospital payment model are not duplicative, the interdependence does create considerable evaluation challenges in isolating the effects of specific reforms in order to ascribe cost savings. If granted a SIM Model Testing

[42] Diehr P, et al (1999). Methods For Analyzing Health Care Utilization And Costs. *Annu. Rev. Public Health.* 20:125–44.

[43] Brown RS et al (2012). Six Features Of Medicare Coordinated Care Demonstration Programs That Cut Hospital Admissions Of High-Risk Patients *Health Affairs*. 31(6):1156-1166.

award, Maryland will invest that funding to advance the science around modeling the impacts of community health initiatives.

Core Data Components for the Learning System

At minimum, the Learning System will be powered through five types of data, all of which Maryland currently has or is in development:

- Patient-level hospital discharge data
- Patient-level claims data
- Population health data
- Connector data (e.g. master patient identifiers and other integration attributes)
- Enrollment data

The hospital, population health, and claims data will provide the health outcome and cost information necessary to track improvement in outcomes and lower costs. As value is measured as quality per cost, both outcome and cost data will be necessary in order to see if we are improving the value of care patients receive. Using a master patient identifier, the clinical data will be matched with the corresponding claim data for each patient. Enrollment data will be used to flag the clinical/cost data and identify which patients are enrolled in different interventions. Population health data will similarly be flagged where the data is at the patient-level. Otherwise, we will use population health data at the county, regional, and state aggregate levels to monitor improvement.

"To improve value, the measurement of both outcomes and cost is essential. Without these data, clinicians lack the information needed to validate choices, guide improvement, learn from others, and motivate collaboration and change. Value measurement is also needed to demonstrate the impact of innovations and justify additional investments."

Michael Porter et al (2013). Redesigning Primary Care: A Strategic Vision to Improve Value By Organizing Around Patients' Needs. *Health Affairs*. 32(3): 516-25..

Advancing the Science Around Attribution

Multi-variate analysis will then be undertaken to assess whether there is a statistically-significant correlation between enrollment in certain interventions--or combinations of interventions--and better health outcomes and/or lower cost. Interventions and demographic data will be the "independent variables" while metrics listed above and covering each component of the Triple Aim will be the "dependent variables." Methods like these can help to isolate the impacts of particular interventions – for example, the CIMH – while controlling for the effects of other interventions, such as the Modernized Hospital Payment Model.

Additionally, and as discussed in chapter 6, implementation of the CIMH will likely take place in waves. This will mean that some regions will be implementing the CIMH model while others are still in the planning stage, thus enabling quasi-experimental research designs will also help to isolate the impacts of the CIMH relative to the Modernized Hospital Payment Model.

By investing in Maryland through a SIM Model Testing Award, CMS has the potential to build on Maryland's efforts to integrate public health and medicine at the operational level in order to develop a method to integrate public health and medicine at the financial and payment level.

5

Managing the Transformation through Effective Governance

Managing the Transformation through Effective Governance

To achieve the transformation described in this Innovation Plan will require effective governance. In this chapter, we describe our efforts to-date to engage a wide variety of stakeholders in the design of the CIMH. We then describe how we will continue to engage stakeholders through an effective governance structure as implementation unfolds.

5.1: Stakeholder Engagement throughout the Model Design Process

The CIMH model design process was characterized by extensive stakeholder engagement -- both internal to the health department as well as external. Meeting agendas and participants are included in the Appendix. Hard copies of slide decks presented at stakeholder meetings have been posted publicly on the HSIA SIM website: http://hsia.dhmh.maryland.gov/SitePages/sim.aspx.

Preparation and framing for the process was launched by DHMH by means of an all-day kickoff summit to provide an overview of activities already underway in state agencies that had or could have relevance to the SIM planning process, including the Maryland Health Care Commission, Medicaid, the Behavioral Health Administration, and the Governor's Office of Health Reform.

The external stakeholder engagement process involved the active and sustained participation of a wide range of leaders from health plans, hospitals and health care delivery systems, primary care practices, community leaders, academic institutions, and local health departments. To foster transparency and inclusiveness, stakeholders were selected through a Request for Applications process open to all Marylanders. Care was taken to ensure that stakeholder panels represented a representative cross-section of leaders from a variety of professions and backgrounds, as well as rural and non-rural areas.

The main collaboration and feedback vehicle for stakeholders was a series of meetings held from May through September 2013, all of which were open to the public. Two groups of stakeholders – representing the 'payer/providers' and the 'community' met separately (with some overlapping participants working in both groups), but in parallel and considered most of the same major elements, areas, and issues of CIMH planning though spending different amounts of time on different areas of focus.

Each stakeholder group met separately for three half-day meetings at state government facilities in Baltimore that were open to the public (for a total of 6 meetings) and then together in a final joint, all-

day Summit in Annapolis on September 10, 2013, also open to the public. Health Quality Partners (HQP) was awarded a contract by DHMH to facilitate the stakeholder meetings and provide content expertise related to population health strategies in general and the use of the advanced preventive service model developed by HQP in particular. Open, honest and respectful communication was encouraged and abundant at all meetings.

In addition to stakeholder meetings, every stakeholder was encouraged to provide feedback through a survey form provided at the end of each meeting, as well as through emails, letters, phone calls, formal and informal meetings, and a wiki site devoted to the CHH payment model. Stakeholders were invited to send their feedback to HQP (managing and facilitating the engagement process) or directly to DHMH; they did both. Feedback provided outside of meetings was offered by individual organizations (from all sectors), industry trade groups, professional societies, and academic organizations. Members of the general public in attendance at stakeholder meetings also offered feedback which was reviewed.

All stakeholders supported the general concept of moving from a volume to a value based payment model that rewarded better processes of care and better health-outcomes. Generally providers and community health stakeholders favored greater standardization of reportable performance measures for which they would be held accountable and were open to standardized payment methods across payers. Regarding PCMHs, payers were supportive of developing more standardized performance measures, but were less supportive of a single standardized payment model for rewarding value. They continued to favor ensuring that plans have flexibility in developing new approaches to contracting with providers.

For that reason, discussions around payment models focused on the community side of the CIMH model. The concept of measuring and rewarding shared savings was discussed extensively, with many stakeholders indicating they felt this was an unworkable and unsustainable option for moving to a more value-based system. Many stakeholders believed the technical and analytic challenges of disaggregating the proportionate impact of the CIMH from other concurrently occurring interventions (e.g. ACOs) would be insurmountable. Moreover, all stakeholders felt that shared savings was not a viable approach for long-term sustainability, as efficiencies are realized over time. Ultimately, the stakeholders expressed a preference for a capitated payment based on a public utility model, whereby payers and providers paid for the community services that they used.

The concept of committing to the creation and support of a public utility function to enable a CIMH model was generally supported by providers and community health stakeholders (most strongly by the latter) and was acknowledged as rational and potentially useful by payers, most of whom however, were opposed to a mandatory requirement to utilize or contribute to the financial support of such a utility. A recurring concern of payers was that the CIMH CIs would be redundant with services they were already providing in the form of plan-sponsored case management. The differences in the design and intensity of the CIs envisioned for the CIMH as compared to typical health plan sponsored care/case management was reviewed, but payers were largely unconvinced that the CIMH would bring uniquely different services providing greater net savings.

Some provider/hospital stakeholders shared the concern of potential redundancy of services, added cost, and interference with recently launched care delivery and payment reforms (including ACOs). The current innovation proposal tries to address these issues, at least partially, by requiring CHHs to work collaboratively with local providers to work through collaboration and communication processes to help ensure that the implementation of CIs is additive to and coordinated with initiatives in the region. HQP shared with all groups their experience implementing an intensive, community-based, longitudinal nurse care management model for chronically ill older adults. By virtue of its program's intensity, breadth, duration, and focus on preventive services at home, HQP has observed little redundancy with existing home care or care management/coordination services. HQP has found that using fairly simple communication and coordination protocols with primary care providers, health systems, post-acute providers, and insurance plans has ensured complementation of care services.

It was broadly agreed by providers and community health stakeholders that the Learning System, OMS, and related advanced analytical capabilities the CIM Public Utility will provide could be hugely beneficial in supporting innovation efforts currently underway in Maryland. Many expressed concern that the lack of these capabilities was hindering their current initiatives.

There were extensive discussions related to what kinds of organizations were most appropriate to serve the function of CHH. It was widely held that the CIMH should not limit itself to one organization type to play this role. Initial suggestions that the LHICs seemed best positioned for this function were contested by numerous stakeholders who expressed concern that many LHICs were not sufficiently mature, well resourced, or sufficiently experienced to serve the role of the CHH. It was also noted that in some areas of the state, LHICs are already playing a significant role in coordinating community and hospital efforts to achieve population health goals and facilitating coordination between health care providers and public health authorities.

All stakeholders supported the notion of applying the most rigorous, yet practical, evaluation of performance of the CIMH model as possible. Stakeholders also generally agreed that there needed to be some flexibility to modify and consciously tweak best practice CIs implemented by the CHH – a role the Learning System will make possible with data from the OMS.

Community health stakeholders were strong advocates for including Community Health Workers (CHWs) as a significant part of the CHH workforce with a role in delivering the CIs. It was noted by nursing leaders attending as members of the public that some CIs with strong evidence of effectiveness were predominantly nurse led, but there was agreement that cautious experimentation with alternative roles for some tasks within such CIs might be beneficial in providing more effective patient engagement, allowing the completion of tasks that don't require extensive clinical skills and knowledge, and could potentially lower intervention costs.

A concept generally acceptable to stakeholders was that PCMHs would be required to collaborate with Community Health Teams implementing CIs through CHHs. Most primary care providers expressed a willingness to collaborate with CIs in their communities, but some expressed concern about problems

that could arise if there was a lack of alignment with the primary care treatment plans or poor coordination or insufficient communication between the community health teams and the practices. It was felt that training, communication / collaboration protocols, management monitoring and possibly new, shared performance measures re: the quality and reliability of collaboration could provide some safeguards. Some practices also expressed a desire for flexibility in requesting that care management staff work from their offices and potentially under their guidance.

The most consistently expressed disappointment with the SIM planning process came from primary care providers participating in the existing Multi-Payer PCMH program, hoping that the planning process would result in a more definitive model of payment for the future PCMH envisioned in the CIMH model. This was weighed against the clear feedback received from the majority of providers and payers in the Payer/Provider Stakeholder group that flexibility be retained for payment models to be negotiated between individual payers and providers around the PCMH portions of the CIMH model. MHCC which currently has oversight for administering the PCMH model authorized in Maryland received feedback during the SIM planning work which it will use going forward in its effort to design legislation and regulations for a new PCMH authorization to replace the existing one due to sunset in 2015.

Stakeholders all agreed that the proposed CI for childhood asthma which utilizes close integration and collaboration with school nurses, families, and primary care providers, provided an excellent means to integrate early childhood and adolescent health prevention strategies with primary and secondary educational systems to improve student health, increase early intervention, and align delivery system performance with improved child health status. All acknowledged that more work needed to be done to integrate behavioral health, substance abuse, and long-term services and support as part of a multi-payer delivery system model and payment strategies.

Stakeholders were broadly and unequivocally enthusiastic about the plan for the CIMH to maximally leverage the health information exchange technologies (CRISP) and All Payer Claims Database (APCD) that exist in Maryland. Both will help identify and support outreach to vulnerable, high-risk populations; CRISP primarily through real-time notifications that will be incorporated in the OMS used by the CHHs, and through geographical/neighborhood 'hot-spotting'. The need to carefully work through processes for protecting participant privacy and confidentiality and closely coordinating with PCPs was raised by stakeholders.

5.2: Ongoing Governance for the CIMH Program

To sustain the momentum generated during the Model Design process and to provide effective governance during model implementation, several governance structures will be created and at different levels.

House Bill 1325 was introduced this year to officially create the CIMH Program and establish an Advisory

Board to provide overarching guidance on CIMH implementation. Like the stakeholder panels in the Model Design process, we anticipate that the Advisory Board will be comprised of representatives from health plans, hospitals, providers, community-based organizations, LHICS and local health departments and will be augmented to include more representation from patients, caregivers, and social services organizations.

While the Public Utility will implement key features of the CIMH like standards, core metrics, and attribution methods (see section 3.2), the Advisory Board will provide input on how those standards, metrics, and methods should change as we gain experience through implementation. They will also set performance targets for the core metrics. To support them in these efforts, the Public Utility will engage in data analyses, real-time CHH comparative performance monitoring, and service quality and integrity audits using data from the OMS. Performance of PCMHs and Community Health Hubs will be monitored and performance reports will be provided by the Public Utility to the Advisory Board regularly.

To provide input into the CIMH Advisory Board, several committees and workgroups will be established. The development of a CHW curriculum and training program will be guided through an advisory board, as discussed in section 3.1 (Pillar #3).

To ensure alignment with the Modernized Hospital Payment Model, we will also leverage four workgroups that have already been convened by the HSCRC to guide the implementation of the Modernized Hospital Payment Model:

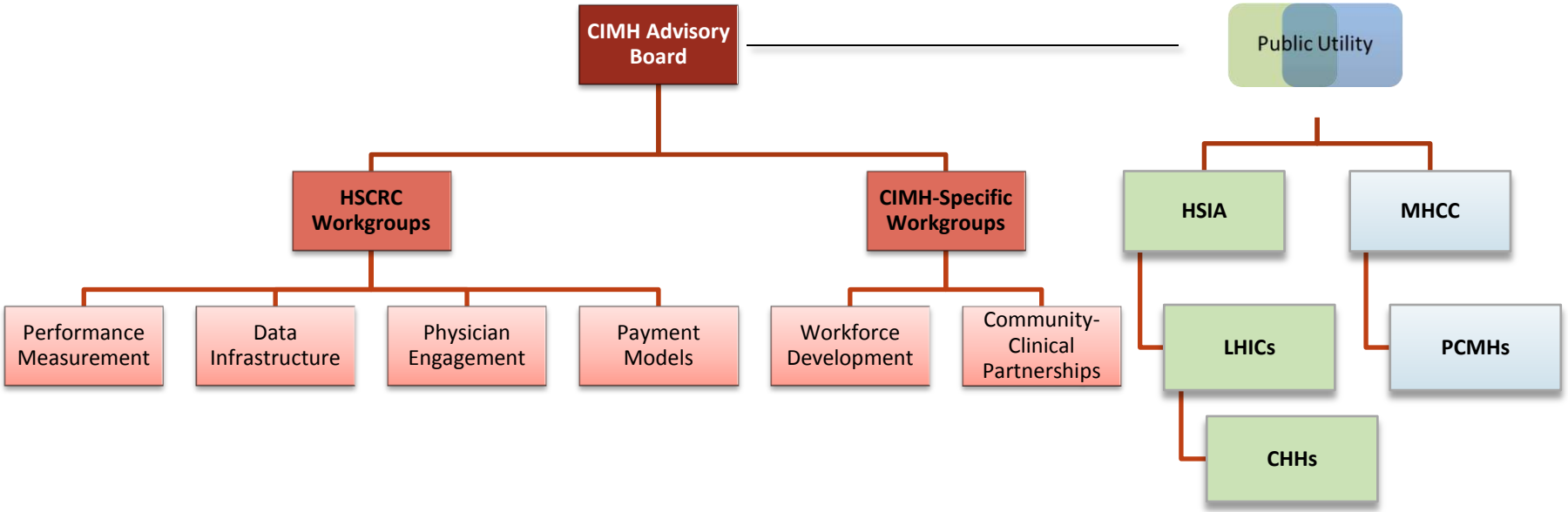
- physician engagement and alignment (http://hscrc.maryland.gov/hscrc-workgroup-physician-alignment.cfm)
- performance measurement (http://hscrc.maryland.gov/hscrc-workgroup-performance-measurement.cfm)
- data infrastructure (http://hscrc.maryland.gov/hscrc-workgroup-data-infrastructure.cfm)
- payment models (http://hscrc.maryland.gov/hscrc-workgroup-payment-models.cfm)

Finally, we anticipate establishing one additional workgroup around community-clinical partnerships.

At the local level, LHICs will provide guidance to the CHHs to ensure that the super-utilizer interventions are an effective component of their broader local health improvement action plans and to minimize duplication of effort. To achieve that goal, an LHIC's organizational structure will be codified through the development of an LHIC charter that describes its governance structure and ensures representation from a cross-section of the community.

Figure 5-1 depicts how the CIMH governance structure may look.

Figure 5-1. CIMH Governance Structure



5.3: Ongoing Governance at the State-Wide Level

Finally, Maryland will consider the development of a governance structure to help coordinate efforts across different programs and interventions. Like the Advisory Board proposed for the CIMH, these programs typically have their own taskforces and advisory boards. If the CIMH is part of a larger effort to coordinate delivery and payment reform models across the state, the ability to coordinate these governance bodies may also be desirable.

6

Getting from Here to There

Getting from Here to There

To achieve the transformation described in this Innovation Plan will require the use of multiple levers available to us at the state-level and leveraging the multiple innovations already under way across the state. In this section we describe how will use the levers at our disposal to meet several key goals, build on the reform work under way across Maryland, and how we will stage the roll-out of the CIMH model to best assure success.

6.1: The Levers Maryland Will Use to Achieve Specific Goals

Goal: Establishment of the Community Integrated Medical Home Program and Advisory Board

Lever: Statute

For the 2014 General Assembly session, multiple bills have been introduced that continue to support advanced primary care. House Bill 1235, entitled, "Community Integrated Medical Home Program and Patient Centered Medical Home Program", brings together patient centered medical home programs and community–based services and supports. The bill establishes an advisory body that will define the criteria for carrier and provider participation in the CIMH as well as standard metrics for quality and cost. A deliverable of the bill is an implementation plan for CIMH that will be due to the General Assembly in December 2014. This will allow time for development of a more comprehensive CIMH bill that addresses the current patient centered medical home initiatives that are scheduled to sunset in 2015. By staging this bill over two sessions, it will allow Maryland to continue to work with multiple stakeholders to get consensus. Consensus will allow for better integration of community–based care and hospital care which is essential for Maryland to meet the new requirements under the Maryland hospital payment system.

Goal: Behavioral Health Integration with Primary Care

Because Maryland faces a shortage of behavioral health providers, it is important that behavioral health issues be addressed in primary care settings whenever possible. Also, because physical conditions are often co-morbid with behavioral health conditions, treatment in primary care settings will enable more effective care coordination.

Lever: Core Metrics

CIMH core metrics include Behavioral Health (BH) metrics (see figure 3-5), which sets the expectation that BH should be treated in a primary care setting when that is appropriate.

Lever: Training and Peer Supports

We propose to help raise the comfort level of primary care providers in treating behavioral health conditions by expanding the Maryland Behavioral Health in Pediatric Primary Care Program (BHIPP). BHIPP is a program to support primary care's role in the mental health system for children, youth, and their families. It provides:

1. Free phone consultation for PCPs to receive advice from a mental health specialist, including psychiatrists, psychologists, and clinical social workers at the University of Maryland and Johns Hopkins. Mental health topics covered include screening, resource and referral, and diagnosis and treatment.
2. Continuing education for PCPs and their staff to develop mental health knowledge and skills.
3. Assistance with local referral and resources to link families to mental health services in their community.
4. Co-location of social workers in primary care practices to provide on-site mental health consultation.

The program currently targets Maryland youth, with a special emphasis on areas of the state where geographic and economic barriers pose the greatest limits to accessing mental health services. Under the CIMH, BHIPP will be expanded to provide consultation for adults.

In addition, the program will work to assure that every primary care provider has the opportunity to receive training in basic adult mental health skills, knows how to access referral and consultation services via BHIPP, can receive a mental health evaluation for an adult who cannot obtain one in a timely manner due to concerns with distance, finances, or wait times and is aware of opportunities for co-locating or better integrating with a mental health provider.

We anticipate that continued implementation of BHIPP in CIMH will lead to significant improvements in access to mental health care and improvements in adult's mental health.

Finally, we plan to develop a reciprocal arrangement for behavioral health providers who would like free phone consultation from somatic care providers, including primary care providers and specialists and assistance with local referral and resources.

Goal: More Robust Participation in Patient-Centered Medical Homes

Because advanced primary care is the bedrock of an effective health delivery system, broader participation in advanced primary care models like the PCMH will be an important element of a more effective health care system for Maryland.

Lever: State Statute

In 2010, House Bill 929, entitled "Patient Centered Medical Home Program" authorized the Maryland Health Care Commission (MHCC) to establish, monitor and evaluate PCMH models in Maryland. The bill allowed the MHCC the following:

- Authority to implement and regulate a PCMH Program.
- Authority to require that prominent carriers participate in a mandatory PCMH Program.
- Authority to exempt Carriers from Anti-trust law to allow carriers to collaborate regarding payment and for providers to collaborate regarding payment (within parameters of "state action" doctrine).
- Authorized a carrier to implement a single carrier patient centered medical home program.

The mandatory program is a multi-payer program that has been in operation since April 2011. The authorizing legislation also permits MHCC to authorize single carrier PCMH programs. The Commission has approval several applications for single carrier programs to date, the largest of which is from CareFirst. Maryland believes that broad authority under this law will allow the commission to standardize metrics and attribution methodologies across multiple PCMH programs to develop a common consistent set of standards. The 2010 legislation is expected to "sunset" in 2015.

Lever: Flexibility Around PCMH Standards and a New Meaningful Floor

Another key lever of the CIMH is the broad expansion of the PCMH model, including a PCMH model that would lower barriers to participation by primary care providers, while continuing to bring value to Marylanders in terms of higher quality of care, accountability, and access. The minimum criteria for primary care practices to be deemed a PCMH in the CIMH model are; 1) actively collaborate with their local CIMH Community Health Hub (CHH) to support the delivery of CIs for their patients, 2) be subject to standardized PCMH performance measurement, 3) accept Medicaid & Medicare beneficiaries, and 4) enroll in CRISP's ENS program.

Practices meeting different or more extensive criteria for PCMH designation applied by payers via contractual agreements will also be recognized as PCMHs in the CIMH model. With this modification in the minimum criteria required to become a CIMH practice and the continued promotion and support of the PCMH model by means of the Maryland Health Care Commission (MHCC) and payers, we expect increased provider participation in advanced primary care models with 80% of Marylanders receiving their care from a CIMH practice within 4 years.

Lever: Administrative Simplification

In addition to lowering barriers for participation, the use of a standard set of core metrics that are already being widely used in other federal and state programs will reduce the administrative

burden placed on participating providers. Additionally, the Public Utility will be able to provide feedback reports on these core metrics to participating providers on their entire patient panel, providing a 360-degree perspective on their patients (rather than reports that are payer-specific and utilize payer-specific metrics and provide insight into only a fraction of a provider's total caseload). Finally, patient attribution methods will also be streamlined to provide clarity around which patients a provider or practice will be held accountable for.

Lever: Support for Care Coordination

Assistance with care coordination by community based care teams will be key for a provider's ability to meet any proposed metrics. Under the Community integrated medical home, patients identified as super-utilizers or at-risk for becoming super-utilizers will have detailed care plans that will help the practice identify unmet needs (both clinically and socially). The practice will have the option to provide clinical care coordination by a nurse or care coordinated by a community health worker that is focused on community resources based on needs identified in the patient's assessment. CIMH will provide the funds to pay for a care coordinator or a community health worker for 2 years. The funds can either be used to offset the costs of paying for existing care coordinator/community health worker or can be used to hire new staff; however, they must follow a protocol defined by the CIMH advisory body that is adopted by the state. By the end of year 2, we expect a decrease in utilization of hospital based care and savings generated by the intervention can be reinvested to support the care coordinator/community health worker at the practice level.

Lower barriers to entry, support for care coordination and support for patients with behavioral health needs provide multiple benefits to the primary care provider participating in a CIMH. Specifically:

- Improved patient satisfaction as patients' needs get met by the community based care teams.
- Improved provider satisfaction as these same teams will help providers meet their performance metrics by effectively addressing the non-medical determinants of poor health outcomes for the patient population they are being held accountable for.
- Expansion of provider panels which will improve access to the newly insured because our robust community-based care team will help take care of the tough patients that tend to take longer appointment times.
- Training to raise the comfort level of PCPs in treating BH in primary care settings and in treating patients who "step down" from BH settings of care.

Goal: Multipayer participation including Medicare

With multiple health plans participating in the Maryland health care market—nine in the small group

market, 10 in the large group market, and 37 in the individual market (see appendix 8.2) – multi-payer participation will be important to facilitate system-wide transformation and minimize cost-shifting.

Lever: core metrics

The use of core metrics and a data infrastructure that allows for the comparative analysis of different interventions encourages innovation around the means to improve population health where the evidence-base is not robust. It also creates a mechanism through which to obtain multi-payer participation once the evidence base becomes clearer.

Lever: "pay and/or play"

As discussed in section 3.1 (Pillar #2), health plans will have the option to determine their level of involvement in the CIMH on a "pay and/or play" basis. For payers that opt to participate (i.e. "play"), all fees for the community intervention will be paid for out of SIM dollars during the performance period. Pending a positive ROI at the end of the 3rd year, payers will begin to pay for the intervention in years 4 and beyond.

Payers that choose not to participate in year 1 or 2 will provide the data necessary to evaluate their performance against established benchmarks. At the end of year 2, if their performance does not meet the benchmark, the payers will agree to participate (i.e. "play") in year 3 and beyond at their own cost.

Such an approach places appropriate responsibility on the CIMH to demonstrate value to payers and ensures that payers are not coerced into participating before they are ready, while providing a glide path for securing their commitment once value has been demonstrated.

Lever: State Health Plan involvement

The State is a significant purchaser of health care. By engaging the State's employees health benefits plan – one of the state's largest ERISA plans – we pave the way for commercial payer participation in CIMH moving forward and have enough patients through which to test its effectiveness on working-age adults who are commercially-insured in the early years of CIMH implementation.

Lever: Healthiest Maryland Businesses

Healthiest Maryland Businesses partners with public and private sector employers and business coalitions on health to promote evidence-based worksite health strategies value-based insurance design. Through a grant from the CDC, the Department is partnering with over 500 businesses, including small and large businesses, to ensure the implementation of evidence-based worksite wellness strategies. As part of the technical assistance we provide through this grant, we will create templates that employers can use when negotiating contracts with health plans to enable their employees to participate in the CIMH.

Lever: Medicare participation

Maryland ranks 17th in terms of total Medicare spending.[44] In 2009, Medicare spent $8.8 billion and accounted for 21% of total health expenditures by all payers that year.[45] Integrating Medicare in Maryland's existing Medicaid and private-sector delivery reforms will be critical if we are to effect system-wide transformation and bend the healthcare cost curve.

We will pursue two avenues for enhanced Medicare participation. First, we will pursue additional waiver authority to enable Medicare to participate in Maryland's PCMH programs along the lines of how Medicare is currently participating in seven other states through the Multi-Payer Advanced Primary Care Practice initiative.[46] Additionally, where Medicare ACOs have been established in Maryland, those ACOs will be "deemed" Maryland PCMHs under the CIMH model. Together, these strategies will enable primary care providers to provide high quality primary care to their patients regardless of payer source.

Lever: State Statute

Folding Maryland's existing Medicare ACOs into our statewide PCMH programs is facilitated by passage of Insurance Article 15.1901-1903, which establishes clinically integrated organizations (CIOs). CIOs are the equivalent under Maryland state law of Accountable Care Organizations (ACOs). Clinically integrated organizations evaluate and improve the practice patterns of the health care providers; and create a high degree of cooperation, collaboration, and mutual interdependence among the health care providers who participate jointly to promote the efficient, medically appropriate delivery of covered medical services. This law permits organizations designated by CMS as ACOs to participate with private carriers under a similar framework. The Insurance Commissioner, in consultation with the Maryland Health Care Commission, adopts regulations specifying the types of payments and incentives that are permissible. This authority permits Maryland to allow the four recently designated ACOs to serve the privately insured population.

Goal: Effective Care Coordination Across Different Systems of Care

Our most vulnerable patients are often enrolled in multiple social services and health care programs, each with its own case managers. The ability to share data between systems will be vital to ensure more effective service coordination and outreach.

Lever: The Convening Power of State Government

Coordination between behavioral health, social services, public health and health care –

[44] http://kff.org/medicare/state-indicator/medicare-spending-by-residence/
[45] http://www.cms.gov/NationalHealthExpendData/downloads/resident-state-estimates.zip
[46] http://innovation.cms.gov/initiatives/Multi-Payer-Advanced-Primary-Care-Practice/

coordinated at the state level because that is the only level at which it can really happen on a system-wide basis.

Lever: State Action Exemption to Federal Anti-Trust Law

Maryland has developed a successful track record in using the state action exemption effectively to bring payers together to agree on reimbursement under the previous and current hospital payment systems. In 2011, the state action exemption was employed to bring payers and practices together to build consensus for the MMPP. That authority was memorialized in the state law passed that year and is well supported in the Maryland legislature and among Maryland payers and providers.

Lever: Uniform patient consent form across systems

Working with our partners in behavioral health, health care providers, and social services, we will develop a uniform patient consent form that will work across all systems, as well as a mechanism for tracking which patients are shared between different care managers so that care coordinators can share their notes with each other and ensure that their care plans are aligned and seamless from the point of view of the patient. We will build on SAMHSA's work with seven states to develop such a uniform consent form that have all been approved by each State's attorneys general (AGs) and by HHS's attorney general to ensure it complies with all state and federal data sharing regulations (see appendix 8.5).

Lever: Attorney General Technical Assistance

We believe that having an AG-approved uniform consent form will help to clarify what type of information can be shared, between whom, for which patients, and for specific purposes. However, as questions arise on a case-by-case basis, SIM funding will be used to fund one full FTE in the DHMH Attorney General's office to provide any necessary clarifications on the permitted uses and disclosures of patient data. As each case is adjudicated, they will be publicly posted (while respecting the privacy of patients and their providers) so that everyone can benefit from the clarification.

Lever: State Statute

In 2012, Senate Bill 954, entitled "Medical Records – Enhancement of Coordination of Patient Care" authorized carriers to share data with providers for the purposes of care management. Until 2012, the inability of carriers and primary care practices to exchange data had constrained the development of advanced primary care models because data held by carriers that could support care management, quality monitoring, and cost comparison could not be easily shared with practices. Passage of this legislation removed that constraint.

Goal: Effective Community-Clinical Partnerships

Over 60% of premature mortality and morbidity is due to social, behavioral, and environmental needs that are tough to address if we stick only within the confines of a physician office or a biomedical model more generally. Population health improvement will depend on robust community-clinical partnerships to address medical as well as non-medical determinants of health.

Lever: Maryland's Modernized All-Payer Hospital Payment Model

As Maryland's hospitals gradually shift towards a global budget payment model pursuant to the recent approval of Maryland's All-Payer Hospital Payment model, the financial incentives hospitals face will be aligned with a prevention-oriented health system. Hospitals will be incentivized to become full partners in community-integrated health promotion initiatives to prevent avoidable hospitalizations and ER visits.

Lever: The Budget Finance and Reconciliation Act of 2014 and LHIC charters

Senate Bill 172, entitled, "Budget Finance and Reconciliation Act of 2014" included language that would have established a "Community Partnership" assistance program. The Program proposes to provide funding to hospitals for approved regional or statewide community partnerships. Partnerships must demonstrate that they improve the health and well-being of the community and support the achievement of the goals established in the States all payer model approved by the CMMI.

The modernized Medicare waiver will incentivize hospitals to reduce hospitalizations and, in later years, utilization of hospital-based outpatient services. Meeting new financial tests will require new investments in prevention programs and partnerships with other providers in the community. The proposed partnerships support the proposed CIMH model and would augment the health hubs described elsewhere in this plan.

BRFA sets the expectation for hospital/community partnerships and LHIC charter is the mechanism by which to grow confidence in those partnerships.

Lever: bonus payments for hubs and PCMHs that achieve improvement at the LHIC level

By providing performance bonuses for Hubs and PCMHs at the LHIC level, we will begin to foster a collective sense of responsibility for the health of our communities. This is important because population health is unlikely to improve if each provider continues to work in isolation and be rewarded solely on the basis of their particular patient panels.

Lever: RFP process to designate Community Health Hubs

As described in section 3.1 (Pillar #2), Community Health Hubs will be selected based on a competitive RFP basis. Those applicants that can demonstrate a history of strong and effective community-clinical linkages that have led to improved population health will be provided

priority consideration.

Goal: Effective and Trained Community Health Worker Workforce

A trained workforce that is able to effectively bridge community with health care will be vitally important to an effective community-integrated approach to health reform.

Lever: State Statute

Two bills have been introduced on community health workers for the 2014 General Assembly Session. Both bills seek to convene an advisory body that would standardize educational requirements and functions appropriate for a community health worker. One of the two bills seeks to license community health workers so that reimbursement models can be developed.

Goal: Meeting Performance Targets

In order to meet our goals of improved care, lower cost, and improved population health, we will need to have clearly defined and consistent performance metrics and payment models that facilitate progress in meeting those performance targets.

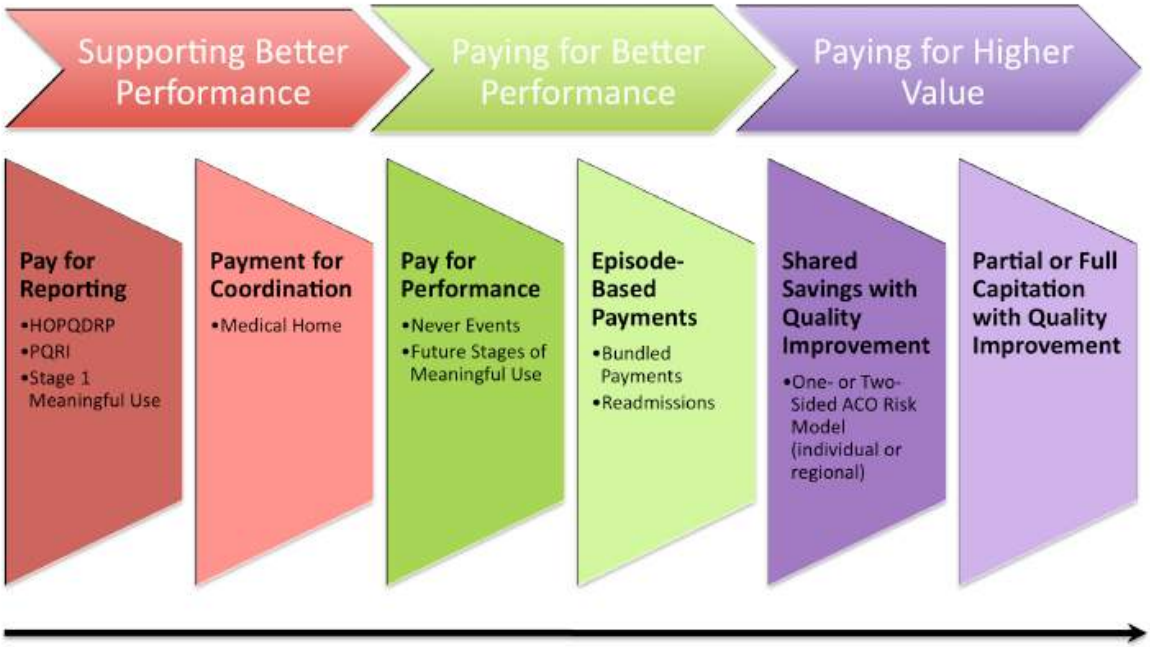
Lever: Core measures

A core set of performance metrics will be used to monitor progress across the entire health system, thus providing clarity around goals and guideposts which, in turn, can promote the more deliberate and strategic alignment of investments, incentives, and policies with desired outcomes.

The traditional practice of using different metrics for different pilots makes it difficult to compare across pilots to determine which payment and delivery models produce comparatively better quality at lower cost and are worth scaling up or diffusing more broadly into the health care system. By contrast, the use of a consistently defined set of core metrics will facilitate the evaluation of their comparative effectiveness. Because they are consistently defined, it will also be possible to monitor performance at different levels of aggregation including at the individual patient-level (for care coordination), at the provider-level (for provider benchmarking), at the practice-level (for PCMH evaluation), at the local level (to monitor community health), and at the state level (to monitor the performance of our health delivery system).

Lever: Value-based payments

To incentivize performance improvement, a number of different types of value-based payments are already being used and will continue to be used.



source: Engelberg Center for Health Care Reform at Brookings

For example, primary care practices that participate in Maryland's Multi-Payer Patient Centered Medical Home program are currently provided upfront payment for coordination as well as shared savings with quality improvement, essentially functioning as multi-payer private ACOs. Under Maryland's Total Patient Revenue program, 10 hospitals are being paid on a full capitation model. Additionally, all hospitals are participating in Maryland's Admissions/Readmissions program and are financially penalized for poor performance on hospital-acquired conditions as well.

Looking ahead, the number of Maryland hospitals financed on a full capitation model is expected to grow under the new Medicare hospital waiver. Additionally, under CIMH, PCMHs will continue to face value-based payments but will be further rewarded if they contribute meaningfully to the health of their communities at the LHIC level. Finally, the Community Health Hubs will be financed according to a full capitation with quality improvement model.

6.2: Timeframe/Staging

To best assure success for this ambitious transformation plan will require deliberate staging. This section will describe our timeframe for implementation of different dimensions of the Innovation Plan.

Pre-Implementation: Establishment of the Community Integrated Medical Home Program

Prior to implementation, the basic operating infrastructure for the Community Integrated Medical Home program would be established. This would include establishing the Public Utility, laying the groundwork for the Learning System (including the development of the Operational Management System), and the administration of an RFP process to select Community Health Hubs.

Implementation of Community Integrated Medical Homes

Initial Target Populations: As described in chapter 2, there are about 138,000 super-utilizers in Maryland and account for a disproportionate share of health care costs. Specifically, they cost about $6.5 billion or account for about 43% of total charges across the state. While our aim is to reach all super-utilizers and, eventually, those at-risk of becoming super-utilizers, we proposed to begin initially with those super-utilizers with 3 or more hospitalizations in the prior year. In 2012, patients with 3 or more hospitalizations accounted for $2.9 billion in hospital charges, or 44% of total hospital charges for all super-utilizers combined. Over 50% were Medicare beneficiaries, 20% had commercial coverage, and 16% were Medicare-Medicaid dual-eligibles (see figure 6-1)

Figure 6-1: Marylanders with 3 or more hospitalizations in 2012

3 or more hospitalizations	# patients	total charges	#	$
Uninsured	1,737	$109,736,956.09	4%	4%
Private	7,891	$642,481,167.51	20%	22%
Medicare	19,911	$1,410,309,152.38	51%	49%
Medicaid	3,268	$268,091,997.58	8%	9%
Duals	6,097	$453,806,492.47	16%	16%
TOTAL	38,904	$2,884,425,766.03		

Source: HSCRC hospital discharge data

Because there are currently no systematic care coordination programs for Medicare FFS and Medicare-Medicaid dual-eligibles in Maryland--despite their disproportionate presence among Maryland's highest super-utilizers--the CIMH Program will prioritize the inclusion of -- and outreach to -- these patient populations. Figure 6-2 provides a breakdown of where these Medicare and Dual-Eligible patients resided in 2012 by county.

Figure 6-2: Medicare FFS and Dual-Eligibles with 3 or More Hospitalizations in 2012

Rural		Suburban		Urban	
Allegany	516	Anne Arundel	2132	Baltimore City	6356
Calvert	280	Baltimore County	4984		
Caroline	188	Howard	748		
Carroll	648	Montgomery	2208		
Cecil	392	Prince George's	2356		
Charles	456				
Dorchester	232				
Frederick	876				
Garrett	92				
Harford	1016				
Kent	184				
Queen Anne's	200				
St Mary's	344				
Somerset	124				
Talbot	256				
Washington	708				
Wicomico	456				
Worcester	280				

Source: HSCRC hospital discharge data

While all Community Health Hubs would be required to address this particular population, however, communities will also be required to focus on at least one additional patient population (e.g. children with asthma, HIV positive patients lost to follow-up, etc.) depending on their identified community health needs. Based on estimates from Health Quality Partners, we estimate that each Hub will be able to serve 1,250 super-utilizers at capacity.

Selecting Community Health Hubs (CHHs)

CHHs will be selected by the CIMH Public Utility through a competitive RFP process to allow local assets to apply for this role. The CIMH Public Utility will also monitor CHH ongoing service delivery performance and adherence with certification standards. Organizations eligible to apply as a CHH include: local health departments, LHICs, hospitals, community based 501(c)(3) organizations, and collaborative partnerships.

Applicants will be required to describe how they will provide Community-Integrated Medical Homes to the Medicare FFS and Dual-eligible populations in their jurisdictions. Applicants will also be required to target at least one other super-utilizer patient population and justify that selection based on demonstrated prevalence and need. Data about super-utilizers will be provided at the county level to assist in their planning efforts.

Applicants will also be required to provide a sustainability plan for year 3 and beyond which reallocates some portion of the cost-savings that accrue to hospitals and gets reinvested back into the community to maintain or strengthen the work of the Hubs.

Preference will be provided to applications that

- Have a certified LHIC as the lead organization and/or propose a hospital-LHD partnership
- Degree of "fit" between the partners necessary and the population being served
- Experience and demonstrated success in improving the care and outcomes of Medicare FFS beneficiaries, Dual-Eligibles, and any additional patient populations proposed as target populations
- Demonstrate multiple effective partnerships at the community level.

Implementation of Community Health Hubs

Implementation of Community Health Hubs will proceed along several waves. Like the State Innovation Model initiative, we plan to group the Hubs into three categories according to readiness. "Model Testing" Hubs are those hubs that demonstrate the ability to hit the ground running with only 6 months of ramp up time, while "Pre-Testing" Hubs are those hubs that would benefit from additional community planning and 12 months of ramp up, and "Model Design" Hubs are those hubs that would benefit from 18 months of additional community planning before embarking on implementation.

Wave	# of Hubs	Cohorts	6 month ramp up	Year 1		Year 2		Year 3	
A "Model Testing"	3	Urban							
		Rural							
		Suburban							
B "Pre-Testing"	+3	Urban							
		Rural							
		Suburban							
C "Model Design"	+3	?							
		Rural							
		Suburban							
D "Planning"	+1-?	?							
		?							
		?							
		?							

Red = planning phase Yellow = ramp-up phase Green = implementation phase

We anticipate selecting three Hubs in the first wave, one each for a rural, urban, and suburban jurisdiction to maintain geographic equity and ensure that the learnings from each wave can be spread

to Hubs selected in each subsequent wave.

Readiness will be measured along several dimensions including the number and breadth of partners that come together to apply (as a measure of scope of services and reach of the applicant), history of working together (as a measure of relationship maturity), and demonstrated results in improving the health of these vulnerable target populations, lowering total cost of care, and improving their experience of care. More specifically, successful applicants selected to be a CHH will be expected to meet, at a minimum, the following criteria:

1) **Experience Implementing Community-based Interventions** – Each CHH will have had relevant experience effectively delivering community-based services to vulnerable and hard-to-reach populations including; education, outreach, care coordination, insurance eligibility/enrollment.

2) **Commitment to Intervention Fidelity** – Each CHH will commit to and have the capability of implementing CIMH Community Interventions (CIs) that are selected for the target populations with fidelity; either directly using CHH staff or through close oversight of contracted local services. Relevant local circumstances based on target population needs, including integrating or synchronizing with existing innovation efforts and/or to address unique population needs, environmental conditions, and links with local social services will be encouraged.

3) **Collaboration with Local Health and Community Service Providers** - Experience effectively collaborating with a broad set of local health and community resources; primary care practices, specialist physicians, hospitals, home care agencies, skilled nursing facilities, hospice services, behavioral health and addiction services, community and public health services. Defining and integrating the role of the social service navigator as well as coordination between various care coordinators and navigators will be a critical component for each CHH.

4) **Plan for Interactions, Communications, and Coordination with Existing Innovation Initiatives** – With assistance, support and guidance from LHICs and HSIA, each CHH will develop a plan in collaboration with other local innovation initiatives to communicate and coordinate activities with those initiatives. The plan must demonstrate how services will be complementary and mutually reinforcing rather than redundant and how communications and data sharing between supporting services will occur within applicable HIPAA guidelines and Maryland privacy regulations.

5) **Use Operational Management System (OMS)** – Each CHH must commit to and demonstrate use of the Operational Management System for implementing and monitoring the performance and reliability of all Community Interventions. Any subcontracted entities implementing CIs on behalf of a CHH will also have to commit to consistently utilize the Operational Management System.

6) **Administrative Infrastructure** – Administrative capabilities enabling support for HR, finance, and procurement functions.

7) **Data-driven Management** – Ability to use data reports for root cause analysis, process improvement, and team management.

7

What Makes Maryland's Plan Distinctive

What Makes Our Approach Unique

Several key characteristics set Maryland's approach apart.

Whole person approach: Maryland is looking at healthcare models in an integrated way that focuses on the whole person – a person's physical, behavioral, and social needs -- and is not confined to cost and quality modeling for a limited set of procedures or diagnosis groups.

Population approach: Our proposal is not limited to an arbitrarily-defined segment of the population. It is neither payer-specific, condition-specific, nor age-specific but targets people based on need. Its principal outcome measures are measures of patient experience, health care quality, and total cost across the whole population.

The ability to move seamlessly between individuals to populations and back again: Both at the intervention level and the data level, our unit of outreach and analysis is the *individual* when an individual approach is most appropriate or the *population* when a population approach is most appropriate. For example, because our hospital encounter data is captured at the address level, we can aggregate the data and analyze it at a variety of levels -- including the neighborhood, county, regional, and state levels – which can be helpful for identifying geographic areas of highest need and other planning purposes. Conversely, we can also drill down to the individual patient level, which can be helpful for outreach and enrollment purposes. Additionally, we can take individual hospital utilization data and use that information to attribute patients to specific hospitals based on plurality of acute care use. This can be very important for developing population-based revenue models for hospital global budgets. Finally, at the intervention level, we can bring all the resources available in a community to bear in order to provide intensive and comprehensive care tailored to the needs of individual patients when that is needed. At the same time, that individual encounter data can be fed back into our public health surveillance systems to help us identify clusters or "hot spots" of activity that suggest a more systemic root cause and, consequently, calls for a more systems-level approach to address it effectively.

Public health involvement and leadership: Our plan moves away from the medical model and makes public health the center point around which the transformation effort revolves. Equally importantly, this plan has the strongest possible backing from public health leaders and leaders at the highest levels in state government, ensuring that commitment to the plan will not waiver during implementation.

Evidence-based approach: Our plan is based on the only model from the Medicare Coordinated Care Demonstration project to show improved health outcomes **and** lower cost **and** stand the test of time - the HQP model. Use of such a rigorously tested model is a critical choice if we want a model that we know can work, not just a model that might work. We also adopt HQP's

disciplined approach to intervention design and evaluation. The design framework HQP uses to develop advanced preventive services involves starting with an inventory of all the determinants of health that impact a target population. With that inventory, a robust portfolio of evidence-based interventions is assembled to address those determinants that can be modified. Then a team model with the skills and experience needed to reliably deliver the full portfolio of interventions is created. Standards for participant engagement, comprehensive assessment, and creation of a customized subset of the interventions to create an individualized preventive care plan (based on participant need, preference, and readiness) are defined. Staff are supported by training and mentorship in participant assessment, ongoing customization of the individualized preventive care plan, and the development of resilient, trusted, and therapeutic relationships with participants. The program is supported with service delivery data captured from the field on mobile devices and integrated with relevant external data sources, an extensive set of program performance analytics, standardized policies and protocols, and educational, training, and decision support tools. Key elements of HQP's approach have been highlighted by health services researchers as being associated with success in improving health outcomes, reducing the need for acute care services, and better controlling cost.[47]

Asset-rich environment: Finally, although other states may be looking to develop similar models to ours, most do not have the robust foundation of ongoing innovations and data infrastructure to work with. Where other states plan an all claims payer database with master patient index capability, Maryland is already testing these advanced capabilities; where other states aspire to live hospital encounter data, Maryland has a tried and tested system which we can provide primary care providers alerts in real time whenever their patients are admitted or transferred to – or from – any Maryland hospital. This robust foundation will enable Maryland to rapidly engage in these efforts, whereas other states may be in earlier developments stages.

Taken together, our State Healthcare Innovation Plan sets us on a trajectory to realize the Triple Aim – better care, better health, and lower cost – by facilitating the evolution of Maryland's health care system towards one which is community-integrated and prevention-oriented.

[47] Brown, R., et al., Six Features Of Medicare Coordinated Care Demonstration Projects That Cut Hospital Admissions Of High-Risk Patients. *Health Affairs*, 31, no. 6, (2012): 1156-1166.

8

Appendices

APPENDIX 8.1. Acronyms

Acronym	
AAAHC	Accreditation Association for Ambulatory Health Care
ACA	Affordable Care Act
ACOs	Accountable Care Organizations
ACS	American Community Survey
AE-C	Asthma Education Certification
AHECs	Area Health Education Centers
AHRQ	Agency for Healthcare Research and Quality
APCD	All Payer Claims Database
APS	Advanced Preventive Services
BH	Behavioral Health
B-HIPP	Behavioral health in pediatric Primary Care Program
BMI	Body Mass Index
CAIS	Center for Analysis and Information Services
CCNC	Community Care of North Carolina
CDC	Center for Disease Control and prevention
CHHs	Community Health Hubs
CHIPRA	Children's Health Insurance Program Reauthorization Act
CHTs	Community Health Teams
CHWs	Community Health Workers
CIHS	Community – Integrated Health Care Systems
CIMH	Community- Integrated Medical Home
CIOs	Clinical Integrated Organizations
CIs	Community Interventions
CM	Care Management
CMMI	Center for Medicare and Medicaid Innovation
CMS	Center for Medicare and Medicaid Services
CPCI	Comprehensive Primary Care Initiative
CPCMH	CareFirst Patient- Centered Medical Home
CPS	Current Population Survey
CRISP	Chesapeake regional Information Systems for our Patients
DHMH	Maryland Department of Health and Mental Hygiene
DHR	Maryland Department of Human Resources
DME	Durable Medical Equipment
EHRs	Electronic Health Records
ENS	Encounter Notification System
ENS	Encounter Notification System

Acronym	
ERISA	Employee Retirement Income Security Act
FEHBP	Federal Employee Health Benefit Plan
FFS	Fee-for-service
FQHCs	Federally Qualified Health Centers
HACs	Hospital –Acquired Conditions
HEDIS/UDS	Healthcare Effectiveness Data and Information Set
HEPD	Hospital Encounter and Payment Data
HEZ	Health Enterprise Zones
HIE	Health information Exchange
HQP	Health Quality Partners
HSCRC	Health Service Cost Review Commission
HSIA	Health Systems and Infrastructure Administration
LHICs	Local Health Improvement Coalitions
LIHEAP	Maryland's Low-Income Home Energy Assistance Program
LS	Learning System
LTCs	Long Term Care facilities
MADAP	Maryland AIDS Drug Assistance Program
MAPCP	Multi-Payer Advanced Primary Care Practice
MEPS-IC	Medical Expenditure Panel Survey- Insurance Component
MHCC	Maryland Health Care Commission
MHPM	Modernized Hospital Payment Model
MMPP	Maryland Multi-Payer Patient-Center Medical Home Program
MOTA	Minority Outreach and Technical Assistance
NAIC	National Association of Insurance Commissioners
NCCBH	National Council for community Behavioral Healthcare
NCQA	National Committee for Quality Assurance
NCR	The National Capital Region
NHIS	National Health Interview Survey
NORC	National Opinion Research Center
NQF	National Quality Forum
OLS	Ordinary Least Squares
OMS	Operational Management System
ONC	Office of National Coordinator for Health IT
PBM	Pharmacy Benefit Management
PCMHs	Patient-Centered Medical Homes
PCP	Primary Care Physician
PH	Physical Health
PHAB	Public Health Accreditation Board
PQIs	Prevention Qualify Indicators

Acronym	
RCT	Randomized Controlled Trail
REC	Regional Extension Center for Health
ROI	Return on Investment
SAMH	Substance Abuse and Mental Health
SAMHSA	Substance Abuse and Mental Health Services Administration
SBHCs	School-Based Health Centers
SBIRT	Screening, Brief Intervention, and Referral to Treatment
SED	Serious Emotional Disturbance
SHADAC	State Health Access Data Assistance Center
SHIP	State Health Improvement Process
SHQ	Sutter Health Questionnaire
SIM	State Innovation Model
SNAP	Supplemental Nutrition Assistance program
SNFs	Skilled Nursing Facilities
SPMI	Serious and Persistent Mental Illness
TANF	Temporary Assistance for Needy Families
UDS	Uniform Data System
URAC	Utilization Review Accreditation Commission
USPSTF	U.S. Prevention Service Task Force
VDU	Virtual Data Unit

APPENDIX 8.2. Health Insurance Markets

Measure	Maryland	United States	Median	70th percentile	90th percentile
Number of licensed insurance carriers, 2001[1]					
Small group	9	15			
Large group	10	14			
Individual market	37	39			
Market share of largest carrier, 2011[1]					
Small group	70.4%	49.8%			
Large group	58.0%	58.0%			
Individual market	70.9%	55.4%			
Largest carrier by market, 2011[1]					
Small group	CareFirst BCBS				
Large group	CareFirst BCBS				
Individual market	CareFirst BCBS				
Manage care penetration in public programs, 2011[2]					
Medicaid	77.2%	71.6%	75.9%	84.1%	96.9%
Medicare	8.0%	25.6%	19.2%	26.2%	36.3%
Managed care and other plan types, among private sector employers offering coverage, 2011[3]					
Two or more plans	50.2%	42.5%	39.9%		
Conventional indemnity	11.2%	11.7%	11.4%		
Any managed care	91.9%	91.4%	91.1%		
Exclusive provider	40.7%	30.9%	22.3%		
Mixed provider	69.4%	73.4%	76.8%		
Self- Insurance					
% of employers self-insuring 2011[3]					
Total	42.7%	36.9%	38.0%		
Firms with less than 50 employees	11.9%	11.8%	11.4%		
Firms with 50 or more employees	74.5%	64.3%	64.7%		
% of workers in self-insured plan 2011					
Total	64.0%	58.5%	60.2%		
Firms with less than 50 employees	13.4%	10.8%	10.4%		
Firms with 50 or more employees	76.1%	68.5%	69.9%		

Data Source and Notes:

[1] NORC analysis of National Association of insurance Commissioners (NAIC)
[2] CMS Managed Care Enrollment reports, State/County market Penetration file.
[3] Medical Expenditure Panel Survey- Insurance Component

APPENDIX 8.3. Insurance Coverage and Comprehensiveness

Measure	Maryland	United States	Median	70th percentile	90th percentile
Coverage					
Insurance coverage by type , 2010 (percent of population)[1]					
Employer/ Military	59.3%	51.2%	53.0%	55.9%	59.4%
Individual	5.1%	5.3%	5.1%	5.9%	7.9%
Medicaid/CHIP	10.6%	12.8%	11.7%	13.5%	16.4%
Medicare	13.4%	14.9%	15.5%	16.5%	17.2%
Uninsured	11.6%	15.8%	14.2%	12.0%	9.1%
	100.0%	100.0%			
% of private sector employers offering health insurance, 2011[2]					
Total	55.4%	51.0%	49.2%	54.4%	56.8%
Less than 50 employees	39.1%	35.7%	33.1%	37.5%	46.7%
50 or more employees	97.3%	95.7%	96.2%	97.0%	98.0%
Comprehensiveness					
Average out of pocket spending , 2010-2011[3]					
	$4,111	$3,456	$3,513	$3,263	$2,996
Share with high burden spending, 2010-2011[3]					
	16.3%	18.3%	19.6%	18.4%	15.5%
% who delayed care due to cost 2010[4]					
	7.0%	10.9%	11.7%	9.8%	7.2%

Date Source and Notes:

[1] SHADAC analysis of American Community Survey (ACS)

[2] Medical expenditure Panel Survey- insurance Component 9 MEPS-IC)

[3] SHADAC analysis of Current Population (CPS). Out of pocket spending more that 10% of income on these cost.

[4] NCHS analysis of the National Health Interview Survey (NHIS)

APPENDIX 8.4. Health Quality Partners Advanced Preventive Service Model Interventions & Management Elements

Intervention	Description	Application	Protocol / Standard
Intake Assessment	Sutter Health Questionnaire (SHQ) - a validated geriatric risk assessment; patient self-report, nurse administered; scored by algorithm and identifies patients at high risk for death, hospitalization, nursing home placement or other adverse events	All participants	Completed following patient consent and prior to randomization; nurse administered based on patient self-report; nurse reviewed for omissions, discrepancies, conflicts
Initial Geriatric Assessment	Comprehensive, multidimensional in-home assessment of physical, functional, cognitive, psychological, behavioral, social and environmental needs. Specific tools used to conduct this assessment are described in Methods : Intervention section	All intervention participants who scored 'high risk' on the SHQ	Completed within 30 days of randomization utilizing the structured screening and assessment tools
Individualized Plan	Developed initially and updated each encounter based on: the patient's self-identified primary concerns and unmet needs; findings from their initial and ongoing assessments; and the patient's motivational stage of change	All intervention participants	Developed following initial geriatric assessment and during each structured encounter
Action Plans	Individualized plan that identifies when the patient is to call the nurse care manager, the physician, and when to call 911 (general and disease specific)	All intervention participants receive a general action plan and condition specific plan(s) as appropriate	Initially within 30 days of randomization and updated and reviewed with the patient on each subsequent encounter
Ongoing Assessments and Screenings	Ongoing assessments and screenings utilizing structured tools for the standard encounter and screening for depression, domestic violence, abuse, neglect and preventive care and immunizations.	All intervention participants	Structured assessments completed monthly utilizing the HQP structured encounter; annual screenings and preventive care according to guidelines
Medication Reconciliation	The process of identifying and creating an accurate list of the patient's current	All intervention participants	Medication review and reconciliation on the initial

Intervention	Description	Application	Protocol / Standard
and Management	medications; reconciling errors/omissions with the prescribing physicians; assessment of patient adherence (obtaining and taking medications as prescribed), and assisting in organizing, managing and educating the patient about their medication regimen to support adherence; identify root causes for non-adherence and utilize collaborative problem solving to address barriers		assessment and during each subsequent contact and during care transitions
Care Transitions	Intensification of assessment, coordination and visits by the nurse care manager when the patient is admitted/discharged from hospital, nursing home and home care; timely assessments and visits with patients to ensure safe and well coordinated care transitions with follow through on instructions, medications, and treatment plans	Intervention participants with a visit to an emergency department or admission to a hospital	Protocol guides coordination with healthcare providers, follow up calls and frequency of visit with patient during the care transition periods
Education and Self-Management Training	Comprehensive structured curriculum for disease specific education and self-management training for asthma, cardiovascular diseases, and diabetes – provided one to one or in a small group of participants	Condition specific; based on assessment finding of the patient's knowledge and skills, needs, priorities and risks	Provided for all patients and customized based on disease state, patient needs and priorities with ongoing assessment and tracking through a structured education plan
Assessment and counseling for behavior change	The Transtheoretical Model of Behavior Change is used by care managers to continually assess patients' motivational stage for behavior change (lifestyle behaviors, self-management and self-monitoring skills) and supporting patients with appropriate cognitive or behavioral strategies	Assess participants' stage of behavior change and match interventions to their stage of readiness	Assess and provided based on the patients' needs and priorities
Nutritional Education and Counseling	Individualized patient education and counseling for low sodium; reduced fat; carbohydrate counting; meal planning, portion control, calories.	Patient and condition specific based on motivational stage and individual need	Assess and provided based on the patients' needs and priorities
Physical Activity Education and Counseling	Individual patient education and counseling to adopt a more active lifestyle as well as more formal exercise	Patient and condition specific based on	Assess and provided based on the patients' needs and priorities

Intervention	Description	Application	Protocol / Standard
	prescriptions	motivational stage and individual need	
Stress Management Education and Counseling	Assess the factors that are contributing to stress and identify the resources and techniques to manage stress	Patient specific	Assess and provided based on the patients' needs and priorities
Quit smoking Education and Counseling	Assess readiness to quit; provide appropriate cognitive or behavior strategies and collaborating with primary care physicians for pharmacological treatment	Participants who smoke	For people who currently smoke, assess readiness to quit at each encounter
Advance Directives Education	Identify the presence of current advance directives (durable power of attorney for health care decisions, and living will) and provide patients education regarding their right to self-determination and preferences for choosing a decision maker and to designate their individual preferences for care at the end of life.	All intervention participants	Identify presence and location of patients' advance directives initially and periodically re-assess and review advance directives with patients
Advanced Care Planning	Anticipation of patients' future care needs and assisting patients and families with planning to meet those needs – treatment, end of life options, living situation, etc.	All intervention participants	Consider advance care planning based on patient age and nature of illnesses and patient specific situation
Medical Management with Physicians	Collaboration with physicians to report new or worsening symptoms, abnormal findings, psychosocial issues and recommendations regarding treatment plan and/or routine preventive care	All intervention participants as needs are identified	Care Manager contacts physician by telephone, fax or physician preferred method of contact
Psychosocial Needs Assessment & Information and Referral	Assess patients' needs for services, Federal state and county services (pharmaceutical assistance, in home care), non-covered services (DME, meals, private care), service monitoring and follow up, behavioral health services	All intervention participants as needs are identified	Initial and ongoing as needed
Coordinating Care	Based on patients' needs collaboration with family, and other health and social service providers to communicate changes in treatment plan, medication management, home environment and safety, monitoring of services and	All intervention participants as needs are identified	Initial and ongoing as needed

Intervention	Description	Application	Protocol / Standard
	providers involved in the patients care		
LEARN® Weight Management Group	A 16 week, structured group program facilitated by care managers, addresses the multiple factors associated with sustainable weight loss	Intervention participants with a BMI $\geq$ 30 in the 'action' stage of change	Periodic assessment of patients' motivational stage of readiness for weight loss through this behavioral intervention
Weight Loss Maintenance Group	A monthly group program that is care manager facilitated and provides ongoing education and support for participants who have lost weight and for weight maintenance. Education and reinforcement on behavioral strategies, nutrition, physical activity and regular weight monitoring	Intervention patients who have completed a weight loss program or who want to keep from gaining weight	Recommend as a follow on to the LEARN Weight Management Program
Seated Exercise Group	Weekly group program that is supervised by a care manager and guided by video of seated exercises and stretching as a way for participants to learn and practice daily physical activities	All intervention participants who are functionally able to safely participate	Encourage attendance for participants who are appropriate for participating in seated exercise in a community based group setting
Diabetes Conversation Map®	A five week small group interactive workshop, facilitated by care managers for diabetes education, and self-management skill development based on current practice guidelines	Intervention participants with a diagnosis of diabetes	Encourage participation by participants with a diagnosis of diabetes, for support, education, skill development and problem solving related to the multidimensional problem of diabetes
FallProof™ Groups	An intensive 10 week 18 session group program facilitated by nurses that includes a pre/post program evaluation for balance and mobility assessment and training	Participants with history of falls	Assess incidence of falls each contact; if positive for falls, consider for FallProof™ program, physical therapy or home exercise program

HQP Management Elements:

The following management elements were used to support delivery of the community-based care management program.

Management tool	Description	Major Elements included
Pre-service training	A comprehensive and closely managed six – nine month orientation and training program that involves didactic education, self-learning, participant observation, role play, case review; while building a full patient caseload.	• Initial and ongoing assessments and screenings – risk screenings nutrition; fall, domestic violence, abuse, neglect, exploitation, mental status, cognition, depression, suicide, substance, home safety, medications • Patient engagement • Person centered approach • Visit preparation • Behavior change theory • Motivational interviewing • Evidence-based clinical practice guidelines • Provider communication • Patient goal setting • Patient education curriculum • Action plans • Information systems • Best practices in time management • Patient and caseload reports • Community resources • Group program interventions – LEARN®, Weight loss maintenance, seated exercise, FallProof™, Diabetes Conversation Map®
Coaching and supervision	• Following pre-service training; regular and ongoing individual meetings between the supervisor and care manager for caseload monitoring and review. • Weekly team huddles for communication updates, continuing education and nursing development, case and standards review	• Review of all patients with nurses, utilizing quality reports with special focus on complex patients and those recently hospitalized; • Periodic chart reviews to evaluate interventions and documentation; • Structured observation visits to observe pre-visit preparation, nurse-patient interactions, including person-centeredness; assessment, screening interventions, education, goals setting, etc. • CM consultation with nursing leads for advise and support in managing patients with difficult, complex, and safety issues (medical, psychiatric, social environmental);

Management tool	Description	Major Elements included
		• Regular performance review and feedback
Protocols / Guidelines	• Protocols to guide CM processes and interventions; • Evidence-based clinical practice guidelines	Policies, procedures, and standard operating procedures for • patient screenings (e.g. depression, abuse, neglect, exploitation), and for positive findings; • assessments, • care transitions, • medication management and reconciliation; • timing of follow up contacts; • guidelines for cardiovascular disease, diabetes, chronic lung disease, preventive care, physical activity, weight loss, smoking cessation
Performance standards, metrics and reports	Role specific standards of performance reinforced by guidelines, protocols, operating procedures	Evaluated with approximately 200 metrics using a data system with near real time reports, supervisory observation visits and patient surveys and call backs

APPENDIX 8.5. HHS Integrated Consent Form

SAMHSA-HRSA
Center for Integrated Health Solutions

LINDA ROSENBERG, MSW, National Council President & CEO
LAURA GALBREATH, Center Director

Appendix HIE-C

PLEASE READ THE ENTIRE FORM BEFORE SIGNING BELOW

Patient (name and information of person whose health information is being disclosed):

Name (First Middle Last): _____
Date of Birth (mm/dd/yyyy):_____
Address: _____City: _____ State: _____ Zip:_____

You may use this form to allow your healthcare provider to access and use your health information. Your choice on whether to sign this form will not affect your ability to get medical treatment, payment for medical treatment, or health insurance enrollment or eligibility for benefits.

By signing this form, I voluntarily authorize access, use and disclosure of my:
Check all of the boxes to identify the information you authorize to disclose:
☐ Drug or alcohol abuse treatment information
☐ Mental health treatment information

FROM WHOM: Specific name or general description of person(s) or organization(s) who I am authorizing to release my information under this form:
☐ **All health care providers involved in my care or**
☐ **All programs in which the patient has been enrolled as an alcohol or drug abuse patient, or**
☐ **Any drug or alcohol treatment program or other health care provider, pharmacy or organization providing care coordination that is affiliated with the XYZ HIO**

☐ **Only these providers**

Person/Organization Name:	Phone:	Address:	Secure email address:

TO WHOM: Specific person(s) or organization(s) permitted to receive my information:
☐ **To the HIE [Name]**
☐ **The HIE and any provider(s) involved in my care in the HIE as of today's date ONLY**
☐ **The HIE and only these specific providers**
☐ **Only these specific providers**
☐ **The HIE and any current and future provider(s) involved in my care in the HIE**

NATIONAL COUNCIL FOR COMMUNITY BEHAVIORAL HEALTHCARE
SAMHSA
1701 K Street NW, Suite 400, Washington, DC 20006
web **www.integration.samhsa.gov**
email **Integration@thenationalcouncil.org**
phone **202.684.7457**

Organization Name:	Phone:	Address:	Secure email address:

Amount and Kind of Information: The information to be released may include but not be limited to: Laboratory, Medications, Medical Care & HIV/Aids, Alcohol & Substance Abuse and Mental or Behavioral Health information.

PURPOSE: The information shared will be used:

☐ **To help with my Treatment and Care Coordination**

☐ **To assist the provider or organization to improve the way they conduct work**

☐ **To help Pay for my Treatment**

EFFECTIVE PERIOD: This authorization/consent/permission form will remain in effect until (enter date, event or condition upon which this authorization/consent expires):_____.

OR

This authorization/consent/permission form will remain in effect for (X Year(s) or X Month(s)) from the date the form is signed.

OR

This authorization/consent/permission will remain in effect until such time as XYZ HIO ceases to exist.

If there is no date entered the consent will be valid for one year from the date this form is signed.

REVOKING MY PERMISSION: I can revoke my permission at any time by giving written notice to the person or organization named above in "To Whom" or "From Whom" sections "except to the extent the disclosure agreed to has been acted on.

In addition:

- **I understand that an electronic copy of this form can be used to authorize the disclosure of the information described above.**
- **I understand that there are some circumstances in which this information may be redisclosed to other persons according to state or federal law.**
- **I understand that refusing to sign this form does not stop disclosure of my health information that is otherwise permitted by law without my specific authorization or permission.**

- **I have read all pages of this form and agree to the disclosures above from the types of sources listed.**
- **"This HIE consent does not permit use of my protected health information in any criminal or civil investigation or proceeding against me without an express court order granting the disclosure unless otherwise permitted under state law."**

X_____

_____

Signature of Patient or Patient's Legal Representative **Date Signed (mm/dd/yyyy)**

_____

Print Name of Legal Representative (if applicable)

Check one to describe the relationship of Legal Representative to Patient (if applicable):

☐ Parent of minor
☐ Guardian
☐ Other personal representative (explain: _____

NOTE: *Under some state laws, minors must consent to the release of certain information. The law of the state from which the information is to be released determines whether a minor must consent to the release of the information.*

This form is invalid if modified. You are entitled to get a copy of this form after you sign it.

APPENDIX 8.6. Stakeholder Panel Composition

Local Health Improvement Coalition Stakeholder Group

Participant	Title	Organization
Deborah Agus	Executive Director	Behavioral Health Leadership Institute
Oxiris Barbot	Health Officer	Baltimore City Health Department
Meenakshi Brewster	Health Officer	St. Mary's County Health Department
Mary Jo Braid-Forbes	Policy Advisor	Maryland Health Care for All
Pamela Creekmur	Health Officer	Prince George's County Health Department
Herbert S. Cromwell	Executive Director	Community Behavioral Health Association of MD
Del. Bonnie Cullison	Delegate, District 19	Maryland General Assembly
Desiree de la Torre	Assistant Director, Health Policy Planning	Johns Hopkins Health System
Jean Marie Donahoo	Community Benefits Coordinator	Union Hospital of Cecil County
Nancy Forlifer	Director Community Health & Wellness	Western Maryland Health System
Renee E. Fox	Executive Director	Institute for a Healthiest Maryland
Rodney Glotfelty	Health Officer	Garrett County Health Department
Debbie Goeller	Health Officer	Worchester County Health Department
Melony Griffith	VP External Affairs	Greater Baden Medical Services
Rev. Debra Hickman	President and CEO	Sisters Together And Reaching, Inc.
Beth Little-Terry	Chief Executive Officer	Mountain Laurel Medical Center
Michael McHale	CEO	Hospice of the Chesapeake
Paula McLellan	CEO	Family Health Centers of Baltimore
Ruth Ann Norton	Executive Director	Coalition to End Childhood Lead Poisoning
Yngvild Olsen	Medical Director	Institutes for Behavior Resources, Inc/REACH Health Services
Erin Johnson Patton	Program Director	Center for a Healthy Maryland at MedChi
Sen. Victor Ramirez	Senator, District 47	Maryland General Assembly
Maryanne Reimer	First Vice President	Maryland Nurses Association
Barbara Rodgers	Director of Community Health Promotion	Carroll County Health Department
Scott Rose	President/CEO	Way Station, Inc.
Madeleine Shea	Vice President, Population Health Center	Delmarva Foundation
Allen Twigg	Administrative Director	Meritus Medical Center
Joseph Weidner, Jr.	President	Stone Run Family Medicine
Lori Werrell	Director of Health Connections	MedStar St Mary's Hospital/Greater Lexington Park HEZ
Kathleen Westcoat	President and CEO	Health Care Access Maryland

Payer/Provider Stakeholder Group

Participant	Title	Organization
Lisa R. Adkins	Director of Communications and Strategic Initiatives	Kaiser Foundation Health Plan of the Mid-Atlantic
Vincent Ancona	CEO	Amerigroup
Craig R. Behm	Executive Director	Accountable Care Organization of Western Maryland
Patty Brown	SVP, Managed Care & Population Health and President, Johns Hopkins HealthCare	Johns Hopkins Medicine
Patricia Czapp	Chair of Clinical Integration	Anne Arundel Medical Center
Scott Feeser	Medical Director	Johns Hopkins Community Physicians
Richard Fornadel	Medical Director	Aetna
Sen. Robert Garagiola	Senator, District 15	Maryland General Assembly
Debbie Goeller	Health Officer	Worchester County Health Department
Matthew Hahn	Physician	Hahn and Nelson Family Medicine
Julia Huggins	President, Mid-Atlantic Region	Cigna
Bonnie B. Katz	Vice President, Business Development and Operations	Sheppard Pratt Health System
Edward Koza	Senior Medical Director	UnitedHealthcare
Debi Kuchka-Craig	Vice President for Managed Care	MedStar Health, Inc.
Scott Krugman	President	Maryland Chapter American Academy of Pediatrics
Traci La Valle	Vice President, Financial Policy & Advocacy	Maryland Hospital Association
Robin Motter	Lead PCMH Physician and Chairman of Family Medicine	GBMC
Susan R. Phelps	Senior Director, Transformation & Reform	Johns Hopkins HealthCare
Larry Polsky	Health Officer	Calvert County Health Department
Mark Rajkowski	Executive Director	West Cecil Health Center, Inc.
Gene Ransom	CEO	MedChi, The Maryland State Medical Society
Richard Reeves	President & CEO	UnitedHealthcare (MCO)
Maura Rossman	Health Officer	Howard County Health Department
Parag Shah	Chairman/CEO	Clinical Network Services/Southern MD ACO
Jon Shematek	Senior Vice President and Chief Medical Officer	CareFirst BlueCross BlueShield
Fredia Wadley	CEO	Delmarva Foundation/Quality Health Strategies
Colin Ward	Executive Director	Greater Baltimore Health Alliance
Jay Wolvovsky	President and CEO	Baltimore Medical System

APPENDIX 8.7. Stakeholder Meeting Schedule and Agendas

Payer/Provider Stakeholder Meetings	Local Health Improvement Coalition Stakeholder Meetings
May 9 12:30PM – 5:30PM	May 17 8:30AM-1PM
June 5 12:30PM – 5PM	June 18 12:30PM – 5PM
July 9 12:30PM – 5PM	July 16 12:30PM – 5PM
All-Stakeholder Summit	
September 10 9AM – 5PM	

SIM Payer / Provider Stakeholder Meeting #1
May 9, 2013

Agenda

12:30 **Welcome & Introductions** –Laura Herrera, MD, MPH, Deputy Secretary for Public Health serving as Chair

12:45 **State Innovation Model (SIM) Award: Community Integrated Medical Home** – Laura Herrera, MD, MPH, Deputy Secretary for Public Health

1:00 **Role of Stakeholder Input** – Role: Ken Coburn, MD, MPH, CEO and Medical Director, Health Quality Partners

1:30 **Principles to Guide the Conceptual Approach to Operational Design** – Ken Coburn, MD, MPH, CEO and Medical Director, Health Quality Partners

1:50 **Getting the Balance Right between Standardization and Design Flexibility**

- Maryland's Experience with Patient Centered Medical Homes: Ben Steffen, Executive Director, MHCC (40 minutes)
- Maryland's State Health Improvement Process (SHIP): Karen Matsuoka, PhD, Director, Health Systems and Infrastructure Administration, DHMH (15 minutes)
- Health Quality Partner's experience with Advance Preventive Services: Ken Coburn, MD, MPH, CEO and Medical Director, Health Quality Partners (15 minutes)
- Open discussion: Facilitated by Ken Coburn , MD, MPH, CEO and Medical Director, Health Quality Partners (30 minutes)

3:30 **Break: 15 minutes**

3:45 **Actuarial Modeling** – Tricia Roddy, Director, Planning Administration, Health Care Financing

4:30 **Options for Governance** – Ken Coburn, MD, MPH

5:00 **Next Steps** – Ken Coburn, MD, MPH
Participant meeting experience survey
Next meeting: June 5, 2013 | 12:30PM – 5PM

5:30 **Adjournment**

SIM Local Health Improvement Coalition (LHIC) Stakeholder Meeting #1
May 17, 2013

Agenda

8:30AM **Welcome & Introductions** –Laura Herrera, MD, MPH, Deputy Secretary for Public Health serving as Chair

8:45AM **State Innovation Model (SIM) Award: Community Integrated Medical Home** –Laura Herrera, MD, MPH, Deputy Secretary for Public Health

9:00AM **Role of Stakeholder Input** – Ken Coburn, MD, MPH, CEO and Medical Director, Health Quality Partners

9:30AM **Principles to Guide the Conceptual Approach to Operational Design** – Ken Coburn, MD, MPH, CEO and Medical Director, Health Quality Partners

10:00AM **Break: 15 minutes**

10:15AM **Maryland's State Health Improvement Process and Local Health Improvement Coalitions** – Karen Matsuoka, PhD, Director, Health Systems and Infrastructure Administration

10:45AM **Community Integrated Delivery and Payment Reform Initiatives in Maryland**

- St Mary's Health Enterprise Zone: Lori Werrell (15 minutes)
- HealthCare Access Maryland's Operation Care: Kathy Westcoat (15 minutes)
- Worcester County Health Department's collaboration with Atlantic General Hospital: Debbie Goeller (15 minutes)
- Open discussion: Facilitated by Ken Coburn , MD, MPH, CEO and Medical Director, Health Quality Partners (30 minutes)

12:00PM **Factors in Selecting or Designing Community-Based Interventions that Improve Health and Lower Cost** – Ken Coburn, MD, MPH

12:30PM **Next Steps** – Ken Coburn, MD, MPH
Participant meeting experience survey
Next meeting: June 18, 2013 | 12:30PM – 5PM

1:00PM **Adjournment**

SIM Payer / Provider Stakeholder Meeting #2
June 5, 2013

Agenda

12:30 **Welcome** & **Review of Payer/Provider Meeting #1 and Local Health Improvement Coalition Meeting #1** – Ken Coburn, MD, MPH, CEO and Medical Director, Health Quality Partners

12:45 **Overview of Community Integrated Medical Home Model and the Value Proposition for Payers and Providers** – Karen Matsuoka, PhD, Director, Health Systems and Infrastructure Administration (HSIA), DHMH

1:00 **Effective Secondary Prevention for Chronically Ill Marylanders** – Karen Matsuoka, PhD

- Goal: >80% of PCPs participating in a patient-centered medical home program to cover ~80% of Marylanders
- A proposed balance between flexibility and standardization
- Reporting requirements: metrics, performance reports, and bonuses
- Participation standards for payers and for providers

2:00 **Break: 15 minutes**

2:15 **Deploying Community Care Teams to Provide Wrap Around Supports in Maryland's Hot Spots**
Ken Coburn, MD, MPH & Tom Nolan, PhD, Senior Fellow, Institute for Healthcare Improvement

3:00 **Community-Clinical Integration & Workforce Development**
Raquel Samson, MPH, HSIA Deputy Director and Director, Office of Primary Care Access, DHMH & Tom Nolan, PhD

4:00 **A Payment Model for Long Term Sustainability** – Karen Matsuoka, PhD

5:00 **Next Steps & Adjournment** – Ken Coburn, MD, MPH
Participant meeting experience survey
Next meeting: July 9, 2013 | 12:30PM – 5PM

SIM Local Health Improvement Coalition Meeting #2
June 18, 2013

Agenda

12:30 **Welcome** & **Review of Payer/Provider Meeting #2 and Local Health Improvement Coalition Meeting #1** – Ken Coburn, MD, MPH, CEO and Medical Director, Health Quality Partners

12:45 **Overview of Community Integrated Medical Home Model and the Value Proposition for Payers and Providers** – Karen Matsuoka, PhD, Director, Health Systems and Infrastructure Administration (HSIA), DHMH

1:00 **Effective Secondary Prevention for Chronically Ill Marylanders** – Karen Matsuoka, PhD

- Goal: >80% of PCPs participating in a patient-centered medical home program to cover ~80% of Marylanders
- A proposed balance between flexibility and standardization
- Reporting requirements: metrics, performance reports, and bonuses
- Participation standards for payers and for providers

2:00 **Break: 15 minutes**

2:15 **Deploying Community Care Teams to Provide Wrap Around Supports in Maryland's Hot Spots**
Ken Coburn, MD, MPH & Tom Nolan, PhD, Senior Fellow, Institute for Healthcare Improvement

3:00 **Community-Clinical Integration & Workforce Development**
Raquel Samson, MPH, HSIA Deputy Director and Director, Office of Primary Care Access, DHMH & Tom Nolan, PhD

3:45 **The Role of Local Health Improvement Coalitions** – Karen Matsuoka, PhD

4:30 **Data tools to assist with identifying target populations and hot spots: the Chesapeake Regional Information System for our Patients (CRISP)** – Scott Afzal

5:00 **Next Steps & Adjournment** – Ken Coburn, MD, MPH
Participant meeting experience survey
Next meeting: July 16, 2013 | 12:30PM – 5PM

SIM Payer / Provider Stakeholder Meeting #3
July 9, 2013

Agenda

12:30 **Welcome** & **Review of Payer/Provider Meeting #2 and Local Health Improvement Coalition Meeting #2** – Ken Coburn, MD, MPH, CEO and Medical Director, Health Quality Partners

1:00 **Deploying Community Care Teams to Provide Wrap Around Supports in Maryland's Hot Spots**
Karen Matsuoka, PhD, Director, Health Systems and Infrastructure Administration, DHMH
Ken Coburn, MD, MPH
Tom Nolan, PhD, Senior Fellow, Institute for Healthcare Improvement
Russ Montgomery, MHS, Policy Advisor to the Deputy Secretary for Public Health

2:00 **A Payment Model for Long Term Sustainability** – Karen Matsuoka, PhD and Ken Coburn, MD, MPH

2:30 **Break: 15 minutes**

2:45 **Public Utility** – Karen Matsuoka, PhD

3:15 **Governance** – Karen Matsuoka, PhD and Ken Coburn, MD, MPH

3:45 **Summary of Stakeholder Feedback** – Laura Herrera, MD, MPH, Deputy Secretary for Public Health, DHMH

4:30 **Next Steps: Model Refinement through Concentrated Stakeholder Input** – Ken Coburn, MD, MPH

- Participant meeting experience survey
- SIM Wiki and work groups

5:00 **Adjourn**

** **New Date** ** SIM Summit September 10, 2013

SIM Local Health Improvement Coalition Meeting #3
July 16, 2013

Agenda

12:30 **Welcome** & **Review of Payer/Provider Meeting #3 and Local Health Improvement Coalition Meeting #2** – Ken Coburn, MD, MPH, CEO and Medical Director, Health Quality Partners

12:45 **Summary of Stakeholder Feedback** – Russ Montgomery, MHS, Policy Advisor to the Deputy Secretary for Public Health, DHMH

1:15 **Update: Community-Clinical Integration & Workforce Development** Raquel Samson, MPH, HSIA Deputy Director and Director, Office of Primary Care Access, DHMH & Tom Nolan, PhD

1:45 **A Payment Model for Long Term Sustainability** – Karen Matsuoka, PhD and Ken Coburn, MD, MPH

2:00 **Public Utility & Governance** – Karen Matsuoka, PhD & Karen Matsuoka, PhD and Ken Coburn, MD, MPH

2:30 **Break: 15 minutes**

2:45 **Data tools to assist with identifying target populations and hot spots: the Chesapeake Regional Information System for our Patients (CRISP)** – Alice Wang, MBA

3:30 **The Structure and Role of Local Health Improvement Coalitions: Functions and Certifications** – Raquel Samson, MPH, HSIA Deputy Director and Director, Office of Primary Care Access, DHMH

4:30 **Next Steps: Model Refinement through Concentrated Stakeholder Input** – Ken Coburn, MD, MPH

- Participant meeting experience survey
- SIM Wiki and work groups

5:00 **Adjourn**

State Innovation Model All-Stakeholder Summit

September 10, 2013
West I and II in the Miller Senate Office Building
11 Bladen Street, Annapolis, MD

Agenda

9:00AM	**Welcome** – Joshua Sharfstein, MD, Secretary, Maryland Department of Health and Mental Hygiene (DHMH)
9:15AM	**Overview of the Day** & **Recap of Stakeholder Meetings to Date** – Karen Matsuoka, PhD, Director, Health Systems and Infrastructure Administration (HSIA), DHMH
10:15AM	**Where Are Our Hot Spots? An Analysis of Hospital Encounter Data** Sara Barra, MS, Chief, Epidemiology and Special Projects, Center for Chronic Disease Prevention and Control, Prevention and Health Promotion Administration, DHMH Andrea Bankoski, MPH, Manager, Virtual Data Unit, DHMH Russ Montgomery, MHS, Policy Advisor to the Deputy Secretary for Public Health, DHMH Elizabeth Ducey, MPS, GIS Analyst, HSIA, DHMH
11:15AM	**CRISP Data Tools to Support Hot Spotting** – Alice Wang, MBA
Noon	**Break for Lunch**
1:00PM	**Community Health Hubs and the Role of the LHICs** – Raquel Samson, MPH, Deputy Director, HSIA, and Director, Office of Primary Care Access, DHMH
2:00PM	**Putting It All Together: A Community-Integrated Approach to Childhood Asthma** Karen Matsuoka, PhD Cheryl DePinto, MD, MPH, Medical Director, HSIA and Office of School Health, DHMH Raquel Samson, MPH
3:30PM	**Payment Model** – Ken Coburn, CEO and Medical Director, Health Quality Partners
4:30PM	**Next Steps** Karen Matsuoka, PhD Raquel Samson, MPH Laura Herrera, MD, MPH, Deputy Secretary for Public Health, DHMH
5:00PM	**Adjourn**