Population Health Improvement Plan for the State of Maryland

Maryland Department of Health and Mental Hygiene
Office of Population Health Improvement

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Table of Contents

Introduction: Maryland Context & Background

- **Broadening the Concept of Prevention**
- **Population Health Management and Population Health Improvement**
- **Three Buckets of Prevention**
- **The Maryland All-Payer Model Background**
- **Alignment with the Maryland All-Payer Model**

Population Health Improvement Plan: Maryland Context & Background

- **Key Elements of the Population Health Improvement Plan**
- **Population Health Management**
- **Population Health Data**
- **Notable Population Health Improvement & Continuous Challenges**
- **Health Disparity, Health Equity, and Social Determinants of Health - Distinct Successes and Challenges in Maryland**
- **Social Determinants of Health**
- **Current and Emerging Strategies for Health Improvement: Illustrations**

Stakeholder Engagement

Population Health Improvement Plan: Prioritization Matrix Framework

Population Health Improvement Plan: Prioritization Matrix Framework Details

- **Population Health Improvement Plan**

Population Health Improvement Plan: Net Savings Analysis Example

Future Design Work for Population Health Improvement

Synthesis: Points of Emphasis and Vision for Implementation

Appendices

Sources

Glossary of Terms

ACO: Accountable Care Organizations

CDFI Fund: Community Development Financial Institutions Fund

CHNA: Community Health Needs Assessment

CMMI: Center for Medicare and Medicaid Innovation

CMS: Center for Medicare and Medicaid Services

CPC+: Comprehensive Primary Care Plus

CRA: Community Reinvestment Act

CRISP: Chesapeake Regional Information System for our Patients

DHMH: Department of Health and Mental Hygiene

ED: Emergency Department

ER: Emergency Room

GBR: Global Budget Revenue

GHHI: Green and Healthy Homes Initiative

HIE: Health Information Exchange

HSCRC: Health Services Cost Review Commission

ICN: Integrated Care Network

LHIC: Local Health Improvement Coalitions

LMI: Low and Moderate Income

MAPM: Maryland All-Payer Model

MMPP: Maryland Multi-Payer Patient-Centered Medical Home Program

OPHI: Office of Population Health Improvement

PCMH: Patient-Centered Medical Home

ROI: Return on Investment

SBHC: School-based Health Centers

SHIP: State Health Improvement Process

SIB: Social Impact Bond

SIM: State Innovation Model

Introduction: Maryland Context & Background

Broadening the Concept of Prevention

The concept of social determinants of health is now firmly entrenched in the medical delivery system, the public health profession and the public policy arena. The growing body of literature, the public health models in operation and the multi-sector collaborations taking shape all reflect the growing recognition that social determinants of health must be addressed to reverse the impact of negative socioeconomic factors on health status and disparities. Healthcare professionals are more knowledgeable about and more committed to addressing behavioral factors and socioeconomic conditions in order to manage chronic disease. Further, the medical delivery system has begun to draw on service settings and resources outside of the conventional practice setting in order to assure the patient's' recovery, restoration and long-term chronic disease management[1].

Similarly, the concept of prevention is gaining momentum; recognizing that collaborative efforts of the medical delivery system with the public health, social services, housing, education and neighborhood development sectors have the potential to produce more effective prevention initiatives and lasting population health improvement. These efforts are being fueled by new payment models and alignment of measurement and incentives. Increasingly, as responsibility is being assigned for large populations, it demands a stronger focus on disease prevention and health promotion[2]. In response, practitioners are seeking to be more proactive in addressing medical, behavioral and structural issues that can help promote health and prevent illness. Research highlighting the impact of social determinants on health status is compelling, and recognizes that producing change requires community engagement, ongoing relationships and resources to include medical, housing, nutrition, social services, education, community development and economic supports[3]. This shifting paradigm further compels policymakers and providers to address health equity issues to determine how resource allocation can best improve access and empower communities toward better health. This, in turn, has fueled partnerships that better address upstream factors by encouraging behavior/lifestyle changes and promoting healthier communities[4]. These initiatives are not all new, some are current and emerging, funded and unfunded, however together they have the capacity to be braided into coordinated next generation initiatives for that move beyond population health management and into population health improvement.

Population Health Management and Population Health Improvement

This population health improvement plan is premised on the emerging paradigm shift, orienting towards prevention, within population health and healthcare. This paradigm shift is paralleled with a shifting terminology, moving from population health management into a focus on population health improvement[5]. Population health management refers to purposeful actions taken to achieve one or more desired health

[1] Bodenheimer, T. (2013); Moses, K. & Davis, R. (2015); Robert Wood Johnson Foundation. (2012); Prybil, L., Scutchfield, F., Killian, R., Kelly, A., Mays, G., & Carman, A. et al. (2014).
[2] *Ibid*.
[3] *Ibid*.
[4] Kindig, DA & Isham G. (2014) Front Health Serv Manage.. Population health improvement: a community health business model that engages partners in all sectors. 2014 Summer;30(4):3-20
[5] Kindig D, Asada Y, Booske B. (2008). A Population Health Framework for Setting National and State Health Goals. *JAMA,* 299, 2081-2083., Kindig DA. (2007). Understanding Population Health Terminology. *Milbank Quarterly*, 85(1), 139-161., Kindig, DA, Stoddart G. (2003). What is population health? *American Journal of Public Health*, 93, 366-369.

outcomes in a defined group of persons by coordinating and integrating health care, public health activities, and the social and environmental determinants of health. Population health improvement has come to refer to these same efforts when adopted in a proactive and preventative oriented modality, when the target population is community-based and initiatives are focused on the larger population. Typically, the goals are met in the long-term and are realized through not observing negative health outcomes. Population health improvement utilizes population health management focuses to determine where prevention is most needed, where they can be systematized, and where further supports and economies of scale can be realized.

Any initiative is often hard to categorize exclusively in a single realm - population health management or improvement - as nearly all initiatives aim toward risk reduction and health promotion, and nearly all health management goals are ultimately have a long-term goals of population improvement. However for the purposes of categorization the terms are applied in this paper to distinguish two types of program initiatives: population health management initiatives and population health improvement initiatives.

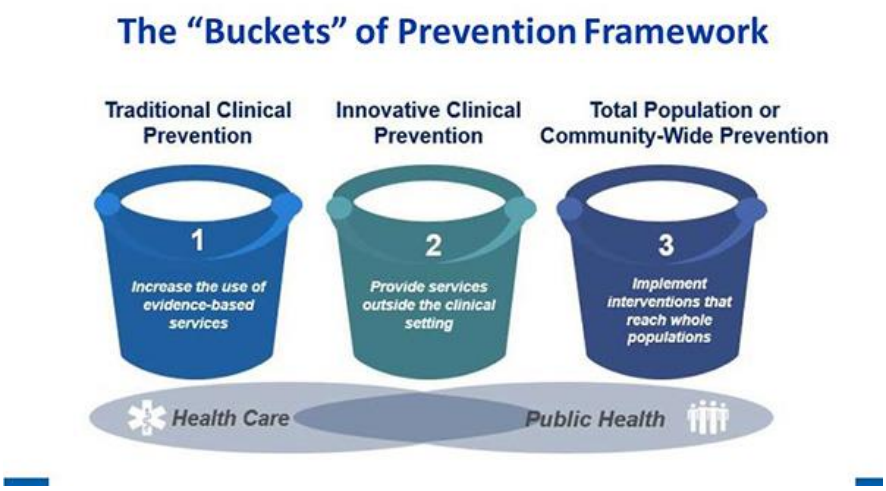
Population health management initiatives are designed around management of patient cohorts and/or narrowly-defined patient populations, with near-term goals and long-term targets established. Whereas, population health improvement initiatives are designed as proactive initiatives defined by goals for prevention, risk reduction, health equity and health promotion, complementing population health management initiatives and designed to achieve long-term, sustained community health status improvement.

Population health management and population health improvement initiatives work in parallel and with payment and delivery system reform, and function to support the same goals of payment reform. While the changes to the health care delivery system are designed to improve care coordination and to deliver quality care more efficiency, population health improvement initiatives are designed to reduce the need for care before individuals enter the healthcare system and reduce reliance on health care services by addressing the social determinants that give rise to care that could have been avoided.

Three Buckets of Prevention

In order to move towards active prevention utilizing population health, the Centers for Disease Control and Prevention (CDC) articulates a conceptual framework for population health and prevention using three categories - - identified as “buckets of prevention” - - with which to categorize prevention interventions[6]. Each bucket reflects a different scope of activity, expands the reach to a broader population base, and opens a broader set of intervention options. Brief descriptions of the buckets are found below.

[6] Auerbach, J. (2016). The 3 buckets of prevention. *Journal of Public Health Management & Practice, 22,* 215-218.



Bucket 1: Traditional clinical prevention interventions

- Provided in a clinical setting
- Clinical services provided by traditional medical providers during a routine one-to-one encounter
- Strong evidence base for efficacy and/or cost effectiveness
- Generally reimbursed, possibly mandated by insurance plans, (e.g. seasonal flu vaccines, colonoscopies, screening for obesity and tobacco use)

Bucket 2: Innovative clinical prevention provided outside the clinical setting

- Provided outside the clinical setting
- Services provided by traditional and non-traditional medical providers (CHWs, MD, NP, Care Manager, etc.)
- Clinical services provided to defined patient populations rather than one-to-one
- Proven efficacy in relatively short amount of time, 6mo - 3 years(e.g. CHW home assessment for asthma triggers)

Bucket 3: Total population or community-wide interventions

- Provided outside the clinical setting
- Targeted to an entire population or subpopulation in a defined geographic area
- Interventions may be focused on promoting behavior change through policies, insurance coverage, and/or advertising campaigns (e.g. laws establishing smoke-free zones) and are consistent with emerging evidence base
- Impact may not be demonstrated for many years or even a generation

The population health improvement plan utilizes these three buckets as an initial step in describing options - strategies - to address priority areas of public health improvement. In other words, options to address priority areas of public health improvement are first oriented within the framework of the three buckets. Options that fall within bucket two and three are prioritized for the population health plan due to their denominator, a segment of the population or the entire population rather than an individual.

To this end, the population health improvement plan's overall goals look to: present a framework for population health improvement prioritization; promote ongoing healthy lifestyle and healthy behavior at the individual, neighborhood, and statewide level with intention towards addressing health equity across communities through activities occurring outside a clinic or hospital; support the All-Payer Model goals to improve population health for Marylanders; and, suggest future design assessing the opportunity and feasibility of sustainable financing for the population health improvement initiatives.

The Maryland All-Payer Model Background

In 2014, the State of Maryland signed an agreement with the Centers for Medicare & Medicaid Services (CMS) to implement the Maryland All-Payer Model ('the Model') to limit total hospital health care cost growth per capita while improving quality of care and health outcomes. With the implementation of hospital global budgets, financial incentives changed for Maryland hospitals; the business model no longer focuses on generating volume in the hospital setting but instead encourages population health management strategies that can reduce avoidable utilization and improve quality of care in the hospital. Maryland hospitals have responded to these incentives by focusing on high utilizers and well-defined areas for quality of care improvements. Maryland hospitals exceeded nearly all hospital performance targets in the first two full years of the model[7].

The initial five years of the Model is referred to as Phase 1, with a transition to a broader Model (Phase 2) expected in the 5 years following (2019-2014). The Phase 2 Model will expand the scope from hospitals to encompass the continuum of health care settings in performance measurement. Under this broader perspective, successful performance will depend on the clinical and financial alignment across the health system. Controlling the total cost of care and improving health performance outside of the hospital will depend on robust public-private collaboration and the leveraging of existing resources across the public health, social services and particularly the primary care arenas. These efforts will require providers/payers to address social determinants of health, promote community-based care and utilize the highest value setting. Finally, success will require intense focus on particular community health status targets and the adoption of a long-term horizon to improve community health status in the aggregate.

During Phase I, Maryland hospitals began to reduce avoidable hospital utilization, improve quality of care in the hospital and build working partnerships to "smooth" care transitions across service settings. Going forward, Maryland will require broader collaboration of social services and effective community health-oriented approaches to meet health improvement targets. Under the current model, the Health Services and Cost Review Commission (HSCRC) actively works to encourage hospitals to develop care networks that extend beyond the hospital walls and the boundaries of the HSCRC's regulatory authority. Global budgets are an effective tool for providing these financial incentives. However, hospital utilization depends heavily on both physician behavior and on post-acute care provider behavior. Decision-making of non-hospital providers strongly influences hospital utilization patterns. Under global budgets, hospitals are no longer financially incented to increase volume, but the same is not true for physicians and post-acute care providers. In response, Maryland has initiated an amendment to the current model to incentivize providers who operate outside of the hospital arena. Maryland has requested an allowance to share resources with and provide incentives to non-hospital providers (i.e. community-based physicians; post-acute providers) when care improves and when there are accompanying savings. Maryland is also discussing with CMMI the possibility of creating a CPC+ style care management model with investment in primary care and care coordination for the Fee for Service Medicare-eligible population.

Under the agreement the Model must generate at least $330 million in savings to Medicare, and hospital revenue is limited to 3.58% per capita growth annually. According to the Maryland Hospital Association, allowable cumulative growth for hospital spending in the State was 11.13% but actual cumulative growth had reached 6.18% by March 2016 (which includes three months of model year 3) with Medicare savings

[7] Centers for Medicaid and Medicare Services (2014). Retreieved from https://innovation.cms.gov/initiatives/Maryland-All-Payer-Model/

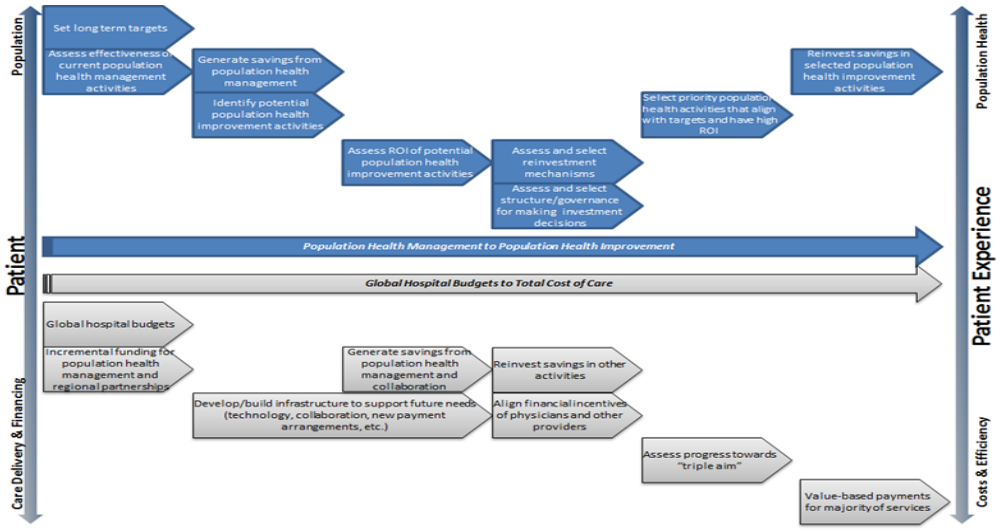
reaching $251 million in the first two measurement years of the model[8]. In addition to the financial performance, Medicare readmission rates were declining faster than the nation, putting the State's hospitals on track to meet the requirement that Maryland Medicare readmission rates achieve the national average by the end of the model period. Further, Maryland Hospital Acquired Conditions (MHACs) had declined by 33%, surpassing the five-year target established by the model agreement. Both of these activities resulted in savings to patients and payers. Those savings are subsumed in the financial numbers discussed above.

To assure sustainability of the Model, the Maryland delivery system needs to demonstrate that it will establish the partnerships and infrastructure that will further transform the delivery of healthcare, further improve health status, and reduce the total costs of care. The agreement between CMS and Maryland calls for Maryland to submit a proposal for a new model by January 2017 that limits, at a minimum, the Medicare beneficiary total cost of care growth rate. At the same time, the State remains committed to continuing all-payer participation. The State is also seeking to assure greater care coordination, improved quality of care and reduced costs for care for individuals dually eligible for Medicare and Medicaid. Finally, the State looks forward to the participation of commercial insurers in similarly aligned initiatives.

Calculation of Hospital Savings below the 3.58% per Capita Revenue Cap

Alignment with the Maryland All-Payer Model

The alignment of population health improvement activity with the All-Payer Model is depicted below:

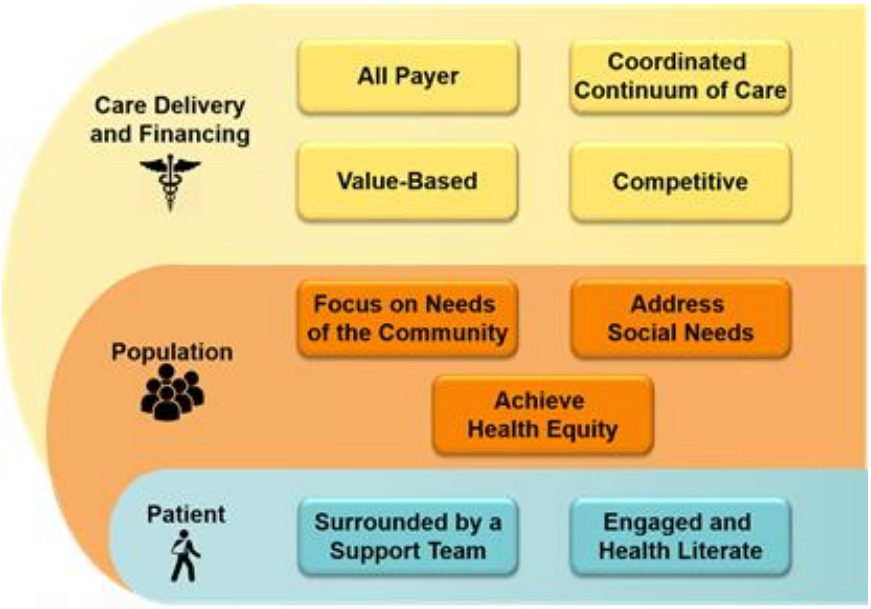


Vision: A Health Care System Designed Population Health Improvement
Office of Population Health Improvement, DHMH, 2016

[8] Maryland Hospital Association. (2016, September 2). Maryland waiver performance dashboard. Retrieved from http://www.mhaonline.org/transforming-health-care/tracking-our-all-payer-experiment/waiver-dashboard

As the State undertakes initiatives to improve population health in Maryland, it is critical that these initiatives be implemented in the context of broader health care policy within the State. This Plan has been designed to work in concert with the State's broader policy goals, particularly the Maryland All-Payer Model ('the Model') in its current and future phases. Under the Model, financial incentives have encouraged Maryland hospitals to transition their business model away from generating volume in the hospital setting. The preliminary results have demonstrated success.

The Phase 2 Model will expand the Model's commitments from hospitals alone to encompass the continuum of health care settings in performance measurement. Controlling the total cost of care and improving health metrics outside of the hospital will also depend on robust public-private collaboration, and the leveraging of existing resources across the public health system, social services and the medical delivery system. Under the current Model, the State is steadily moving towards a broad-based, patient-centered health system. The State of Maryland envisions a system that functions as a fully integrated healthcare system for the patient regardless of the resident's location. Health care in Maryland will be delivered in a patient-centered, value-based fashion. Patients will be able to seamlessly access services in the most appropriate care setting at the right time with instant access to their health information. The system must also serve and actively manage the health of the neediest individuals in the State (see diagram below[9]).



An Integrated Delivery System

Population health management and population health improvement initiatives work in parallel to payment and delivery system reform, and function to support the same goals of payment reform. While the changes to the health care delivery system are designed to improve care coordination and to deliver quality care more efficiency, population health improvement initiatives are designed to reduce the need for care before individuals enter the healthcare system and reduce reliance on health care services by addressing the social determinants that give rise to care that could have been avoided. The first phase of the Model has focused on improved service delivery, and going forward the next stage of the Model warrants a broader perspective with a focus on total cost of care. The role of population health improvement is to improve health by addressing the wide-ranging areas outside the health service delivery system that affect health outcomes.

[9] Office of Population Health Improvement, DHMH, 2016

Population Health Improvement Plan: Maryland Context & Background

Key Elements of the Population Health Improvement Plan

Maryland's foundational design work on a population health improvement plan provides a roadmap to identify and guide future population health improvement activities and priorities. The plan's intent is to support Maryland's population health vision of a system that functions as a fully integrated system of health for the individual regardless of the resident's location or complexity. The plan focuses beyond the clinical space and into the innovative clinical and outside the hospital space to address all factors that determine health.

Through a strategic thought framework the plan provides a guide for how to identify population health priorities, considers examples of current Maryland strategies and examples of emerging strategies that address population health priorities, and emphasizes the need for future consideration of the feasibility and sustainability of the strategies that could be used to address the population health priorities. It is further designed to improve population level health outcomes through providing a structure that prioritizes health equity, catalyzes collaboration among government (state, local, federal), community based organizations, and private entities, and emphasizes activity alignment and support of Maryland's pre-existing and future proposed All-Payer Model goals.

The population health improvement plan reaches its goals by including four main elements:

1) *A population health improvement plan agenda.*

This population health improvement plan agenda looks to build upon and leverage the current and emerging investment areas for population health improvement that are catalyzed by the All-Payer Model's current and continuing agenda. By building upon the State Health Improvement Plan process (SHIP), robust data tradition, and focus on alignment of measures and incentives that exists in Maryland, the plan establishes priority areas and advises collaborative efforts to achieve the example goals within each priority area. This agenda further assumes an interaction and dialogue of the agenda's priorities between local, regional, and State level implementers in order to implement active, ambitious and collaborative population health improvement initiatives.

2) *A framework of statewide population health improvement priorities, focus areas, goals, strategies, and criteria guidance to advance the goals of population health improvement -- Prioritization Matrix example.*

The population health improvement plan agenda defines five (5) health improvement priorities, outlines their focus areas, provides example goals for the focus areas, describes emerging and current strategies that can be utilized to achieve the goals, and provides a structure for evaluating the strategies based on a criteria that considers Maryland application, programmatic characteristics, economic feasibility, and consistency with current and ongoing national and state initiatives. This creates a framework identified as the prioritization matrix.

The prioritization matrix expresses priority areas in order to unite and accelerate population health improvement progress through consistency of goals, alignment with the themes of the All-Payer Model,

coordination at all levels (state, regional, local, neighborhood, etc.) and across multiple disciplines (financing, public health, social services, health care system, community infrastructure agencies) for population health improvement. With this intention, the prioritization matrix acknowledges that there are activities where the responsibility resides with the State because of the breadth, scope and long-term investment requirement.

Because of the long-term nature and time often required to yield a financial return on investment of population health improvement initiatives, it is assumed that it will be challenging to observe short-term improvements in the triple aim through the goals and strategies that are emphasized in the prioritization matrix framework. However, while likely to rank low on return on investment during the short term, the goals and strategies are oriented to systematize long term efforts that are necessary for success in achieving targeted health improvement outcomes amongst the entire population - high utilizers, individuals with rising risk, low risk individuals, general healthy population - combined. Long term, it looks to provide a prioritization framework that guides preventive efforts that retain populations in the general healthy population and low risk individual categories by aligning incentives, infrastructure, measures, and accountability in support of the All-Payer Model.

3) *An example estimate of the ranges of savings, generated by utilization reductions-- Net Savings Analysis example.*

The population health improvement plan discusses a structure - net savings analysis - by which a possible range of return on investment could be garnered from implementation of strategies that are selected through the prioritization matrix. The example within the plan is based on the process of using the prioritization matrix framework to strategically prioritize focus areas, goals, and strategies and looks to visualize the consideration of these population health improvement strategies as an integral component of the comprehensive strategy of the All-Payer Model and its themes of providing tools and aligning measurement and incentives.

4) *An outline of future design work for comprehensively assessing the feasibility and sustainability of different models for financing different population health improvement initiatives -- Balanced Portfolio.*

The population health improvement plan provides a thought framework - prioritization matrix - for working through a process by which to evaluate which focus area goals and themes address the five shared priorities laid out in the plan. The plan then provides additional criteria, through the net savings analysis, to the strategies explored through offering perspective to the range of savings for strategies with an evidence base. However, the plan is limited in its ability to offer an assessment of the feasibility and sustainability of different financing models. Therefore, the plan offers suggested future design work of the feasibility and sustainability of both the population health priority strategies. Future work considers the suitability of each financing model within context of the Maryland environment. It comprehensively assesses the existing investments in population health improvement strategies, as defined by the priorities of the prioritization matrix framework, and looks to explore how to leverage those existing investments, establish new financing mechanisms, and govern the braided investments towards the long term priorities and goals of the All-Payer Model.

Population Health Management

In the course of the last three years, Maryland has introduced new patient-centered service models and care management functions focused largely around high utilizers in need of "high touch" services. Most of the initiatives have been operationalized through Maryland's hospitals and sustained largely through hospital operating income. These initiatives are aimed at improving continuity of care, reducing avoidable utilization and reducing the costs of care for high utilizers/high risk patients. As Maryland looks ahead to the next generation of population health management, it is helpful to focus attention on the investments, alignment, and measures that have contributed to Maryland's success during Phase I, including:

- Data analytics at the provider level to identify factors driving utilization patterns
- Effective use of care coordinators/case managers
- ED-based services and linkage to appropriate services
    - Care transitions services
    - 60-90 day follow-up of high-risk patients
    - Ongoing case management for high utilizers
- Increased access to care
    - Patient-centered medical homes
    - Urgent care centers
    - Expanded network of hospital-affiliated primary care providers
    - After-hours and same-day appointments
    - Expanded services in school based health centers
- Use of CRISP to provide communications and data exchange across settings
- Standardized protocols across clinicians in a local region
- Use of community health workers for community outreach and education
- Telehealth technology

Parallel to these innovations, a number of broader market dynamics have occurred in the Maryland marketplace that will continue to support the goals for population health management moving towards population health management, reduce the costs of care, and leverage the investments made by the All-Payer Model for continued sustainability. Most notably:

- Formation of Regional Partnerships - In response to the HSCRC's initiatives, Maryland has seen the formation of eight regional partnerships, each of which includes hospitals, county health departments, community-based organizations and social services agencies. These partnerships are working collaboratively to identify community needs, determine resource requirements to best meet community needs and design strategies for deploying resources across the region. The collaborative model is expected to produce more effective care coordination models and maximize the use of specialized resources required of distinct populations such as frail elders, dual eligible and chronic disease patients with specialty requirements. The long-term expectation is that these partnerships will collaborate to define population health improvement goals with particular attention to reducing risk factors. The HSCRC has actively supported the development and continued operation of these partnerships by initially: (a) awarding planning and development funds, (b) continuing to provide technical assistance, and (c) incentivizing collaborative operations through project implementation awards (on a competitive basis).
- Managed care product(s) for dual eligible - A proposal to CMMI is being developed for the State of Maryland to introduce a managed care model for dual eligible that will provide stronger care

management functions, promote investment in community-based supports, reduce hospital utilization and lower the total costs of care in Maryland population. To date, this population has generally not been enrolled in managed care models in Maryland, and there is a huge opportunity to improve care coordination, heighten consumer satisfaction, and reduce the total costs of care for this population Success will depend heavily on effective models for outreach, patient education/self-care programs, care coordination and integration of medical, behavioral and social services.

- Re-balancing of health care resources to support outpatient care - With the investments made in care coordination and outpatient delivery models, Maryland has seen a major decline in admissions and a re-balancing of health care resources. The shift of investments to outpatient delivery models has been significant, and plans for reducing inpatient capacity are rapidly developing.
- Three hospitals in Maryland have announced plans to close inpatient facilities and construct/expand an ambulatory services campus in place of these inpatient facilities.
- A proposal to CMS to waive the 3-day rule is being submitted with the hope that the post-acute setting can be further leveraged and that acute care capacity can then be further reduced.
- Several Maryland hospitals have introduced physician house call programs, likely to be expanded in the coming two years, further reducing the demand on hospital capacity.

These efforts will generate further savings for the health care system, as capacity reductions produce even more meaningful cost reductions to health care operations. This will create opportunities for reinvesting dollars into community-based services, prevention, health promotion and quality of care improvements.

Population Health Data

Paramount to Maryland's population health improvement is the ability to effectively measure the health of Maryland residents. Based on a composite of scores determined and disseminated by United Health Foundation's *America's Health Rankings*, Maryland has improved six spots in the national ranking of States, moving from the 24th position in 2013 to the 18th position in 2015. While much of this improvement has been attributed to expanded access to care through insurance coverage, it additionally includes the sustainment of a number of effective public health initiatives such as continued efforts in the areas of tobacco control, chronic disease prevention and management, infectious disease prevention, maternal and child health, and school readiness[10].

In 2011, the Maryland Department of Health and Mental Hygiene (DHMH), Office of Population Health Improvement (OPHI) developed and launched the Maryland State Health Improvement Process (SHIP) – a framework for accountability, local action, and public engagement to advance the health of Maryland residents. SHIP began with 39 health objectives in six vision areas – healthy babies, healthy social environments, safe physical environments, infectious disease, chronic disease and health care access – which are closely aligned with national Healthy People 2020 objectives. The objectives were chosen with input from the public health community and the general public. For each objective, a statewide baseline and target goal for improvement by 2014 were established. County-level data and data by race/ethnicity

[10] United Health Foundation, America's Health Rankings. Retrieved from www.americashealthranking.org

were provided where available. In 2011, health improvement targets were established for 2014, and performance review indicates that Maryland achieved 28 of the 41 SHIP targets in 2014.

The goal of the SHIP has been to provide county-level data, establish a measurement cycle and assign accountability for health improvement at the local level. In addition to SHIP and reports prepared by DHMH, Maryland examines health status indicators/health behavior using national data sources that include:

- Behavioral Risk Factor Surveillance System (CDC)
- Youth Risk Behavioral Survey (CDC)
- America's Health Rankings (United Health Foundation)
- County Health Rankings (Robert Wood Johnson Foundation)
- The State of Obesity (Trust for America's Health)
- Commonwealth Scorecard (The Commonwealth Fund)

In addition to national databases, Maryland leverages state-based surveillance systems and databases including:

- Health Services Cost Resource Commission (HSCRC)
- Chesapeake Regional Information System for our Patients (CRISP)

Through surveillance and analysis of the aforementioned data sources, Maryland is able to understand present notable health status improvements and identify continuing health status and health behavior challenges in Maryland that are explored in brevity below.

Notable Population Health Improvement & Continuous Challenges

While unable to provide an exhaustive list of Maryland's health improvements, successes, and continued challenges at the State level, by exploring brief examples of the efforts in the areas of smoking, teen pregnancy, infant mortality, chronic disease, HIV prevention, behavioral health, violence treatment and prevention, and access to healthcare provide insight into the utility of the SHIP process in identifying areas of needed population level health improvement and measuring effective responses in Maryland.

Smoking: Smoking rates among both adult (18+) and youth (0-18) have declined 24% and X% respectively between 2011 and 2014[11]. Continued challenges persist with nearly 15% of the adult population reporting to be active smokers[12].

[11] Maryland SHIP measures.
[12] *Ibid*.

Teen Pregnancy & Infant Mortality: Since measurement began in 2009, teen pregnancy rates had declined in 2014 by 43%[13] . This decrease in teen pregnancy, additionally contributed to a paired decrease in infant mortality rates by nearly 10% in 2014, down to its lowest point since its incorporation in the SHIP process as a measurement in 2011[14]. While teen pregnancy interventions contribute to decreasing overall infant mortality, infant mortality on the whole continues to present a challenge for Maryland with the infant mortality rate for all races traditionally being higher than the national rate[15].

HIV Prevention: New HIV infection incidence - the number of new diagnoses - in Maryland declined by half between 2009-2014[16]. However, continued challenges in this area persist and warrant continued efforts with the CDC estimating in 2012 that 18.7% of people living with HIV in Maryland were undiagnosed and therefore unaware of their diagnosis and not linked to treatment[17].

Chronic Disease: Prevalence rates for diabetes and hypertension are higher than the national average and are increasing[18]. While chronic disease prevalence presents considerable challenges in Maryland, successes have been measured in reducing some of the risk factors (characteristic or exposure that increases the likelihood of developing a disease or injury) associated with chronic disease such as diabetes.

Behavioral Health: Behavioral health presents significant challenges within the areas of provider education, patient access, and the continuum of behavioral health services. However, Maryland boasts significant progress with registering pharmacy and controlled dangerous substance providers participating in the prescription drug monitoring program (PDMP)[19].

Risk factors that often precede substance use disorders such as alcoholism continue to be a cornerstone focus in Maryland that requires attention. For example, underage drinking blood alcohol levels above the 0.08 mark) in Maryland was reported as contributing to 28% of driving fatalities in 2014[20].

Violence: Violence across the life course continues to be a challenge in Maryland, with the State suffering a loss of 42 people between July 2014 and June 2015 due to domestic violence; 55% of which involved the use of a gun[21]. Efforts to support victims of intimate partner and domestic violence indicate that 408 individuals (208 children and 199 adults) in 2015 received mitigation and protective services such as emergency shelter, therapy and counseling, and legal services[22].

Access to Care: The rate (per 100,000) of Marylanders without health insurance dropped from 10.2 in 2013 to 7.9 in 2014, the first year of the Affordable Care Act, which yielded a 2.3 percentage point drop that is just behind the national average of 2.8 percentage point drop for 2014[23]. While more Marylanders are enrolling in coverage, there remains a part of the population where the affordability of seeing a

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13 Maryland SHIP measures.
14 Maryland SHIP measurement
15 http://dhmh.maryland.gov/vsa/Documents/imrrep14_draft%201.pdf Maryland 2015 Infant Mortality Report
16 Maryland SHIP measures
17 Centers for Disease Control and Prevention. Prevalence of Diagnosed and Undiagnosed HIV Infection —United States, 2008–2012. MMWR Morb Mortal Wkly Rep 2015; 64.
18 Maryland SHIP measures.
19 http://bha.dhmh.maryland.gov/Documents/UPDATED%20PDMP%20Legislation%20Fact%20Sheet_06Jun2016.pdf
20 Maryland Department of Transportation (2016).
21 http://mnadv.org/_mnadvWeb/wp-content/uploads/2011/07/2016-Memorial-Fact-Sheet-Letter-Web-Photo2.png ; http://mnadv.org/_mnadvWeb/wp-content/uploads/2011/07/Slide2.png
22 http://mnadv.org/_mnadvWeb/wp-content/uploads/2016/03/DVCounts15-Maryland.pdf
23 Health Benefit Exchange Census Data http://www.marylandhbe.com/fewer-marylanders-without-health-coverage-census-bureau-reports/

physician continues to be a barrier with 13% of Marylanders reporting there having been a time in the past year when they could not afford to see a physician[24,25].

An additional barrier to healthcare access in Maryland is the lack of transportation in Maryland's rural regions where communities are unable to financially sustain neither public bus routes nor full-day private taxicab services[26].

The population health issues described above highlight some of the population health improvement successes celebrated in Maryland and identifies the continuing challenges facing the State that affect health outcomes but lie beyond the scope of the medical care delivery system itself. However, there is mounting evidence to demonstrate that increased investment in the social determinates of health (selected social services, partnerships between health care and community groups and focused efforts to promote behavior change) can produce substantial health improvements and reduce health care costs for targeted populations. The challenges identified point to opportunity areas where targeted resources and effective action plans could produce improved health outcomes for Maryland citizens.

Health Disparity, Health Equity, and Social Determinants of Health - Distinct Successes and Challenges in Maryland

Fundamental to understanding Maryland's health status is identifying where health disparity and health inequity exist. Assessment of both *health disparity* - differences in health outcomes among groups of people- and *health equity* - attainment of the highest level of health for all people through efforts that ensure that all people have full and equal access to opportunities that enable them to lead healthy lives - is integral to ensuring that the health of Marylanders is considered holistically within a historical and socio-ecological context that is shown to affect population health improvement[27,28]. By orienting towards a holistic perspective of population health improvement, Maryland looks to address the social determinates of health as promoted by the Centers for Disease Control and Prevention[29].

[24] Maryland SHIP measures

[25] Cecil County's Community Health Needs Assessment, 2015-2016; other CHNA's from Maryland hospitals (2014-2016)

[26] Phone Interview with Lara Wilson, Executive Director, Maryland Rural Health Association (2015); Priorities ranked in Post-Summit Survey. See Appendix F

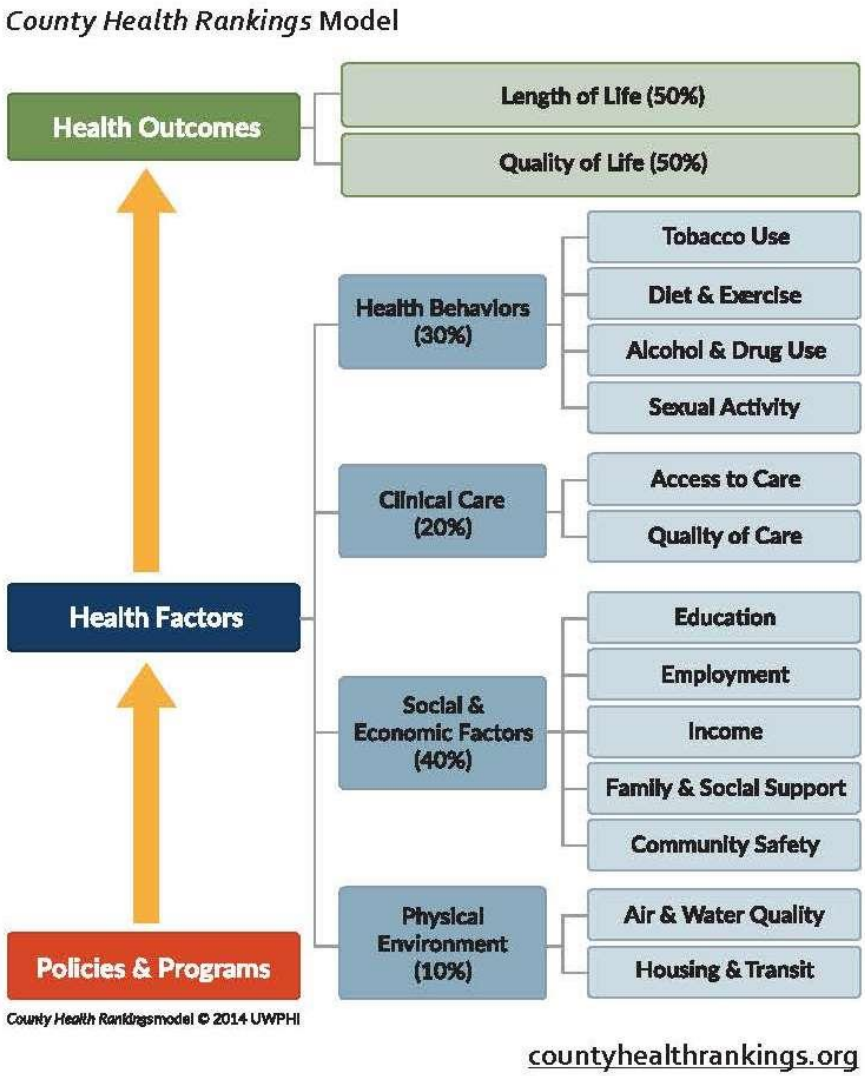
[27] Health Equity Institute definitions http://healthequity.sfsu.edu/content/defining-health-equity

[28] CDC socioecological model framework for prevention http://www.cdc.gov/violenceprevention/overview/social-ecologicalmodel.html

[29] CDC definition social determinates of health: The complex, integrated, and overlapping social structures and economic systems that are responsible for most health inequities. These social structures and economic systems include the social environment, physical environment, health services, and structural and societal factors http://www.cdc.gov/nchhstp/socialdeterminants/definitions.html

Social Determinates of Health

The University of Wisconsin Population Health Institute introduced a model to convey that nonmedical factors play a substantially larger role than do medical factors in health. In this model, clinical care is said to determine only 20% of an individual's health status, while socioeconomic factors account for 40% of the determinants and the physical environment accounts for another 10% of the determinants of health status.



To provide context, some examples of population health improvement challenges in Maryland that warrant addressing elements of the social determinates of health framework in order to provide sustainable solutions are highlighted below to provide sample illustrations of how interventions focused on population health improvement strategies warrant investment in order to achieve positive and sustainable health outcomes.

- Shortage of affordable housing in selected jurisdictions, with accompanying problems of homelessness and/or unsafe home conditions.[30]
- Disparities in health status and access to care by race and by ethnicity, and the need to strengthen cultural competency in direct services, prevention strategies, and health literacy initiatives
- Limited access to primary care and behavioral health care services in rural regions, reflecting both recruitment challenges and transportation barriers
- Poverty levels across pockets of the State.
- A large prison population (approximately 21,000 people), with high rates of illness, addiction and communicable diseases. Additionally, the inmate population is aging and presents high rates of chronic disease management needs.[31]

The population health issues described above highlight some of the major challenges facing the State that affect health outcomes but lie beyond the scope of the medical care delivery system itself. However, there is mounting evidence to demonstrate that increased investment in selected social services, strong transformed primary care base, partnerships between health care and community groups and focused efforts to promote behavior change can produce substantial health improvements and reduce health care costs for targeted populations. Interventions are complex to design, and solutions are costly to implement. Decisions about resource allocation across regions are complicated ones, as the neediest areas for population health improvement may sometimes be the areas with the weakest opportunity for health care institutions to generate savings and self-fund initiatives. But the challenges identified point to opportunity areas where targeted resources and effective action plans could produce improved health outcomes for Maryland citizens.

Current and Emerging Strategies for Health Improvement: Illustrations

As Maryland examines its current investment in both population health management and improvement and continues to deliberate on how to prioritizes its program investments, it is valuable to consider some of the emerging prevention, health promotion and health equity-focused strategies that are providing evidence of success in health outcomes, return on investment (ROI), and cost saving for both the community at large, providers, payers, hospitals, and the government.

The section below, while not exhaustive, highlights a number of successful initiatives that have taken shape both in Maryland and across the country to help guide local planning efforts and serve as a potential roadmap for considering potential for population health improvement in Maryland. These programs are categorized below based on their non-traditional program features: the location where services are delivered, the investment in prevention for long-term return on investment (ROI), and the non-medical service need(s) being addressed. Priority is given to examples with evidence supporting a sustainable return on investment (ROI) or cost saving potential. Each example illustrates how a social determinate or social determinates of health are addressed in order to achieve a certain health outcome or behavior. When available each illustration additionally highlights where the intervention occurs, who it is targeted at, and why the program suggests sustainability from an ROI or cost savings perspective. This is done in order to better illustrate sustainable mechanisms to invest in strategies and interventions

[30] George, T., & Bai, B. (2015).

that improve health outcomes over the long-term in order to inform the best use and coordination of resources at state, regional, and local level to optimize investments.

Healthy Foods Access -

- In Maryland, Baltimore City Health Department operates "Baltimarket," a program that allows residents of neighborhoods to order online from a supermarket and then pick up the food close to home at a location such as the library or post office. This program targets reducing obesity through a comprehensive systems level approach and is premised on the idea that addressing the social determinants of obesity (healthy food access, health literacy, transportation, health behavior, and income) will build long-term healthy eating habits and help reduce obesity rates. It address health literacy inequities by providing internet use education and assistance at local libraries for residents who may need help with ordering, stimulates healthy eating behavior by providing a $10 coupon that can only be used on healthy foods such as fresh fruits and vegetables, low fat dairy products and whole grain bread, and addresses access and transportation by transporting healthy food to the consumer rather than the consumer requiring transit to the grocery store[32]. This program is supported by blended funding from both local and state sources. Similar programs across the United States, such as the Pennsylvania Fresh Food Financing Initiative, provide some evidence of a stimulus effect that these programs (comprehensive food access programs) have on neighborhood redevelopment.[33]
- Providing home-delivered meals for older adults and people with disabilities, rather than admitting to a nursing or long term care facility, demonstrated improvements in physical and mental health for that population comparable or better than those occurring in a nursing or long term care facility. This suggests that payer costs to place an individual in nursing or long term care can be reduced and supplemented with a less resource intensive cost of providing home-delivered meals.
- In Maryland Meals on Wheels serves any client who is homebound due to age or disability, regardless of economic status[34]. Opportunities through this program have been realized in other states such as Iowa where, through a combination of Medicaid and Federal funding as well as private donations, fresh food is delivered seven days per week to eligible participants. Additional states are offering this through the Department of Aging rather than the Meals on Wheels program.[35]
- More broadly, neighborhoods existing in food deserts where there is a lack of healthy food access and prohibitive prices of healthy foods find that these determinates (lack of healthy food access, income) contribute to obesity within these neighborhoods. In Maryland. Additional models have sought external support to introduce farmers markets, urban gardens, tax incentives to retailers and vouchers for the purchase of healthy foods.
- In Maryland, Howard County has established the HEAL Zone ("Healthy Eating and Active Living") in order to increase the availability of fresh produce and increase physical activity in the community. Programs include a mobile market to bring fresh produce to the local community and cooking classes in grocery stores to promote healthy diets.[36]Similarly, school-based classes in gardening and cooking that encourage healthy behaviors; fruit and vegetable gardens planted on school campuses where students can garden with guidance, nutrition and food preparation

[32] Baltimore City Health Department. (2016).
[33] Duke, E. (2012).
[34] Information retrieved from Network of Care, available at http://carroll.md.networkofcare.org/mh/services/agency.aspx?pid=MealsonwheelsofCentralMaryland.677 2 0)
[35] California Department of Aging. Retrieved from http://www.aging.ca.gov/programs/; Paying for Senior Care (2016).
[36] Healthy Howard. Retrieved from http://www.healthyhowardmd.org

lessons, and taste testing are emerging as programs that seek to address health literacy around healthy eating and healthy food access.

Environmental Improvements: Housing, Workplace, Recreation -

Increasingly there is understanding that infrastructure- where people work, learn, play, live, and pray - has an effect on health status and therefore services that directly address infrastructure highlight mechanisms by which population health improvement can be achieved. Below is a selective set of population health strategies that comprehensively address people's environments in order to achieve individual health outcomes:

- In Maryland, efforts to improve the broader environment by establishing smoke-free public housing and policy. Prohibiting smoking in multi-unit dwellings reduces the exposure of tenants to secondhand smoke, incentivizes smoking cessation of tenants and links them to treatment and resources, reduces the risk of fire, and decreases housing maintenance costs. This project partners with landlords, property owners, realtors and tenants to establish voluntary smoke-free housing policies in multi-unit dwellings. As a result of these efforts selected housing developments maintain smoke-free policies. For example, the Prince George's County housing authority adopted an active policy to ban smoking from county owned housing units citing health concerns and safety of all residents[37,38].
- Further promoting smoke free living, Maryland's Quitline collaborates with partners to promote and promulgate best practice policies and resources that establish smoke-free places such as college campuses, beaches, parks, and other public spaces under local authority[39]. These policies boast generous health effects when successfully implemented as well as reducing tenant turnover costs and insurance premiums, reducing fire damage, and reducing the amount of litter on housing unit grounds[40].
- The Maryland Healthiest Business program engages leaders of businesses located in Maryland to commit to maximizing Marylanders' well-being through implementing a comprehensive, coordinated strategy to promote health where Marylanders work, live, and learn. By implementing workplace wellness programs, businesses are able to reduce employee absenteeism and benefit from improved productivity and performance, as well as save on healthcare costs. Businesses apply to be recognized as Maryland Healthy Business by meeting a minimum criterion of elements that promote workplace wellness. If a business is not able to meet a minimum criterion they are offered technical assistance and support in order to achieve healthiest business status. For example, Easton Utility in Easton, Maryland has 129 employees and serves over 10,000 customers. By institutionalizing wellness tasks for employees, investing in resource by providing a wellness provider who responds and collaborates with the wellness committee, and tracking employee progress over time the employer has seen reduction in the individuals categorized as high risk over three years of implementation (14% to 10%). Significantly, EU's insurance carrier will be refunding an estimated $100,000 over the coming year. The current loss ratio is 72%, which is the lowest in five years. In addition, the turnover rate remains steady at 3.5% and there have been no short or long term disability claims since the wellness plan's inception[41].
- Within the United States in several cities, providers are geocoding utilization patterns by asthma patients in order to identify the need for housing remediation. Medical providers then work with

37 www.princegeorgescountymd.gov%2FDocumentCenter%2FHome%2FView%2F15511
38 http://www.mdsmokefreeapartments.org/
39 http://mdquit.org/policy-initiatives/ctg
40 www.law.umaryland.edu%2Fprograms%2Fpublichealth%2Fdocuments%2FDHM_Guidebook_Digital.pdf
41 http%3A%2F%2Fmedia.wix.com%2Fugd%2Fb6f217_66742577afab4f6f8cf08267c422e686.pdf

families and housing providers to reduce asthma triggers. Benefits from these home-based, multicomponent interventions with an environmental focus have been shown to match or even exceed their program costs, when ROI is defined by a reduction in medical care costs and a reduction in missed school/work days[42]. In Baltimore City once such program Green & Health Homes Initiative assesses homes based on eight criteria (dry, clean, safe, well-ventilated, pest-free, contaminate-free, well maintained, and energy efficient). This strategy shows correlations to positive health outcomes for asthma patients and is undergoing a pay for success model feasibility test[43].

Access to care: School-based Health Centers Opportunity (SBHCs) **-** Schools represent an opportunity to reach a large number of youth for a broad set of functions. School-based health centers have broadened their scope of activity, with some models operating as medical homes to provide preventive care and mental health care, and others operating more narrowly for asthma care and other urgent care needs. Evaluations of the SBHC model have documented significant ROI through reductions in avoidable hospital utilization and improved school performance. Asthma clinics in elementary schools have been particularly effective; one network reported a 50% lower rate in ED visits and hospitalizations for students with asthma where asthma clinics operated relative to students with asthma in schools without asthma clinics[44].

Community Safety & Access to Care: Primary Care and Legal Counsel Partnership **-** Medical-Legal Partnerships embed lawyers and paralegals in the healthcare setting to address and prevent health-harming social conditions for patients and communities. In this model, the clinical practice setting becomes equipped to handle any of the social and legal problems that are intertwined with a patient's health. Attorneys provide assistance in the areas of public benefits, insurance, powers of attorney, child support, guardianship, immigration, landlord-tenant issues, military discharge upgrades and domestic violence. Medical-legal partnerships currently operate in 292 locations in 36 states[45].

- In Baltimore, advocates and attorneys work closely with healthcare professionals in a pediatric setting at Kennedy Krieger to improve implementation of clinical recommendations and outcomes for low-income children with intellectual and developmental disabilities. An evaluation of the intervention shows how incorporating advocacy and legal services directly into a clinical setting provides better outcomes for children with intellectual and developmental disabilities who might not otherwise have access to critically needed services such as additional classroom supports, access to special education, legal advocacy for child and parental rights, and more appropriate accommodations for the child[46].

Housing for high risk populations **-** Increasingly, communities are recognizing housing to be the most critical element in recovery, restoration and long-term health for some numbers of patients[47]. The Housing First model now operates across the country to provide long-term housing for those with substance use problems and/or chronic mental health needs. Across the country, Housing First programs report a 90% retention rate and document major health care cost savings. In Seattle, net savings was reported to be $30,000 per person per year after accounting for housing program costs. More commonly, evaluations report net savings of $ 4- 9,000 per client per year, tied to reductions in health care utilization. Several

[42] National Academies Press (2015).
[43] http://www.greenandhealthyhomes.org/what-green-healthy-home
[44] Guo., JJ., Jang, R., Keller, KN., McCraken, AL, Pan, W. & Cluxton, RJ (2005); Webber, MP., Carpiniello, K., Oruwariye, T., Lo, Y., Burton, W., & Appel, D. (2003).
[45] Medical-Legal Partnerships Information can be found at http://medical-legalpartnership.org/
[46] http://medical-legalpartnership.org/health-education-advocacy-and-law-an-innovative-approach-to-improving-outcomes-for-low-income-children-with-intellectual-and-developmental-disabilities/,http%3A%2F%2Fmedical-legalpartnership.org%2Fwp-content%2Fuploads%2F2015%2F09%2FZisser_et_al-2015-Journal_of_Policy_and_Practice_in_Intellectual_Disabilities.pdf
[47] Bamberger, J. D., et al. (2014); Center for Supportive Housing (2014); Moses, K., et al. (2015).

cities are also able to report a reduction in incarceration rates.[48] The magnitude of savings appears to be tied directly to the historical utilization levels; Housing First models produce huge savings when they are tied to the highest utilizing population.

- In Maryland: Supportive housing projects are included in the Maryland 1115 waiver for all Maryland jurisdictions to serve the homeless/unstably housed population with housing that includes support services to residents. A presentation recently prepared for Maryland by the Center for Supportive Housing - - a plan that includes - - According to projections made by the Center for Supportive Housing these projects are projected to provide approximately $15,000 net savings per year per resident (representing reduced spending for health care and social services). [49]
- Supportive housing programs to serve the broader population of homeless individuals have also been launched as health improvement and cost reduction strategies; across the country, a variety of financing models are being used including Medicaid waivers, DSRIP funding, and blended funding models.[50] Analyses of these programs produce a range of estimates, showing budget neutral operations to considerable savings in spending, likely tied to the range of services examined for savings and the "starting point" of the populations served (i.e. high utilizers vs. a broader population).
- For individuals recovering from hospitalization, medical respite programs have been developed to meet the short-term, post-discharge needs of patients who lack a safe, clean and supervised setting for recovery; Evidence indicates savings tied to the reduction in length of stay and the reduction in readmissions[51].

Behavioral Health Management & Family and Social Support

In some states, Medicaid benefits have been designed to include a broader continuum of services. California's MediCal Addictions Treatment Waiver now covers intensive outpatient services, short-term residential treatment for up to 90 days, recovery services, case management and physical consultation.[52] New resources are also being developed to provide ongoing supports including:

- Peer recovery supports
- "Certified Recovery Advisor," a new professional role now positioned to guide clients through the first year of recovery[53]
- Use of telehealth to provide ongoing supports and communications

Aging in Place: Senior Supports **-** As the population ages, providers are addressing the long-term support needs of elderly in the community.

- Maryland's Area Agencies on Aging in partnership with the Chronic Disease office at DHMH support self-care management programs for a variety of chronic disease including diabetes care and arthritis management. These programs, called Living Well, a model promulgated by Stanford's Patient Education research Center, show a positive ROI through reduction in disease associated medical expenses[54]. Uniquely, these programs are developed and have been tested for similar ROI potential for non-English speakers, increasing the reach of the program among the population.

[48] Center for Supportive Housing (2014).
[49] Corporation for Supportive Housing (2014).
[50] Clary, A. (2016).
[51] Parsons, A. (2016).
[52] California Department of Health Services (2015).
[53] AWARE Recovery Care. (2016).
[54] National Council on Aging

- Many providers are integrating falls prevention programs based on evidence of success, i.e. reduced rates of falls and significant reductions in costs of care. Several "toolkits" of strategies are available including home assessments; exercise/strengthening programs, changes in medication, pharmacist support and patient education.[55]
- As clinicians take a more active role in combining behavioral and somatic care, depression screening and substance use counseling at the point of care is becoming the standard of care for certain elderly patients. In Maryland: Washington Adventist Hospital has assigned behavioral health professionals to a retirement apartment complex for low-income senior citizens with notably high rates of hospital utilization for alcohol-related diagnoses were documented. Through geocoding by diagnosis and zip code, they were able to target substance use disorder to that community. [56]
- National evaluations and provider organizations themselves have determined that investment in physician house call programs yields meaningful cost savings, more than adequate to support program costs. In addition, some states are supporting in-home support services for those seniors who cannot afford in-home supports and do not qualify for Medicaid coverage. The state of Kansas, for example, is funding in-home services to 4,500 seniors over 60 years old who do not qualify for the State's frail elderly waiver. Services include respite care, housekeeping services, chore services and day care.[57]

Social Supports: Community engagement to promote health improvement **-** Experience in Maryland has shown how mobilizing community groups and faith-based organization around a common goal can produce effective communications campaigns, educational programs, and ongoing support systems for behavior change.

- Faith United Against Tobacco mobilizes faith leaders across Maryland to help reduce smoking through proven interventions. The campaign includes faith-based organizations from across the spectrum working on the leading preventable cause of disease and death in the United States[58].
- The Maryland Faith Health Network is a free pilot project with LifeBridge Health based on the successful Congregational Health Network program from Memphis TN where hospitals and trained volunteers in faith community's work together to better serve ailing members. This program allows faith leadership to know right away when someone in the congregation is admitted to the hospital if the congregant consents to have you notified and allows for the existing ministry resources to be deployed more efficiently. Additionally, it provides access to free health promotion resources to promote the health of the congregation[59].
- In Maryland: The Red Dress Sunday program, begun as a partnership with three churches, now operates across more than 180 churches throughout Maryland to raise awareness about heart disease and to operate screenings/classes after services[60].
- In Maryland: The Sleep SAFE campaign in Baltimore City successfully engaged community members in designing the media, outreach and Sleep SAFE campaign efforts that were central to the initiative's success in reducing teen pregnancy and infant mortality rates. Youth Advisory Councils and Neighborhood Action Teams continue to be integral to ongoing

[55] CDC (2015); National Council on Aging (2015)
[56] Washington Adventist Hospital, Community Health Needs Assessment, Implementation Strategy, 2013-2016. Retrieved from www.adventisthealthcare.com
[57] American Elder Care Research Organization (2015).
[58] Faith United Against Tobacco. Retrieved from: http://www.tobaccofreekids.org/microsites/faith/

[59] http://healthcareforall.com/get-involved/maryland-faith-community-health-network/
[60] St. Agnes Healthcare. *Red Dress Sunday*. Retrieved from: http://www.stagnes.org/about-us/red-dress-sunday/overview/

activities, and community clubs provide education and support to encourage lasting behavior change. In 2014, Baltimore City saw a record low number of sleep-related infant death (13 deaths) down from a record high reported in 2009 (27 deaths).[61]

Neighborhood Design: redesign to promote healthy lifestyles **-** Many communities are now engaged in neighborhood redesign to promote physical activity and a "culture of health"[62] featured by healthier lifestyles. Typically, these initiatives focus on creating more bike paths, safe pedestrian paths for walking to school/work, recreational space and open space for community gathering. In some communities, this activity has been accompanied by State investments to encourage healthier behavior. Examples include:

- In Maryland: Baltimore City is expected to launch "Charm City Bikeshare" with 500 bicycles. Other bikeshare programs such as the Minneapolis Health Department's Nice Ride Minnesota bike share system place bikes in diverse, low income area of the city where residents demonstrate disparities in healthcare and disparities in physical activity. Results showed that the program was successful in outreach to community members and that ongoing community engagement was required to sustain behavior change[63].
- In Maryland nine jurisdictions have developed walking plans targeting neighborhood redesign to create more walkable communities.

Health literacy **-** Several states are now using SIM grants and other funds to activate consumers through health literacy campaigns, shared decision-making tools, learning collaborative and health care self-management tools.[64]

- In Worcester County, the public elementary school, the hospital, and the University of Maryland's School of Public Health developed the first health literacy curriculum standards for elementary school students in the country, with the hope that this curriculum will be adopted by the State of Maryland and eventually the nation. The program weaves health concepts into existing math, science and social studies with lessons about health/health information. The program showed success with a 63% increase in the number of students able to recognize the term "heart healthy,"41% increase in the number of students that knew how to take their heart rate, and increase of 20% of students able to identify "My Plate," And 76% of students believing that advertising can change the way they think about food[65].

[61] Baltimore City Health Department. *B'more for Healthy Babies*. Retrieved from: http://health.baltimorecity.gov/maternal-and-child-health/bmore-healthy-babies

[62] Discussed on Robert Wood Johnson Foundation website at www.rwjf.org.

[63] Campbell, C. (2016).

[64] State Innovation Model Information at https://innovation.cms.gov/initiatives/state-innovations/

[65] Blieweis, J. (2015).

Stakeholder Engagement

DHMH's stakeholder engagement process occurred through three distinct stages: a population health summit, "road show", and external public comment period.

In April 2016, DHMH convened an all-day program for health professionals from across the State for Maryland's Population Health Summit. The program included presentations about health status in Maryland and its comparative performance, reviews and insight into successful programs in Maryland, and presentations about health improvement programs across the country that have adopted innovative approaches. After these presentations, attendees participated in workgroups assigned to recommend and prioritize major investments for population health improvement in Maryland. Each workgroup was encouraged to define specific outcomes targets and/or specific population groups that represented the greatest opportunity for health improvement. Workgroups were also asked to define the type of interventions that would be most effective. Approximately 110 participants attended the Summit and provided the critical input to "priority-setting" for this Population Health Improvement Plan.
To supplement this input, DHMH issued a "post-Summit survey," a set of questions seeking prioritization of health improvement initiatives and prioritization of cohorts as target populations. Fifty (50) surveys were returned to DHMH, providing critical input that factored into this report.

From July through November 2016, the "road show" involved a targeted stakeholder group process that presented high-level goals of the plan within the context of the All-Payer Model and sought specific expertise in topic areas of the plan such as 'current and emerging illustrations of population health improvement,' prioritization, and data. This process leveraged existing groups such as internal DHMH partners focusing on chronic disease, behavioral health, minority health and health disparities, cancer and tobacco prevention, and health information exchange analytics. In addition to these groups, local health officers, the Duals IDN Workgroup, HIE workgroups, HSCRC workgroups, and other State-Agency workgroups were consulted. Workgroups and content experts were asked to provide direct feedback to the presentation and sections of the population health improvement plan.

Finally, in November 2016, a draft of the Population Health Improvement Plan was released for an external public comment period. A letter with five focusing questions solicited feedback from stakeholders who participated in the summit, "road show," and their extended partners. This comment period sought to understand whether or not stakeholders (1) understand why considering investment in population health improvement is important to health care transformation in Maryland, (2) understand how topics were prioritized and how to use the prioritization matrix and accompanying net savings analysis to begin thinking through population health improvement investment, and (3) agree that the proposed next steps would help operationalize the population health plan in Maryland from a financial and operational perspective. The comments were then categorized qualitatively and assessed for incorporation into the final version of the population health plan.

Population Health Improvement Plan: Prioritization Matrix Framework

The prioritization framework outlines a process, through examples, by which contesting priorities can be examined and linked to action through initiatives, intervention, and policy. The framework provides a road map for thinking through the process of identifying a focus area, within a priority, and then establishing the strategy for a given population by way of a criterion.

The Population Health Improvement Plan is directed by the following overarching strategies:

- Increase access to services and initiatives that address population health improvement (i.e. a focus on initiatives that reside within Bucket two and Bucket three of Auerbach's 'Three Buckets of Prevention.'
- Address the social, environmental and economic determinants of health and engage those agencies funded to address these issues; strategy implementation will often require a coordinating entity to integrate efforts across agencies.
- Improve health equity by focusing prioritization and investment on approaches/tools that address the root causes of health inequity - social determinates of health, disproportionate investment, resource allocation, etc.
- Engage the community to support, design, and sustain community-based (i.e. population) health improvement initiatives.
- Employ evidence-based strategies to deliver more home-based, school-based and telehealth services, but allow communities to continue piloting new approaches.
- Provide a toolkit of strategies as direction, but do not be overly prescriptive. Each local (jurisdiction, region, entity, state) must establish their highest priorities, define achievable targets and determine what strategies are feasible, likely to be or are most effective in their communities, and are sustainable.
- Define outcomes targets that go beyond State Health Improvement Process (SHIP)[66] measures and require ongoing evaluation and prioritization; measurement is critical to monitor progress and to establish alignment.

Finally, the expectation is that localization will occur allowing initiatives and more specific outcomes targets to be determined.

The evaluation criterion for the priority areas was developed after the Summit to guide priority-setting and strategy selection for Maryland's Population Health Improvement Plan. The evaluation criteria considered the following concepts, each weighted to produce a composite score and depicted in the "Harvey Ball" scoring matrix. The elements for scoring priorities included the following:

- Local Priority – Reflects identification of priority by hospitals , Local Health Improvement Coalitions, Local Health Department, and the State through community health needs assessments/priorities, as well as the priorities defined by stakeholder responses to the post-Summit survey

[66] State Health Improvement Process

- Evidence Base – Reflects the literature reviewed and promising practice evidence base to support the value of intervention (i.e. impact evaluations from across the country and experience in Maryland)
- Financial ROI – Reflects the magnitude of the financial return on investment, achieved through utilization reduction, tied to interventions/strategies
- National Performance – Reflects the performance gap between Maryland and national data such as the County Health Rankings, United Foundation for America's Health, Centers for Disease Control and Prevention sources.
- Alignment with goals for collaboration and/or prevention – Reflects the degree of collaboration to assure the best use of resources
- Magnitude of population / magnitude of burden that would be addressed – Reflects the number of people affected and/or the costs of care

Each of the concepts is described in greater detail below, with each element "scored" and depicted in the Harvey Ball chart within the prioritization matrix displayed below.

PRIORITY	Raw Score	Maximum Possible Score	Calculated Score	Converted Score
Behavioral Health	27	57	47%	2
Health Access	22	57	39%	2
Obesity	19	57	33%	2
Tobacco	12	57	21%	2
Reproductive Health/Birth Outcomes	8	57	14%	1
Health Literacy	8	57	14%	1
Diabetes	7	57	12%	1
Oral Health	6	57	11%	1
Infectious Disease	3	57	5%	1
Cancer	2	57	4%	1
Cardiovascular Disease	0	57	0%	0
Respiratory Disease	0	57	0%	0
Safe Environments	0	57	0%	0
Disparities	0	57	0%	0
Immunizations	0	57	0%	0

In this depiction, an initiative with supporting evidence is assigned a score of 2 (fully colored Harvey Ball); an initiative with little or no evidence or contradictory evidence (e.g. short term success with weight loss programs, but little evidence of sustained weight loss), is assigned a score of 0 (empty Harvey Ball); all other strategies were assigned a "neutral" score of 1 (split Harvey Ball). The elements evaluated (or, criteria for scoring) included:

1. Local Priority – Reflects identification by hospitals, Local Health Improvement Coalitions (LHICs) and Baltimore City community health needs assessments/priorities as well as the priorities defined by stakeholder responses to the post-Summit survey. The summary of Local Health Improvement Coalitions (LHIC) priorities was evaluated and provided in a report to DHMH. These were then scored by summing the points ascribed to each priority area and dividing by the maximum possible score for each area to calculate a "percentage" of possible. The "scores" for each area on the LHIC priority list are shown

below, along with the "converted score" adopted to prepare the Prioritization Matrix, where every item was scored on a scale of 0-2.

Community Health Needs Assessments (CHNAs) from 32 hospitals and/or health systems were additionally evaluated. Similar to the approach above, the percentage of CHNAs that identified specific issues/priorities and the percentage of hospitals that identified each issue (using a denominator of 32 hospitals) was calculated. That percentage was also turned into a converted score of 0-2. Finally, the survey results from Summit participants were evaluated to identify and weight focal areas of higher or lower priority, and combined these findings with the two sources above to calculate the Harvey Ball score for "local priority.

	# Hospitals Including Item	Total Hospitals	Calculated Score	Converted Score
Cardiovascular health, hypertension, stroke, respiratory disease	26	32	81%	2
Diabetes	24	32	75%	2
Cancer	18	32	56%	2
Mental health and access issues to mental health	12	32	38%	1
Maternal & child health; infant mortality, family wellness	11	32	34%	1
Behavioral health, substance use, addictions	10	32	31%	1
Access to clinical services	9	32	28%	1
Health literacy, patient education, patient engagement	9	32	28%	1
Risks, safety, violence prevention, injury prevention, domestic violence	7	32	22%	1
Senior care	6	32	19%	1
Asthma and resp disorder	5	32	16%	1
Primary care	4	32	13%	1
Tobacco cessation	3	32	9%	0
Infectious disease and/or HIV	2	32	6%	0
Chronic disease	2	32	6%	0
Transportation	2	32	6%	0
Dental	2	32	6%	0
Jobs/Workforce development	2	32	6%	0
Housing/Homelessness	2	32	6%	0
Care coordination or care management	2	32	6%	0
Acute kidney failure	1	32	3%	0
Support to victims of violence or substance use	1	32	3%	0
Co-occurring disorders	1	32	3%	0
Teen pregnancy	1	32	3%	0
Neighborhood development/improvement	1	32	3%	0
Health inequities: Race/ethnicity	1	32	3%	0

2. Evidence Base – Reflects the evidence base to support the value of intervention (i.e. impact evaluations from across the country and experience in Maryland)

We used literature searches and case studies to identify what, if any, evidence existed to document the potential value of the strategies being prioritized. If there were strong, quantifiable results demonstrated by one or more program using the same or similar intervention, we gave these strategies a score of 2 (full Harvey Ball). If there was little or no evidence, or contradictory evidence (e.g., short term success with

weight loss programs, but little evidence of sustained weight loss), we gave these strategies a score of 0 (empty Harvey Ball). All other strategies were given a "neutral" score of 1 (split Harvey Ball).

3. Financial ROI – Reflects the magnitude of the financial return on investment tied to strategies/interventions

We used literature searches and reviews to identify what, if any, evidence existed to document a potential financial return on investment (ROI) for the strategies being prioritized. Some of these are also itemized in greater detail in the net savings analysis. If there were strong, quantifiable results demonstrated by one or more program using the same or similar strategies, we gave these strategies a score of 2 (full Harvey Ball). If there was little or no evidence of a positive ROI, we gave these strategies a score of 0 (empty Harvey Ball). All other strategies were given a "neutral" score of 1 (split Harvey Ball).

4. National Performance – Reflects the performance gap between Maryland and national data (where available)

We evaluated Maryland's score based on Maryland's ranking against the County Health Rankings Report issued by the Robert Wood Johnson Foundation as well as other data sources to score Maryland's performance on the variable most relevant to the initiative. In order to account for both Maryland being ahead of a National Performance standard and below a National Performance standard, different scores were given based on the ranking:

- If Maryland ranked #1 through #20 (good, in the top of the Nation), we assigned a score of 2 (full Harvey Ball)
- If Maryland ranked #21 through #30, or if there was no relevant national ranking, we assigned a score of 1 (half Harvey Ball)
- If Maryland ranked #31 through #50 (bad, in the bottom of the Nation), we assigned a score of 1 (empty Harvey Ball).

5. Alignment with goals for collaboration and/or prevention

The MAPM is intent on expanding and enhancing collaboration across providers and other entities involved in the health of Maryland residents. Therefore, we evaluated each strategy on the basis of whether it would be:

- "business as usual"
- entail collaboration across two or more different medical providers
- entail collaboration across one or more medical provider and another entity, e.g., social services
- focus on prevention rather than treatment

Strategies (even prevention-related ones) that are essentially a continuation or expansion of good work already underway were assigned a score of 0. Strategies that would involve building new ways of delivering care and services to patients were assigned a score of 2. All other strategies received a score of 1.

6. Magnitude of population / magnitude of burden that would be addressed

The magnitude of the population/burden was evaluated on the basis of all Maryland residents, not specific pockets of high acuity populations. On this basis, there were two strategies deemed to affect a small number of Maryland residents (managing/controlling asthma and preventing deaths from opiate overdose with Naloxone). These strategies were assigned a score of 0. There were a substantial number of focus areas and interventions with the potential to impact large numbers of Maryland residents (e.g., obesity, tobacco use, diabetes, patients in nursing homes) which were assigned a score of 2. All other interventions were assigned a score of 1, either because the anticipated number of persons was

moderate in size or because the number of individuals to be impacted may vary depending on the size and scope of the implementation strategy.

It is worth noting that priorities do not include those areas which are expected to command major focus and major investment by hospitals and other providers to improve safety, quality of care, and prevention of adverse outcomes.

While the population health improvement plan establishes five priorities, it does not expel nor require all priority areas to be address nor do they necessitate being addressed in the same way. The priorities are intended to be consistent with the core initiatives established by State agencies and City/County Health Departments. The five health improvement priority areas are:

- Chronic Disease Management & Prevention
- Substance Use
- Mental Health
- Senior Health
- Youth Health & Wellness

Note that the priorities presented here are aimed to mobilize around shared priorities, focus areas, and goals for the State of Maryland as a whole, while allowing localized (regional, jurisdictional, neighborhood, practice, etc.) partnerships to determine how to most effectively produce change using the prioritization criteria as a guide rather than a rule. The plan is written with the assumption that each locality (regional, jurisdictional, neighborhood, practice, etc.) and community will work to leverage the resources of the public health, social services, medical delivery system, and local community-based groups and resources in order to best support population health improvement efforts through strategies at the state and local level.

These five priorities are tied directly to health status improvement outcomes, with focus areas defined and goals and evidence-based strategies recommended achieving these target outcomes. The focus areas are not comprehensive; rather they present a framework for produce a balanced portfolio that seeks to prioritize targeted initiatives with clear goals, outcomes, and population targets. Similarly, the initiatives proposed here are not comprehensive, nor are they all new initiatives. Finally, the outcomes targets defined are linked to the strategies scope and the goals intent. Eventually outcome targets will require a broader set of measures with which to monitor progress in order to assess the impact of health improvement across sectors. However, the framework illustrates the link from priority to outcome measure through a criterion.

Prioritization Matrix Framework

Focus Area	Goal(s)	Score
Priority Area 1 - Chronic Disease Management & Prevention		
A Obesity Prevention & Management	Increase healthy weights in adults Increase healthy weights in children Decrease absolute disparity of healthy weight between Non-Hispanic Blacks and Non-Hispanic Whites adults Increase self-reported rates of physical activity Increase number of schools with policies for increased physical activity Increase availability and affordability of healthful foods and beverages Increase opportunities for adults to be active at work	◐
B Tobacco Free Living	Reduce tobacco use (cigarette, cigar, pipes, chewing) among adults Reduce tobacco use (cigarette, cigar, pipes, chewing) among teens Decrease rate of women who report smoking during pregnancy Increase number of public spaces that are established as smoke-free via policy	●
C Diabetes Prevention	Prevention Program (DPP) Increase percentage of pre-diabetes patients who do not develop diabetes Increase access to smoking cessation programs for pre-diabetes patients	●
D Asthma Management & Control	Decrease rates of hospitalization and ED visits for asthma Decrease disparity of asthma ED admissions among Non-Hispanic Blacks and Non-Hispanic Whites Decrease number of missed school days for asthma Decrease rate of lost work days for asthma	◐
Priority Area 2 - Substance Use		

A Prevention of Substance Use Disorder and Addiction	Decrease percent of high school students reporting alcohol and/or drug use in the last 30 days Decrease rate of alcohol and drug-related ED visits and admissions Increase access to addictions health providers across the State, geographically Decrease number of deaths due to overdose	◐
B Prevention of Deaths Due to Overdose	Reduce total number of deaths due to overdose Increase access to naloxone Increase number of referrals to bueponepherine, methodone, and suboxone programs. Increase number of substance use and addictions counselors, geographically	◐
C Expanded Access to Treatment and Supports for Long Term Recovery and Well Being	Decrease admission rate of alcohol and drug-related ED visits and admissions Decrease percent of high school students reporting alcohol and/or drug use in the last 30 days Decrease recidivism rate documented by drug treatment facilities Decrease arrest rates associated with illegal substance use Increase number of substance use and addictions counselors, geographically	◐
D Road Safety, Prevention of Alcohol related Accidents	Reduce the number of alcohol-related crashes involving youth and young adults, ages 16-25 Reduce the number of alcohol-related crashes among older adults Reduce the number of youth, ages 12-20, reporting past month alcohol use Reduce the number of youth ages 18-25 reporting past month binge drinking	◐
Priority Area 3 - Mental Health		
A Screening, Early Identification & Intervention	Increase number of healthcare providers trained and using Screening, Brief Intervention, and Referral to Treatment (SBIRT) Increase number of substance use and addictions counselors, geographically Reduce acute care admission rates and ED visits for mental health Decrease percentage of adults with reported unmet mental health needs Decrease percentage of those who self-report mental health status as “not good”	◐

B Supports to Promote Well-Being and Community-Based Living	Reduce acute care admission rates and ED visits for mental health Decrease percentage of adults with reported unmet mental health needs	◐
Priority Area 4 - Senior Health		
A Seniors at Home with Multiple Chronic Conditions	Reduce potentially avoidable hospitalization of seniors with multiple chronic conditions Improve caregiver satisfaction and compensation Reduce rates of long-term institutionalization Reduce total costs of care for the senior population	●
B Dual Eligible	Reduce potentially avoidable hospitalization of dual eligible Reduce rates of long-term institutionalization Reduce total costs of care for the dual eligible population in Maryland Improve beneficiary satisfaction over the long-term	◐
C Nursing Home Patients	Reduce falls in nursing homes Reduce potentially avoidable admissions Maintain functional status for higher percentage of patients	◐
D Falls Prevention	Reduce injury rate due to falls Decrease frequency of second fall	◐
Priority Area 5 - Youth Health & Wellness		
A Early Childhood and Adolescent Health/Mental Health	Reduce the cumulative number of ACE scores Reduce the rate of STIs in adolescent age cohort Reduce the percentage of adolescents reporting sadness/hopelessness in prior 30 days Reduce the rate of mental health admissions and ED visits for children and adolescents Reduce the rate of children testing positive for lead poisoning Reduce the rate of pediatric PQIs among children and adolescents Increase the rate of school readiness	◐
B Teen Births and Infant Mortality	Reduce teen birth rate Reduce infant mortality rate	◐

C Teen Violence Prevention	Decrease the rate of juvenile homicide and non-fatal shooting victims Decrease the ratio of juvenile diversion to arrest ratio Decrease the recidivism rate among adolescents	◐

Population Health Improvement Plan: Prioritization Matrix Framework Details

POPULATION HEALTH IMPROVEMENT PLAN

Priorities, Focus Areas and Strategies

The priority areas and their outcomes suggest overarching goals for the State based on current established measurement frameworks and programmatic priorities with the expectation that local entities will define regional initiatives and outcomes targets within a larger evolving population health improvement framework. The Agenda presented here is aimed to mobilize regions around shared goals for the State of Maryland while allowing local entities (Regional Partnerships, Local Health Departments, Local Health Improvement Coalitions, Health Enterprise Zones, etc.) to determine how best to most effectively produce change. Each community will work to leverage the resources of the public health, social services and medical delivery system in the region, and will integrate the local community-based groups and resources that can best support efforts through strategies at the provider, community and state level.

The priorities are intended to be consistent with the core initiatives established by State agencies and County Health Departments. The areas and strategies expanded upon are designed to produce a balanced portfolio that will yield a combination of short-term, mid-term, and long-term returns on investment. The initiatives proposed here are not all new initiatives, are not comprehensive to current activities occurring in the State, and are meant to provide examples of how to orient priority area programs to focus on population health outcomes with determined or potential opportunity for savings, positive return on investment, and positive health and quality of life outcomes for specific types of stakeholders (State Agencies, Local Health Departments, Regional Partnerships, Accountable Care Organizations, Medicaid, Hospitals, Health Enterprise Zones, Local Health Improvement Coalitions, Federal Government, County Government, Philanthropy, Non-Profit, Universities, etc.). The outcomes targets defined here act as prompts and will require a broader set of measures with which to monitor progress in order to assess the impact of health improvement across sectors. This will require new and adapted performance monitoring mechanisms to gradually be put in place.

Below outlines strategies to address the priorities and focus areas suggested in the previous sections prioritization matrix. Each prioritization area is broken down by two to four focus areas. Each focus area is given a Maryland specific surveillance data point in order to give context to the focus area in Maryland. Each focus area is further broken into potential strategy areas that are grouped based on which of the CDC's Three Buckets of Prevention the strategy most aptly applies to[67]: Bucket 1 - Traditional Clinical Prevention; Bucket 2 - Innovative Clinical Prevention; and, Bucket 3 - Total Population or Community-Wide Prevention. Focus and priority is given to highlighting strategies that reside within Bucket 2 and 3 in order to focus the framework at strategies that target the population outside the context of traditional clinical care. However, on occasion, for interventions with particularly innovative traditional clinical strategies and with strong evidence of savings, positive return on investment, or unparalleled gains in quality of life or health status Bucket 1 strategies are highlighted. Each strategy area is briefly described with the key components of the strategy such as target audience, what occurs, and any special

[67] The CDC's 3 Buckets of Prevention are defined and outlined in a previous section.

components of the strategy. Finally, unifying outcome goals are listed prior to the strategies in order to provide a guide for the type of strategy that is highlighted (i.e. the strategies that are highlighted aim to achieve or contribute to the achievement of the outcome goals listed).

Priority 1: Chronic Disease Prevention and Management

Focus Area A. Obesity Prevention and Management

Outcome Goals[68,69]:

Increase healthy weights in adults
Increase healthy weights in children
Decrease absolute disparity of healthy weight between Non-Hispanic Blacks and Non-Hispanic Whites adults
Increase self-reported rates of physical activity
Increase number of schools with policies for increased physical activity
Increase availability and affordability of healthful foods and beverages
Increase opportunities for adults to be active at work

Bucket 2 - Innovative Clinical Prevention - Strategies

School-based access to healthy foods and physical activity	Children and adolescents regularly attending/enrolled in school: ● School-coordinated, multicomponent obesity prevention program (healthy eating, body image, physical activity, behavior change/habit forming) ● School-based health centers provide coaching and linkage/coordination of care with child or adolescent primary care provider and family ● Early Childhood, teacher-led program Children and adolescents regularly attending/enrolled in school and their families: ● Home-based coaching to encourage family involvement Teachers & Staff: ● School-based multicomponent workplace wellness program (incentives for physical activity, self-management classes)
Community-based weight loss programs	Community at large: ● Community-based programs such as walks, health fairs, community physical activity challenges, etc. found in easily accessible in familiar settings (senior centers, parks, recreational facilities, community centers, local/county

[68] https://www.ncbi.nlm.nih.gov/books/NBK201137/box/box_3-1/?report=objectonly
[69] https://www.ncbi.nlm.nih.gov/books/NBK201137/box/box_3-2/?report=objectonly

	government sponsored). These programs are linguistically and culturally sensitive. ● Self-management prevention programs, nutrition planning and cooking classes
Worksite weight loss programs	Employees & Staff: ● Healthier foods at the workplace; incentives to employers to stock, promote and competitively price health food and beverage options ● Worksite wellness programs/classes (nutrition, stress management, financial planning, cooking, physical exercise) ● Financial incentives to further engage employees; reward through insurance premium reductions or direct incentive payments

Bucket 3 - Total Population or Community Wide Prevention - Strategies

Access to healthy and affordable food everywhere, especially in food deserts	Community at large, especially those in food deserts (defined as parts of the country vapid of fresh fruit, vegetables, and other healthful whole foods, usually found in impoverished areas. This is largely due to a lack of grocery stores, farmers' markets, and healthy food providers[70]). ● Expand use of Supplemental Nutrition Assistance Program (SNAP) to allow use at farmer's markets ● Fund vouchers for healthy food purchases ● Targeted scale up of online ordering and deliveries to food deserts ● "Getting to Grocery" - mobilizing tools available to local governments and other organizations to bring grocery stores to low resourced communities; support financial incentives to retailers to deliver/open local stores; support/incentivize small businesses providing food services to specific communities ● Design and implement policy limiting number of liquor stores in a community ● Provide public transportation and walking routes to and from locations where healthy foods are available ● Partnerships with wholesale suppliers for healthy food retail to increase stock and promotion of healthy foods and beverages
Access to healthy and affordable food everywhere, through work	Community at large: ● "Health on the Shelf" - Support in the form of incentives and

[70] http://americannutritionassociation.org/newsletter/usda-defines-food-deserts

with small food retailers, suppliers, and policy makers	subsidies for local retailers to stock healthier foods (e.g. refrigeration equipment, bulk purchasing, etc.) ● Support (policy/regulation change, partnership, incentives, shared locations space, market research and evaluation) for local retailers to advertise/promote healthy foods and organize cooking demonstrations/other in-store events ● "Healthy Checkout Aisles" - policy that all grocery stores provide healthy checkout aisles for customers ● Vouchers and incentive programs through employers, health insurance, and community government (city, municipality, county, state) for free fruits/vegetables ● Food financial counseling - cooking demonstrations and other in-store events that focus on preparing affordable healthy meals ● Financial counseling/education curricula linked to food consumption, purchasing, and health outcomes ● Policy requiring nutritional information and warning labels on sugar-sweetened beverages with the respective health outcomes they affect (tooth decay, obesity and diabetes)

School-based policies and programming	Leadership in school settings and children and adolescents regularly attending/enrolled in school: ● Enhance and maintain nutrition policies and standards for school meals, snacks, drinks (Healthy Hunger-free Kids Act of 2010, Maryland Schools and Health Policy, National School Lunch Program, School Breakfast Program, Summer Food Service Program, the Maryland State Board of Education, Federal Smart Snacks in School) ● Establish school-based policy with requirements for physical activity and evidence-based health education ● Create and sustain school gardens and potentially develop into a Community-Supported Agriculture model ● Develop courses to teach students, faculty, staff, and families to prepare affordable healthy meals and provide cooking skills ● Facilitate stress management supports in schools (counselors, safe space for students, etc.)
Child care centers policies and programming	Child care staff, children attending child care facilities, and parents: ● Promote, maintain, and adapt as necessary the Child Care Centers Healthy Eating and Physical Activity Act requirements ● Offer healthy food options, age-appropriate nutrition education for parents and children, ● Allow increase physical activity during time at centers

	● Examine child care center licensing regulations and process to include environmental and policy evaluation focused on promoting positive nutrition and increased physical activity
Neighborhood design and campaigns to promote physical activity	Community at large: ● Ensure public transportation options/opportunities in order to access recreational facilities ● Design of exercise space/walking paths/bike paths; safe routes to schools ● Establish bikeshare programs ● Promote and prioritize bike and public transit infrastructure ● Subsidize physical activity programs for disabled ● Promote and establish opening of school grounds/recreational facilities to the public after hours through shared use agreements ● Community engagement/community campaigns to promote physical activity, healthy nutrition and healthy lifestyle

Focus Area B. Tobacco-Free Living

Outcome Goals:

Reduce tobacco use (cigarette, cigar, pipes, chewing) among adults
Reduce tobacco use (cigarette, cigar, pipes, chewing) among teens
Decrease rate of women who report smoking during pregnancy
Increase number of public spaces that are established as smoke-free via policy

Bucket 1 -Traditional Clinical Prevention -Strategies

Clinical/Hospital Based Training	Healthcare Providers: ● Training on discussing tobacco cessation with patients across all medical professions (pediatrics, primary care, Medicaid providers, mental health, substance abuse providers) ● Recording of nicotine biomarkers within Electronic medical records and electronic health record (EMR/EHR)

Bucket 2 - Innovative Clinical Prevention - Strategies

Expand access to tobacco cessation programs	Adults and adolescents currently using tobacco: ● Data analysis targeting identification of geographic areas and age/population cohorts with highest prevalence of smoking

	(pregnant women & behavioral health), smoking-attributable disease and/or smoking-related hospitalizations in order to direct investment and intervention (necessarily includes an assessment of health disparity and social determinants of smoking - policy, environmental exposure, access to cessation programs, etc.) ● Community-based programs (individual and group counseling), particularly in housing developments, worksites, and community locations (parks and rec, community centers, etc.) ● Introduction and maintenance of smoke-free policies, particularly in housing developments, worksites, and community locations (parks and rec, community centers, etc.) ● Telephone counseling (Maryland Quitline) Hospitals and healthcare providers: ● Electronic medical records and electronic health record (EMR/EHR) incorporation of tobacco use and referral to tobacco cessation services. Employers: ● Worksite specific cessation programs and reward incentives

Bucket 3 - Total Population or Community Wide Prevention - Strategies

Smoking prevention Community and media campaign	Community at large: ● Engage with evidence based campaigns such as (TRUTH, CEASE Baltimore, etc.) ● Enhance community literacy of tobacco advertising, marketing, and selling restrictions ● Enhance community literacy of tobacco use health consequences Parents: ● Mobilization of Parent-Teacher Associations to support tobacco cessation ● School - sponsored and specific tobacco prevention media campaigns Adolescent/Teen: ● Adaptation of nationally recognized media campaigns for local context
Enforcement of tobacco sales to minors	Local Health Authority & Retailers: ● Explore and enact when appropriate civil penalties for tobacco sales to minors (rather than criminal) Community at large: ● Crowd source surveillance of stores selling tobacco products to minors and inappropriate advertising locations

Insurance coverage	Insurers (Private, Medicaid, Medicare): ● Full or partial coverage of tobacco cessation counseling through MD Quit Line and routine care consultation and referrals ● Full or partial coverage of tobacco cessation products and/or counseling ● Removal of co-pays for tobacco cessation counseling ● Bundle tobacco cessation and behavioral health treatment for comorbid patients
Financial and quality incentives for tobacco cessation	Employers/Employees: ● Financial incentives for participation and success through tobacco/smoking prevention worksite programs ● Make smoke free campus and provision of tobacco cessation programming part of requirement and recognition of Maryland Healthiest Business ● Provision of stress reducing activities during breaks for employees (space for meditation, support groups, etc.)
Elimination of secondhand smoke exposure	Community at large (policy): ● Enforcement of Clean Air Act, especially with regards to second hand smoke ● Smoke-free housing developments and public spaces (community centers, parks and rec, etc.) ● Emissions standards for school buses

Focus Area C. Diabetes Prevention

Outcome Goals:

Increase percentage of pre-diabetes patients who complete an evidence-based Diabetes Prevention Program (DPP)

Increase percentage of pre-diabetes patients who do not develop diabetes

Increase access to smoking cessation programs for pre-diabetes patients

Bucket 1 - Traditional Clinical Prevention - Strategies

Increase primary care pre-diabetes and diabetes screening and surveillance	Health care providers: ● Train and incentivize primary care providers in validated pre-diabetes and diabetes screening and counseling protocols (includes Graduate Medical Education partnership) ● Increase number of primary care providers screening and testing according to American Diabetes Association (ADA) Guidelines[71].

[71] http://professional.diabetes.org/CONTENT/CLINICAL-PRACTICE-RECOMMENDATIONS%20

	● Maintain website of evidence-based programs operating across the State to facilitate referral ● Incentivize use of website of evidence-based programs operating across the State to facilitate referral by primary care providers and care team staff ● Increase referrals for tobacco cessation programming

Bucket 2 - Innovative Clinical Prevention - Strategies

Increase pre-diabetes screening access (especially in State and Federally-designated rural health areas)	Health care entities (Hospital, Local Health Department, Federally Qualified Health Center, Private Practice, etc.): ● Mobile vans ● Provide infrastructure for telehealth care ● Provision of community-based screenings at large events ● Expand access to community-based DPP programs and other prevention and health promotion programs Employers: ● Provide community-based DPP programs at worksite ● Incentivize employee referral to DPP programs ● Increase established referral system between National DPPs Schools: ● Promote training of school nurses in Diabetes Prevention standards of care (within scope of work)

Bucket 3- Total Population or Community Wide Prevention - Strategies

Remove financial barriers for pre-diabetes measures	Insurers (Private, Medicaid, Medicare): ● Establish private insurance coverage for DPP ● Provide affordable durable medical equipment for self-monitoring at home (scales, glucose monitors, etc.)
Personal monitoring to support compliance as part of	Insurers (Private, Medicaid, Medicare): ● Insurance coverage for remote monitoring Health care providers: ● Increase motivational interviewing training and utilization in pre-diabetes counseling Community at large: ● Partnerships with faith-based groups for programs/progress monitoring; ● Development of infrastructure to support personal dashboards for ongoing monitoring and communications with health provider Schools:

	● Establish and maintain diabetes monitoring and prevention policies, training, and compliance with State recommendations
Access to healthy food and places to recreate	Community at large: ● Ensure public transportation options/opportunities in order to access recreational facilities ● Design of exercise space/walking paths/bike paths; safe routes to schools ● Establish bikeshare programs ● Promote and prioritize bike and public transit infrastructure ● Subsidize physical activity programs for disabled ● Promote and establish opening of school grounds/recreational facilities to the public after hours through shared use agreements ● Community engagement/community campaigns to promote physical activity, healthy nutrition and healthy lifestyle ● "Health on the Shelf" - Support in the form of incentives and subsidies for local retailers to stock healthier foods (e.g. refrigeration equipment, bulk purchasing, etc.) ● Support (policy/regulation change, partnership, incentives, shared locations space, market research and evaluation) for local retailers to advertise/promote healthy foods and organize cooking demonstrations/other in-store events ● "Healthy Checkout Aisles" - policy that all grocery stores provide healthy checkout aisles for customers ● Vouchers and incentive programs through employers, health insurance, and community government (city, municipality, county, state) for free fruits/vegetables ● Food financial counseling - cooking demonstrations and other in-store events that focus on preparing affordable healthy meals ● Financial counseling/education curricula linked to food consumption, purchasing, and health outcomes ● Policy requiring nutritional information and warning labels on sugar-sweetened beverages with the respective health outcomes they affect (tooth decay, obesity and diabetes)

Focus Area D. Asthma Management and Control

Outcome Goals:

Decrease rates of hospitalization and ED visits for asthma
Decrease disparity of asthma ED admissions among Non-Hispanic Blacks and Non-Hispanic Whites
Decrease number of missed school days for asthma

Decrease rate of lost work days for asthma

Bucket 1 - Traditional Clinical Prevention - Strategies

Clinical asthma management: Disseminate/support	Health care providers: ● Adoption of common, evidence-based guidelines for asthma medical management ● Referral training and resources for primary care physicians

Bucket 2 - Innovative Clinical Prevention - Strategy

School-based programs and home visiting programs	Schools: ● Screening and referral training to nurses in school-based health centers Child care centers: ● Screening and referral training policy for child care centers, parent education and reinforcement programs Community based organizations and healthcare entities: ● Home visits for environmental assessment (ensure culturally-sensitive, bilingual professionals) and education programs

Bucket 3- Total population or community wide prevention - Strategies

Home assessments/home remediation	Deployment in response to utilization patterns and geocoding of asthma rates Use of community health workers to conduct home assessments Payment by payers/providers for home remediation
Elimination of secondhand smoke exposure	Community at large (policy): ● Enforcement of Clean Air Act, especially with regards to second hand smoke ● Smoke-free housing developments and public spaces (community centers, parks and rec, etc.) ● Emissions standards for school buses
Removal of financial barriers	Insurers (Private, Medicaid, Medicare): ● Remove copayments for asthma prescriptions and inhalants ● Reimbursement for community health worker/community health professionals providing self-management education, home remediation, and other environmental remediation

Priority 2: Substance Use Disorder

Focus Area A. Prevention of Substance Use Disorder and Addiction; Prevention of Misuse and Overdose

Outcome Goals:

Decrease percent of high school students reporting alcohol and/or drug use in the last 30 days
Decrease rate of alcohol and drug-related ED visits and admissions
Increase access to addictions health providers across the State, geographically
Decrease number of deaths due to overdose

Bucket 2 - Innovative Clinical Prevention - Strategies

Peer to peer prevention substance use disorder prevention programs	Health care entities: ● Increase presence of peer to peer counselors and programs for opioid use and addiction in Hospital EDs ● Train health care providers in referral to peer to peer counseling programs, and incentivize referral
Strengthening/leveraging of prescription drug monitoring program(s)	Health care providers/Health care entities: ● Requirements for providers to check Prescription drug Monitoring Programs (PDMP) before prescribing controlled substances ● Quantity limits of controlled dangerous substances ● Integration of PDMP data into EHRs ● Interoperability of PDMP with other states ● Proactive analyses and reporting to licensing boards and/or law enforcement of violations of controlled dangerous substance prescribing

Bucket 3 - Total Population or Community Wide Prevention - Strategies

Community prevention/community mobilization for prevention	Schools: ● School-based programs, targeted for specific audience (middle school students, student athletes, parents, staff, etc.) Community at large: ● Community awareness campaign with focus on design of communications/prevention campaign involving addictions and substance use community ● Community mobilization: Youth groups, faith groups, support systems for ongoing support systems and prevention programs ● Crowd source surveillance of stores selling alcoholic

	products to minors and inappropriate advertising locations
Policy changes and maintenance	Community at large: ● Ban on synthetic drugs ● Increase tax on alcoholic beverages
Provider education, protocols, and policy	Health care providers: ● Education/protocols for opioid prescribers ● Education/protocols for non-opioid pain management ● Policy and regulation of prescription drug monitoring program use
Pain management	Insurers (Private, Medicaid, Medicare): ● Insurance coverage for alternative treatment approaches for acute and chronic pain
Public safety strategies	Community at large: ● Safe locations for return of unused medication State: ● Data sharing across agencies - law enforcement, health care, social services Health care entities/health care providers/State: ● Monitoring of prescribing patterns to target overprescribers

Focus Area B. Prevention of Deaths Due to Overdose
Prevent deaths due to overdose through training and distribution of naloxone

Outcome Goals:
Reduce total number of deaths due to overdose
Increase access to naloxone
Increase number of referrals to bueponepherine, methodone, and suboxone programs.
Increase number of substance use and addictions counselors, geographically

Bucket 3 - Total Population and Community Level Prevention - Strategies

Naloxone program(s)	Community at large/Health care providers: ● Awareness campaign: Don't Die Campaign ● Training programs: Staying Alive Program ● Training of law enforcement, emergency providers, family and friends for distribution and use of naloxone

Community	Community at large:

mobilization/engagement	● Ongoing participation in outreach and education to further encourage training and distribution of naloxone

Focus Area C. Expanded Access to Treatment and Supports for Long-Term Recovery and Well-Being: Service Capacity and Insurance Coverage

Outcome Goals:

Decrease admission rate of alcohol and drug-related ED visits and admissions
Decrease percent of high school students reporting alcohol and/or drug use in the last 30 days
Decrease recidivism rate documented by drug treatment facilities
Decrease arrest rates associated with illegal substance use
Increase number of substance use and addictions counselors, geographically

Bucket 2 - Innovative Clinical Practice - Strategies

Integration of behavioral health into broader continuum	Health care entities: ● Sobering Center ● Behavioral Health Urgent Care facilities to be utilized for stabilization, medication management, and/or linkage to treatment Insurers (Private, Medicaid, Medicare): ● Insurance coverage assured for newly-released, ex-offenders to receive behavioral health services and extended case management services ● Medicaid coverage for intensive outpatient services and residential rehabilitation for substance use conditions ● Case management reimbursement to support buprenorphine model ● Case management reimbursement to maintain continuity/ongoing support for those transitioning levels of care
Supportive housing models	Community at large/State Agency: ● Housing First model ● Temporary and permanent housing models with supportive services
Long-term support services	Health care entities: ● Coverage of peer supports/Certified recovery advisors ● Telehealth infrastructure, coverage supports, and policy support and protection ● Case management, as needed

Treatment capacity to support recovery	Insurers (Private, Medicaid, Medicare): ● Increased reimbursement to support behavioral health providers and case management in networks ● Integration of pharmacologic treatment and behavioral therapy into primary care and ED-based services
Outcomes monitoring/Program evaluation by the State	Health care entity/health care providers: ● Dashboard of quality outcomes measures and performance targets for opioid disorders; systematic tracking of impact and availability of pharmacologic treatment (adherence; relapse)

Focus Area D. Road Safety, Prevention of Alcohol Related Accidents

Outcome Goals:

Reduce the number of alcohol-related crashes involving youth and young adults, ages 16-25
Reduce the number of alcohol-related crashes among older adults
Reduce the number of youth, ages 12-20, reporting past month alcohol use
Reduce the number of youth ages 18-25 reporting past month binge drinking

Bucket 3 - Total Population or Community Wide Prevention - Strategies

Policies, law enforcement and education	Community at large: ● Enforcement of impaired driving laws (ignition interlocks, other) ● Sobriety checkpoints ● Strengthened prosecution of impaired driving cases ● Technologies to support countermeasures ● School-based prevention programs ● Media programs ● Alcohol screenings and brief interventions ● Enhanced driver education

Priority 3: Mental Health

Focus Area A. Screening, Early Identification and Intervention

Outcome Goals:

Increase number of healthcare providers trained and using Screening, Brief Intervention, and Referral to Treatment (SBIRT)
Increase number of substance use and addictions counselors, geographically
Reduce acute care admission rates and ED visits for mental health
Decrease percentage of adults with reported unmet mental health needs
Decrease percentage of those who self-report mental health status as “not good”

Buckets 1 - Traditional Clinical Prevention & Bucket 2 - Innovative Clinical Prevention - Strategies

Screening resources	Healthcare providers/Health care entities: ● Primary care-based service model: SBIRT in physician offices, University-based health centers, Planned Parenthood sites, FQHCs ● Screening and early intervention in PCP offices (Maternal depression, general screening, etc.) ● Child development specialist embedded in.to pediatric practices for screening/referral of maternal depression
Emergency care providers screening and referral training	Health care entities: ● Training to provide assessment and linkage to substance use services and support services; training of providers in Hospital Emergency Departments and Urgent Care Centers and for first responder roles ●
Mitigation facilities	Healthcare entities: ● Sobering Center(s) within Urgent Care centers to provide well-resourced setting to assess/manage episode and refer patients to follow-up services ● Behavioral Health Urgent Care
Integration of early intervention in continuum of care	Health care entities: ● Integration of pharmacologic interventions and case management in primary care, ED and acute care setting ● Behavioral health medical homes Insurers (Private, Medicaid, Medicare): ● reimbursement to support initiation of medication assisted treatment (MAT) and case management Schools: ● School-based health centers: Expanded mental health services
Medical respite	Community at large: ● Care for mental health patients with unstable housing ● Temporary, safe, supervised setting post-discharge for those with severe mental health problems

Focus Area B. Supports to Promote Well-Being and Community-Based Living

Outcome Goals:

Reduce acute care admission rates and ED visits for mental health
Decrease percentage of adults with reported unmet mental health needs

Bucket 2 - Innovative Clinical Prevention - Strategies

Ongoing supports	Community at large: ● Telehealth in private home ● Supportive housing models ● Volunteer networks ● Behavioral health urgent care centers ● Vocational programs/Day programs

Priority 4: Seniors

Focus Area A. Seniors at Home with Multiple Chronic Conditions

Outcome Goals:

Reduce potentially avoidable hospitalization of seniors with multiple chronic conditions
Improve caregiver satisfaction and compensation
Reduce rates of long-term institutionalization
Reduce total costs of care for the senior population

Bucket 2 - Innovative Clinical Prevention - Strategies

Home-based primary care and care coordination	Health care entities/ health care providers: ● Home-based primary care ● Use of paramedics for home visiting ● Care coordination and referral
Home nutrition services	Health care entities/Community based organizations: ● Nutritional counseling ● Meal preparation and delivery

Home-based support services	Community at large: ● Personal care/chore services ● Education: Self-care sessions ● Transportation ● Exercise and falls prevention ● Caregiver support services ● Home-based technology for communications with care coordinator
Workforce development	State: ● Workforce planning to meet gaps, in context of the shift of services from hospital to home

Bucket 3 - Total Population or Community Wide Prevention - Strategies

Programs in senior housing developments/assisted living facilities	Community at large: ● Home visiting programs: Paramedics ● Central telehealth center, with support
Senior centers: Funding	Community at large: ● Additional senior centers ● Transportation to centers ● Concentration of services/resources at senior centers

Focus Area B. Dual Eligible

Outcome Goals:

Reduce potentially avoidable hospitalization of dual eligible
Reduce rates of long-term institutionalization
Reduce total costs of care for the dual eligible population in Maryland
Improve beneficiary satisfaction over the long-term

Bucket 2 - Innovative Clinical Prevention - Strategies

Care coordination	Health care entities/health care providers: ● Enrollment in care coordination program specific to level of need ● Beneficiary satisfaction surveys/interviews to assess needs/satisfaction level ● Relationship strategies/supports for primary caregiver

Focus Area C. Nursing Home Patients

Outcome Goals:

Reduce falls in nursing homes
Reduce potentially avoidable admissions
Maintain functional status for higher percentage of patients

Bucket 2 - Innovative Clinical Prevention - Strategies

Implement INTERACT (Interventions to Reduce Acute Care Transfers)	● Quality improvement program that utilizes a set of evidence-based and expert guideline recommended tools and strategies to improve care of nursing home residents with acute changes in condition
Clinical resources	Health care entities: ● Evidence-based nursing home staffing models and protocols for improved health stats (e.g. SNF) ● Telemedicine capabilities for consultation services
Patient and family education	Community at large: ● Self-care/self-management at discharge ● Discussion of end of life/palliative care

Focus Area D. Falls Prevention

Target Outcomes:

Reduce injury rate due to falls
Decrease frequency of second fall

Bucket 2 - Innovative Clinical Prevention - Strategies

Home-based programs	● Home assessment, individualized education ● Exercise programs to strengthen body and prevent injury (home-based; community-based; senior housing buildings
Nursing home programs	● Assessment, awareness and education for providers and patients ● Active role for pharmacists in falls prevention

Bucket 3 - Total Population or Community Wide Prevention - Strategies

Incentive programs for nursing homes to reduce injury rates	● Quality standards and financial incentives for improved patient safety performance

Priority 5: Children and Adolescents

Focus Area A. Early Childhood and Adolescent Health/Mental Health

Outcome Goals:

Reduce the cumulative number of ACE scores
Reduce the rate of STIs in adolescent age cohort
Reduce the percentage of adolescents reporting sadness/hopelessness in prior 30 days
Reduce the rate of mental health admissions and ED visits for children and adolescents
Reduce the rate of children testing positive for lead poisoning
Reduce the rate of pediatric PQIs among children and adolescents
Increase the rate of school readiness

Bucket 1 - Traditional Clinical Prevention - Strategies

Early childhood assessments/supports	● Home visiting program ● Maternal depression: Assessment/referral at well-child visits

School-based health centers as medical homes	● Expanded clinical services/manpower
	  ● Mental health services: Screening, referral and counseling
	  ● Reproductive health, including teen pregnancy prevention and access to birth control
	  ● Mobile dental vans
	● Training of teachers to identify vision problems and support for parents to obtain glasses/treatment
	● Telemedicine capabilities
	● Evaluation of acute and chronic conditions
	● Mental health counseling
	● Expanded hours and expanded scope to provide
	  ● After school access
	  ● Medical-legal clinic
	  ● Social services
	● SBHC's as medical homes

Healthy teens and young adult clinics	● Include routine GYN care, STD screening/treatment, HIV testing and counseling, special programs for young men, sports physicals ● Prevention of unintended pregnancy: Coverage/reimbursement policies

Bucket 2 - Innovative Clinical Prevention - Strategies

Child care centers: Parent programs *Early childhood education*	• Health promotion programs after-hours for parents • Assess capacity (# slots) and community need • Recreation centers, with enriched programs/services • Lead remediation program: Sustain

Bucket 2 - Population or Community Wide Prevention - Strategies

Prevention and child/adolescent development	• Positioning of legal resources in high volume clinical settings • Pre-K, early childhood education: expanded capacity and financing • Recreation center programs, community centers and/ • Service learning programs: pregnancy and STIs • Youth mentorship programs • Dropout prevention programs through vocational training and/or remedial education, jointly supported by businesses and communities • Cultural and linguistically appropriate programs

Focus Area B. Teen Births and Infant Mortality

Outcome Goals:

Reduce teen birth rate
Reduce infant mortality rate

Bucket 2 - Innovative Clinical Prevention - Strategies

Teen pregnancy Initiatives	• Operations in Baltimore City • Strategy development for rural counties and other jurisdictions
Health pregnancy supports	• Comprehensive clinic for pregnant and parenting teens • Smartphone Apps to support compliance/adherence/keeping appointments • Promotion of full-term births and use of progesterone
Home visiting programs for first-time at risk mothers	• Home visiting programs in Baltimore

Bucket 3 - Population or Community Wide Prevention - Strategies

Medical-legal partnerships	• Position professionals in high volume clinics characterized by housing, family, other issues requiring legal services

Focus Area C. Teen Violence Prevention

Outcome Goals:

Decrease the rate of juvenile homicide and non-fatal shooting victims
Decrease the ratio of juvenile diversion to arrest ratio
Decrease the recidivism rate among adolescents

Bucket 2 - Innovative Clinical Prevention - Strategies

Trauma identification and support	• Training across agencies - - Health Department, Schools, Social Services, Police, Juvenile Justice - to recognize trauma and offer support
School-based social and emotional instructional programs	• Positive Behavioral Interventions

Bucket 3 - Total Population or Community Wide Prevention - Strategies

Community-based violence prevention programs	• Safe Streets / Cure Violence programs • Mentoring programs for at-risk youth •
Youth development and job training: Funding	• Recreation centers/programming • Summer jobs programs
Community support to families	• Teams of religious leaders, community leaders and mental health counselors to provide support to families who are affected by violence

Population Health Improvement Plan: Net Savings Analysis Example

A set of strategies for each focus area is outlined based on evidence of success and/or suitability to the Maryland environment and challenges. At this time, it is not appropriate or clear which localities would be likely or able to mobilize which initiatives, nor have program budgets been documented for each initiative. However, the plan includes a high level examination to assess selected program initiatives in terms of operating costs and estimated savings, from utilization reductions, projected. This high level return on investment assessment examines those initiatives with (1) relatively defined investment costs, (2) measurable outcomes, and (3) evidence to demonstrate that outcomes can be measured within a 1-2 year period. Capital costs that may be associated with launching a program are not considered here; instead, this net savings analysis is designed to show a near-term cost benefit relationship, i.e. the relationship of operating costs to generated savings based on evidence from the literature and discussions in the field. Additionally, the net savings analysis looks to provide perspective on population health improvement investment and all returns are displayed in a range, noting the variability of the return based on the different elements (number of participants in the initiative, already existing investment, concentration of population, etc.).

Approach - To estimate net savings for each initiative, the cost of the project/intervention was examined as reported in case studies or literature and, where available, the benefits yielded in terms of reduced healthcare spending that occurred in the first year of program operation. In general, these studies were based on short-term horizons, and the longer-term benefits were generally not estimated. Consistent with this fact and with the data made available, our analyses estimate the benefits for a comparable period of time for each of these initiatives. Therefore, our presentation must be recognized as limited to a short-term cost-benefit assessment. Clearly, this analysis is limited in its time horizon and does not fully reflect the longer-term savings that may be associated. Rather the analysis is intended to highlight the compatibility of the strategies, outlined through the prioritization framework, to contribute to the long term fiscal goals and achievements of the All-Payer Model.

Traditional return on investment calculations measure benefits and costs for specific investment initiatives where benefits can be estimated over the life of the investment, costs can be quantified for the investment, and the timing, risk, and variability of the cost and revenue streams is taken into account. In this analysis, we collected evidence from Maryland hospital data and broader health services research literature to reflect the benefits associated with specific initiatives as well as the direct and indirect costs to undertake these investments. In some areas, the concepts are general and data are not available to provide convincing estimates for specific efforts. In those instances, we reviewed literature for comparable projects from other states and localities to gain information for similar or related activities. Together, this produces a ratio of net savings to dollars invested to provide a standard metric across priority areas, to be interpreted as savings per dollar invested. We state the savings as a ratio of net savings to dollars invested to provide a standard metric across priority areas. *Stated simply, the summary presents the expected annual benefits of an intervention compared to the costs of implementing the program.* When net savings are positive, it suggests that the benefits exceed the costs of the program and the ROI for the investment would be positive. When net savings are negative, costs exceed benefits and the ROI would be negative.

Summary presentation – The table which follows presents a summary of the evidence available for selected strategies. It is intended to consider through example the return on investment complement or

filler the strategies may provide by preventing high utilizers from occurring and reducing rising risk individuals.

Limitations of the analysis - It is important to recognize the limitations of this analysis. First and foremost, it is critical to note that ROI is only one of a number of issues for consideration in selecting projects. Other policy goals such as the desire to reduce disparities may favor some interventions with a low ROI relative to a high ROI project that does not achieve this goal or perhaps increases disparities. Policymakers must view the totality of the circumstances to make an informed decision. Second, high ROI initiatives that are small in scope, for example, may yield fewer total dollars in return relative to a lower ROI initiative that affects a larger population. Third, high ROI may also reflect higher risk so that the net benefits are more variable or uncertain. The levels of risk are not generally documented consistently in the health services literature to allow comparison across competing interventions. Fourth, this analysis draws its assumptions from case studies and experience described in the literature. As such, a number of points must be acknowledged:

- Some initiatives may be more readily adopted in Maryland, with results replicated, while other initiatives may be less readily adopted. In this analysis, initiatives have been selected with the assumption that they are suitable and should be effective in Maryland, but results in other markets may/may not be "translatable."
- Program results are heavily dependent on the participant profile. In many case, the magnitude of change is tied to participation by a high utilizer population that presents huge opportunities for improvement.
- Published case studies clearly weigh toward "success stories" vs. ineffective programs. The investment risk, therefore, is difficult to measure and apply to the analysis.

Finally, it is important to emphasize that *this assessment does not include the major investments that are anticipated in community awareness campaigns, health education, community mobilization and outcomes reporting.* This is not to suggest that these investments do not yield significant returns on investment in terms of health improvement and utilization reductions. However, cost-benefit analysis of these initiatives is complicated by the timing of the return on investment and the challenge of attributing health outcomes to these broad-based activities, themselves, alongside so many other factors impacting health status.

	Focus Area	Strategies	# Patients	Cost	Gross Savings	Net Savings	ROI	Savings Type	Notes
1 Chronic Disease Prevention & Management									
A	Obesity prevention and management	• Food access in food deserts • School-based policies and programming • Neighborhood campaigns to promote physical activity	Limited evidence of any sustained ROI						
B	Tobacco free living *http://www.cdc.gov/coordinatedchronic/pdf/tobacco_cessation_factsheet_508_compliant.pdf*	Coverage and access to tobacco cessation programs	7,800 *Estimated 78K adult Medicaid smokers Assume 10% enroll (n=7,800)* 7,800	$1,427,400 *Program cost in MA = $183/participant OR* $2,137,200 *$20,558,500 / 75,000 persons = $274/participant*	$4,453,800 *MA reported savings of $571/participant* *Applied to all partipants = $4.5M* *Applied to 26% who quit = $1.2M* $1,157,988	$3,026,400 ($979,212)	2.1 (0.5)	Hospital	From FY 2007 to 2009, 40% of MassHealth's smokers (75K people) participated in the program. Total costs were $20M (treatment) and $558K (outreach). The smoking rate declined from 38% in 2006 to 28% in 2008 (26% decrease in first 2 ½ years). Researchers used claims data to compare the probability of hospitalization before and after use of the benefit and found a 46% decrease in hospitalizations for heart attacks and a 49% decrease in hospital stays for other acute heart disease. When evaluating ROI, researchers used a cost of $183 per participant (BRG notes that $20,558,000 divided by 75K participants equals $274/participant). Using a ratio of $183 in costs and $571 in annual hospital savings, the net ROI was $2.12.

	Focus Area	Strategies	# Patients	Cost	Gross Savings	Net Savings	ROI	Savings Type	Notes
C	Diabetes disease prevention *https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/ActuarialStudies/Downloads/Diabetes-Prevention-Certification-2016-03-14.pdf*	**MEDICARE**: Coverage and access to community-based DPP programs and other prevention and health promotion programs	5,000 *488K adult MD residents with pre-diabetes, 10% of whom are diagnosed (n=49K)* *Assume 10% enroll*	$2,250,000 *Maximum payments in Year 1 were $450/enrollee if all sessions attended and all weight loss goals achieved*	$10,600,000 *Gross savings of $2,650 for first 5 program quarters or $2,120 for 4 quarters*	$8,350,000	3.7	TCOC	**Medicare (Y-USA DPP)** RTI showed statistically significant gross savings in total costs in each of the first five quarters of the program, totaling $2,650. The analysis also showed aggregate savings for quarters six through eight combined, but this amount was not statistically significant. The report also showed significant reductions in inpatient hospital admissions. Although the savings estimates in early quarters look promising, there are limitations to these evaluation results.
		COMMERCIAL: Coverage and access to community-based DPP programs and other prevention and health promotion programs	5,000 *488K adult MD residents with pre-diabetes, 10% of whom are diagnosed (n=49K)* *Assume 10% enroll (n=4,900)*	$1,000,000 *$200/enrollee*	$1,000,000 *Medical spending reduction equal to investment*	$0	0.0	TCOC	**Commercial Population** A large national carrier with a recognized DPP provided the CDC with evaluation results from the first 3 years of the intervention. The carrier spent nearly $200 per person, and the medical spending reductions were nearly that amount over the 3 years evaluated. Therefore, the DPP is expected to break even in program year 4. The spending reductions achieved for the participants aged 55 or older were slightly higher than the average for the entire group. In addition, the carrier noted that the savings were significantly higher for the participants who achieved the 5-percent weight-loss goal.

	Focus Area	Strategies	# Patients	Cost	Gross Savings	Net Savings	ROI	Savings Type	Notes
D	Asthma management *http://www.nchh.org/Portals/0/Contents/Asthma-Home-Visits--Case-Studies_%20July-2014.pdf*	• School- or home-based education in self-management • Home assessments/home remediation	2,448 *2,448 pediatric asthma patients with bedded stays* 2,448	$6,915,600 *$2,825 per enrollee* $3,392,928 *$1,368 per enrollee*	$9,368,496 *$3,827 per enrollee* $ 5,427,216 *$2,217 per enrollee*	$2,452,896 $2,034,288	0.4 0.6	Hospital Hospital	Boston's Community Asthma Initiative program cost $2,825 per child but the savings from reduced hospitalizations and ER visits came to $3,827 per child (2005). http://www.theatlantic.com/health/archive/2012/04/a-shining-example-of-healthcare-that-works-home-visits-for-asthmatic-kids/256215/ Baltimore's Reducing Asthma Disparities (RAD) program reported costs of $1,386 per child and hospital savings of $2,217 (inpatient and ED)
2 Substance Use									
A	Prevent addiction through education and early intervention	Sobering center	16,000 *ER visits in Baltimore for substance use*	$3,800,000 *Per Behavioral Health System Baltimore (BHSB) needs operating costs = $3.8M (does not include $3.6M in capital costs)* *Assume the cost if fixed to put in place the intervention, no matter the efficacy.*	$7,024,000 *Avg charge of $878 per ER visit. BHSB estimates 50% of ER visits are avoidable. If all avoidable visits are avoided: 8K visits @ $878 each = $7M* *$3,512,000* *If only half of avoidable cases were avoided: 4K visits @ $878 each = $3.5M*	$3,224,000 ($288,000)	0.8 (0.1)	Hospital	

	Focus Area	Strategies	# Patients	Cost	Gross Savings	Net Savings	ROI	Savings Type	Notes
B	Prevention of deaths from opiate overdose	Naloxone programs	$25 per kit ($15 drug/components & $10 staff/distribution costs) to prevent death due to opiate overdose						
C	Supports for long-term recovery and well-being	Supportive housing	200 *200 high utilizer Medicaid/ uninsured substance use patients with total 3,348 bedded stays and charges of $55M*	$4,000,000 *Annual costs for supportive housing have been reported at $10K - $25K per year per resident* *$20K x 200 people = $4M*	$15,846,385 $8,196,406* *Average charge per hospital stay = $16,321 x 971 hospital admissions (29% reduction from 3,348)* **Assumes 15% reduction*	$11,846,385 $4,196,406*	3.0 1.0*	Hospital	Chicago Housing for Health Partnership: 29% decline in admissions (study conducted from 2003-2006)
		Short-term medical respite for wound care, etc.	50 *6 bed facility w/ ALOS of 6 weeks per person*	$219,000* *$100 per bed per day* **Montefiore cited $75*	$503,550 *Save 3 hospital days x 50 people @ $3,357/day = $500K*	$284,550 $339,300** **At cost cited by Montefiore	1.3	Hospital	
D	Road safety	Existing strategies and funding to support Maryland's goal to reduce alcohol-related crashes among age 16-25 year olds.		$ -	$412,500	$412,500			
3 Mental Health									

	Focus Area	Strategies	# Patients	Cost	Gross Savings	Net Savings	ROI	Savings Type	Notes
A	Screening, early identification and intervention	• Resources in primary care setting • Mental health resources in SBHCs or via telehealth	Unlikely to produce ROI on its own, but is a critical activity to identifying individuals who need short- or long-term supports						
B	Promote well-being through community based living	Integrated primary care/BH care (behavioral health home)	5,000	$5,000,000 *Cost/patient $1000* *$2,610,000* *Cost of study intervention in 2000 was $522/patient*	$ 7,500,000 *Gross annual savings/patient $1,500* *$4,200,000* *4 year savings in early 2000s was $3,363 in original study, or $840/year)*	$2,500,000 $1,590,000	0.5 0.6	TCOC	Am J Manag Care. 2008;14:95-100), Long-term Cost Effects of Collaborative Care for Late-life Depression
4 Seniors									

	Focus Area	Strategies	# Patients	Cost	Gross Savings	Net Savings	ROI	Savings Type	Notes
A	Seniors at home with multiple chronic conditions	Nutritional support	1,690 *169K Medicare or dual eligible patients* *Assume 1% need nutritional support*	$4,394,000 *Meals on Wheels (2 meals/day 5 days/week) @ $10/day*	$4,043,400 *Average charge per beneficiary = $23,925, or $40.3M for 1,690 enrollees* *10% reduction in charges = $4M*	($350,600) Results range from $315,608 with a support need of 0.9% to $385,743 with a support need of 1.1%	(0.1)	Hospital	
		Home-based primary care (Independence at Home)	1,690 *169K Medicare or dual eligible patients* *Assume 1% meet eligibility requirements (n=1,690)*	$ -	$7,233,200 Average annual savings in Year 1 across 17 plans were $4,280 per person	$7,233,200* Actual results could range from ($6M) to $22M by applying the 2nd "best" and "worst" results to 1,690 enrollees		TCOC	Year 1 results ranged from an annual loss of $5K per beneficiary to a savings of almost $14K per beneficiary.https://innovation.cms.gov/Files/x/iah-yroneresults.pdf Year 2 results were less favorable. Target spending levels were reduced by 9 – 25% and actual costs ranged from an increase of 1% to a decrease of 20%. https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2016-Fact-sheets-items/2016-08-09.html

	Focus Area	Strategies	# Patients	Cost	Gross Savings	Net Savings	ROI	Savings Type	Notes
C	Nursing home patients	Implement INTERACT (Interventions to Reduce Acute Care Transfers) in nursing homes		$4,600,000 *Cost per NH in 2009 was $15.4K so we assumed $20K x 230 NHs in MD*	$35,000,000 *Study estimates savings of $1,250 per NH bed x 28K beds in MD = $35M*	$30,400,000	6.6	Hospital	http://www.commonwealthfund.org/publications/in-the-literature/2011/apr/reduce-hospitalizations-nursing-homes
				$4,600,000 *Cost per NH in 2009 was $15.4K so we assumed $20K x 230 NHs in MD*	$20,610,000 *Estimated hospital charges for NH admits = $687M* *Study cited a 24% reduction in admissions from "engaged" NHs and 6% in those "not engaged" vs. 3% drop in control group* *3% of $687M = $20.6M*	$16,010,000	3.5	Hospital	

	Focus Area	Strategies	# Patients	Cost	Gross Savings	Net Savings	ROI	Savings Type	Notes
D	Falls prevention	• Home-based assessment and education • Exercise programs to strengthen body and prevent injury	10,000	$5,000,000 *$500/enrollee for home assessment and PT*	$4,500,000* $6,750,000 *30% will fall in any given year = 3K* *Evidence shows 22-30% reduction in falls* *20% of 3K falls = 600 falls avoided* *ER visits @ $3K each & 100 admissions @ $30K each* **20% avoided* ***30% avoided*	($500,000) $1,750,000	(0.1) 0.4	Hospital Hospital	https://wisqars.cdc.gov:8443/costT/cost_Part1_Finished.jsp
5 Children & Adolescents									

	Focus Area	Strategies	# Patients	Cost	Gross Savings	Net Savings	ROI	Savings Type	Notes
A	Youth health/mental health	SBHCS: • Expanded clinical services/manpower • Telemedicine • Expanded hours	106,611	$970,000 *Assumed 10% increase to SBHC budget*	$1,738,138 *Baseline hospital spending of $174M on Medicaid patients age 5-19 excluding maternity, cancer and congenital anomalies* *1% of baseline spending = $1.7M* *At 0.9% of baseline = $1.6M*	$768,138 $594,324	0.8 0.6	Hospital	$7M in total funding in 2006 was inflated by 3% per year to estimate $9.7M in 2017
C	Teen violence prevention	Safe Streets/Cure Violence program, with requirement to evaluate impact, by community	Limited evidence of any sustained ROI						

Future Design Work for Population Health Improvement

As Maryland advances into the next generation of health promotion, Maryland will implement provider-level initiatives, community-level initiatives and broad-based population-level initiatives. As such, Maryland will draw on many if not all of the financing sources to reflect the scope of activity. The different financing sources will also reflect expectations for return on investment timelines. Different financing sources are likely to be used to support initiatives with near-term, mid-term, and long-term return on investment projections, and to support pilot programs versus established programs. This is referred to as a balanced portfolio.

Future work considers the suitability of each financing model within context of the Maryland environment. It seeks to comprehensively assess the existing investments in population health improvement strategies, as defined by the priorities of the prioritization matrix framework, and looks to explore how to leverage those existing investments, establish new financing mechanisms, and govern the braided investments towards the long term priorities and goals of the All-Payer Model. This work culminates in a deliverable of a balanced portfolio that comprehensively outlines the financing model options, the feasibility and sustainability of different models for different population health improvement initiatives, and a process by which to consider implementation and governance of the financing models.

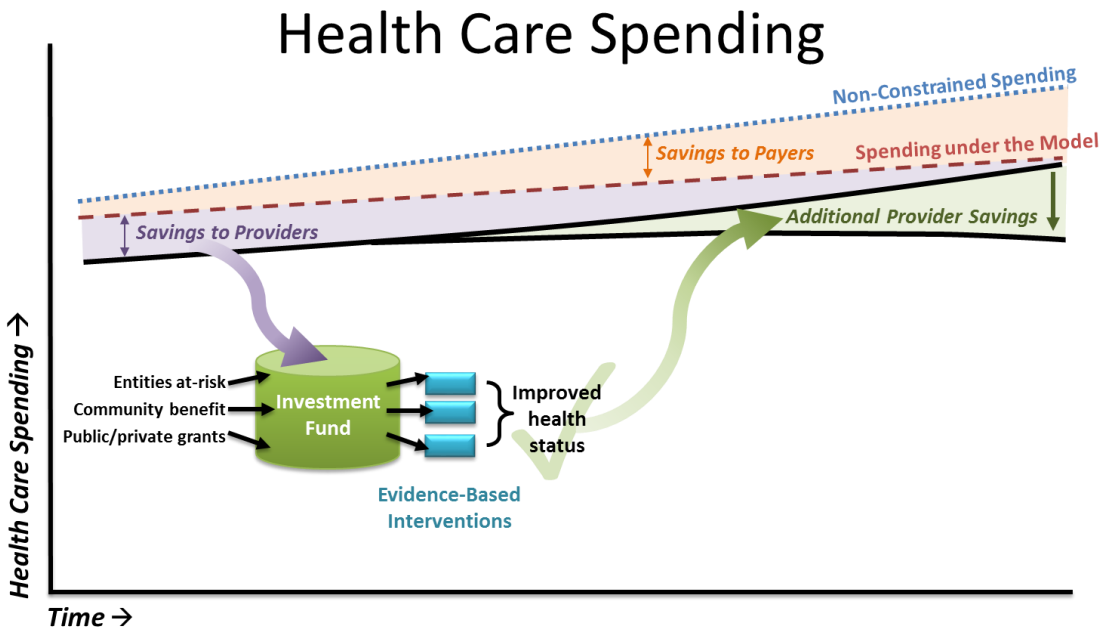
This design work looks to begin positioning the conversation around investment in the long-term, broad-based population health improvement initiatives that are less likely to have a near-term return. For efforts that have long-term yields, or where the returns on investment are too diffuse for direct benefits to accrue to the hospital or to its partners directly, other funding mechanisms may be required. A process for assessing financing sources for population health improvement and prevention activities is outlined below and proposed as future design work due to the nuance and technical analysis required in order to make recommendations for financing solvent to the Maryland context. It is understood that each potential funding source differs along a number of dimensions, including source of funds, political/community support for allocating these funds, and implications for who has a stake in the return on investment. The potential sources listed below are not exhaustive, are not listed in any particular order, and do not presume the likelihood of use or magnitude of funding – those are items to be discussed by stakeholders and choices to be made policymakers and stakeholders based on this future work including thorough consideration of the amount of funding required, return on investment mapping, along with the impact of using those funding sources - i.e., feasibility, sustainability, and economic viability.

This future design work proposes that the below potential financing models be considered as financing models for the five priorities outlined in the prioritization matrix framework. The potential financing models are: hospital community benefit dollars, social impact bonds, pay for performance/success contracting, community development financial institutions funds, financial institutions, large employers, foundations and other philanthropic sources, and taxes. These financing models would be assessed within the Maryland context and within the framework of the prioritization matrix.

While the above listed financing models are possible methods of financing population health improvement projects, they will be explored assuming that they will operate in addition to direct public financing at the local, State, and federal levels of government. Because public funds are likely to be necessary for projects where the ROI is long term and sometimes uncertain or variable, this will be a key criterion in assessing the financing models feasibility and sustainability. Finally, all financing models and their

accompanying strategies will be evaluated for supportiveness of All-Payer Model and their ability to align and leverage current and ongoing infrastructure development.

Considering a multi-sectoral approach to financing population health will require a careful analysis of interaction with the current changes occurring within the health system in Maryland. The analysis will work through the complexities of current investments and potential opportunities for directing savings to improving population health over the mid to long-term. For example, there may be public funds generated by savings from successful population health improvement strategies that contribute by moderating growth in healthcare costs. For example, prior to the All Payer Model's implementation, unconstrained spending grew much faster than the model currently allows; the 3.58% cap on hospital spending is lower than the national rate of hospital spending per capita. This slower growth can be thought of as savings to Maryland health care payers. As Maryland moves to the second term of the All Payer Model in January 2019, providers will be taking on increased responsibility for the health of the population, care outcomes, and total cost of care. Aligned measures for population health and incentives for all providers are critical to ensuring further growth moderation in healthcare costs to sustain population health improvements through potential reinvestment. The diagram below provides a conceptual illustration of population health sustainability.



Financing models will be considered after assessing the magnitude and types of investments being made across Maryland within the five priority categories - chronic disease management & prevention, substance use, mental health, senior health, and youth health and wellness. Once a comprehensive understanding of the current investment, incentives, and measures being used for the five priority areas is completed, a feasibility study will be done for each of the explored focus areas within the five priority areas. This feasibility study orients to examine the feasibility of the proposed strategy and its accompanying outcomes based on its ability to address the five prioritization areas, current State-level investment, power mapping for investment, financial modeling for short-, mid-, and long-term return on investment (ROI), and sustainability of model given estimates of the population that each strategy could potentially for each strategy. This will culminate with a balanced portfolio of proposed financing models and an assessment of what strategies are most appropriately funded by a given financing model, the feasibility of the financing model, and the sustainability of it within the specified Maryland context.

Brief descriptions of the following financing models to be explored can be found below:

Hospital Community Benefits Dollars

Alignment of hospital's community health needs assessments (CHNAs) would be guided by the very same priorities and focus areas outlined in the prioritization matrix. Assessment of how to promote those goals through community benefit dollar allocation would be conducted in tandem with the hospital and would look to prioritize the appropriate populations.

Pay for Success/Social Impact Bonds

A unique alternative to finance limited, well-defined initiatives is known as a Social Impact Bond (SIB). Often referred to as a "Pay for Success" agreement, this model represents a performance-based contract that involves government, a private investor or Foundation, a social services provider and an external evaluator. It operates by having a government agency define an outcome (as is presented in the prioritization framework) it wants to see achieved relative to a specified population over a set period of time (e.g., reduce recidivism rate by 10% over 5 years among nonviolent offenders in the prison system). The government agency contracts with an organization that pledges to achieve the specified outcome(s), and the government commits to pay an agreed-upon sum of the organization is successful. The organization raises money from socially-minded investors to front the program costs; these operating funds are paid to the social service provider(s) that will provide the services. If the outcomes are achieved, the government agency pays the organization, and the investors receive a return on their principal. If the outcomes are not achieved, the government pays nothing. If the project exceeds performance targets, investors may earn a profit.

While referred to as "bonds," these financial deals operate as private loans, except that they are repaid only if specific measurable outcomes are achieved. The goal is to encourage private investors to fund proven social programs by providing upfront support to the programs that aim to improve long-term outcomes. If the program is successful, the government pays the investors back; if the program is not successful, then the investors absorb the cost and government pays nothing.

The Social Impact Bond model could be valuable to build long-term relationships across sectors within a region or to finance a focused initiative that is of interest to a specific community or population.

Community Development Financial Institutions Fund

The Community Development Financial Institutions Fund (CDFI Fund) provides another potential financing model for population health improvement. It originated in 1994 to support community development through loans and investments in minority and economically distressed communities; these investments are aimed at building business, creating jobs and revitalizing neighborhoods. More recently, it has come to focus on projects that improve health and reduce health care costs in low income neighborhoods, building a collaborative approach to community development finance and public health; as one industry representative stated, there is the recognition that "the goals of reducing poverty and improving health outcomes are mutually reinforcing." In several cases, the CDFI Fund has made available loans to distressed neighborhoods for major initiatives, and private foundations and the corporate business industry have then contributed to comprehensive neighborhood strategies. The investments generally require a return at a very low interest rate and must meet general community development guidelines.

Financial Institutions

The Community Reinvestment Act (CRA) also provides an opportunity for funding neighborhood development projects. The CRA is a series of federal statutes and regulations that require institutions holding FDIC-insured deposits to help meet the credit needs of the communities in which they operate, including entities and individuals from low and moderate income (LMI) neighborhoods. Activities that qualify for CRA credit include Public Welfare investments which are identified as investments that promote the public welfare by providing housing, service or jobs that primarily benefit LMI individuals. Also qualifying are community development projects that promote affordable housing and financing

activities that revitalize LMI areas. Maryland could work to design activities incorporating particular health improvement features consistent with the priority goals for the State.

Large Area Employers

Large employers may be willing to invest in health promotion initiatives to the extent that these initiatives are judged to impact absenteeism, performance level, disability claims and/or the ability to attract a skilled workforce. Clearly, employers who self-insure are more likely to be willing to invest in such efforts.

Foundations and Other Philanthropic Sources

Major initiatives are underway through foundations to provide significant funding and long-term commitment for neighborhood development projects designed around health improvement and economic development goals. Projects are focused on housing, transportation, land use, food systems and culture change to create "healthy space" and healthy lifestyles. Some foundations and philanthropies to consider are:

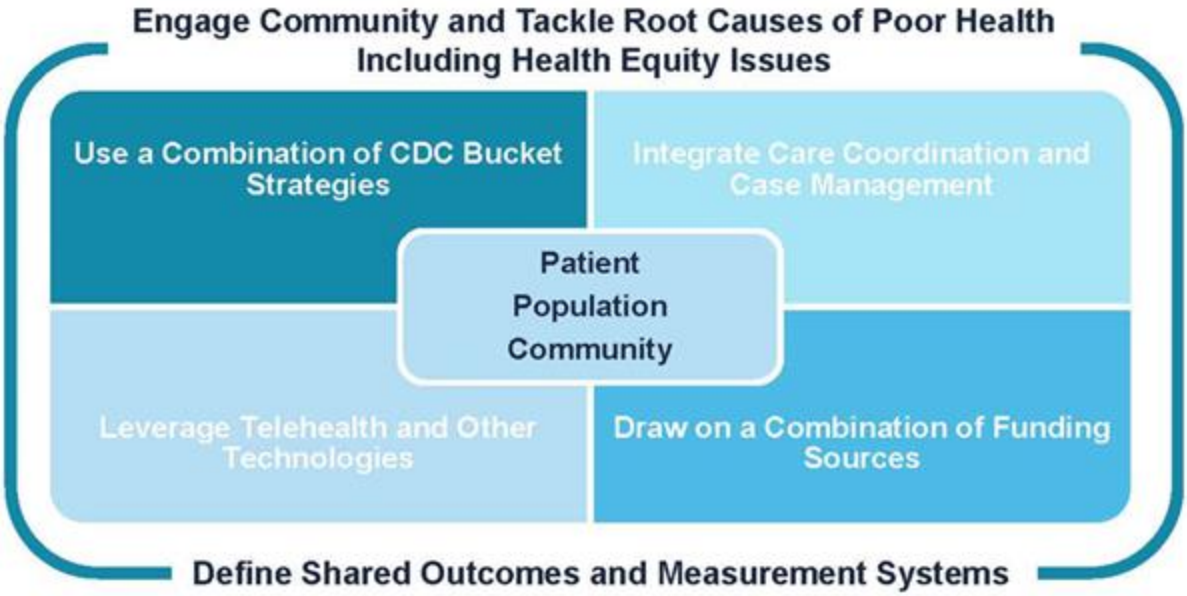
- Kresge Foundation
- Robert Wood Johnson Foundation
- Centers for Disease Control and Prevention (CDC) grant-funded initiatives
- Alliance for a Healthier Generation
- PEW Charitable Trust Resource
- Change Lab Resources
- Others

Taxes to discourage unhealthy behaviors

Another source of funds may be generated through prevention efforts themselves, aimed at discouraging unhealthy behaviors. An example would be taxes or fees imposed on the consumption, production, or distribution of products with known health risks such as tobacco, sugary beverages and alcohol. Clearly, this requires the political support and the community support to adopt, but in context of a broader-based campaign for healthy living and incentives tied to healthy behaviors, there may be the opportunity to implement this approach. A recent report documents that one-third of the general population's sugar consumption comes from soda consumption; this suggests a huge opportunity tied to reducing soda consumption and making real progress in obesity prevention through a population-based initiative.

Synthesis: Points of Emphasis and Vision for Implementation

In moving forward with population health improvement activities that are coordinated with the Model, the State should adopt a Health Improvement Plan that establishes shared goals and outcomes measures but allows localities to (a) identify the order of importance across these goals, (b) strategize, and (c) set targets utilizing the frameworks proposed. Based on data availability and based on community input, localities can determine what issues are most critical across these goals and what strategies will be most effective to improve the health of their local populations and achieve greater health equity.



With the adoption of the Priorities in this Population Health Improvement Plan, the State hopes to expand beyond a focus on serving high utilizers to the broader goals of population health improvement. This Plan will establish a structured and strategic framework approach for addressing community health improvement and looks to prioritize activity to support the goals of the All-Payer Model. Under the Population Health Improvement Plan, Maryland will look to steadily improve health outcomes against defined targets, assess the impact of change on the health system and on other sectors, and continually will evaluate the return on investment and community need. This approach will guide future decisions and encourage re-prioritization where and when appropriate. The overarching goals will remain the same: population health status improvement, health equity and engagement/empowerment in ongoing healthy lifestyle and behavior.

Appendices:

A// Maryland's Investment in Population Health Management

B// Hospital Utilization per Capita, by County in Maryland (CY2014-2015)

C// Community Benefits Spending by Maryland Hospitals (FY2015) in Maryland (CY2014-2015)

D// Maryland Population Health Summit Agenda

E// Maryland Population Health Summit List of Participants

F// Maryland Population Health Summit Results Post Summit Survey Analysis

H// Maryland Health Ranking Report – State of Maryland

I// Progress Measurement and Opportunities for Expanded Datasets

Appendix A: Maryland's Investment in Population Health Management

Maryland's Investments in Population Health Management

In the course of the last three years, the State of Maryland has introduced many patient-centered services and care management functions focused largely around high utilizers in need of "high touch" services; in addition, Maryland has built effective infrastructure to support population health management across the State. This has been accomplished through the efforts of public agencies, payers, and the provider industry. Major initiatives are identified below to highlight the effective base of operations upon which prevention initiatives can be built:

Patient-Centered Medical Homes

In 2011, Maryland launched a three year pilot study to test the PCMH model with 52 primary and multispecialty practices (The Maryland Multi-Payer Patient-Centered Medical Home Program, or MMPP). These practices include private practices and federally-qualified health centers located across the State, and Maryland law SB 855/HB 929 requires the State's five major insurance carriers of fully insured health benefits products (Aetna, CareFirst, CIGNA, Coventry and United Healthcare) to participate in the MMPP.

CareFirst's regional PCMH program is now one of the nations most mature and established large-scale medical homes programs. Nearly 90 percent of all primary care providers in the CareFirst service area - - including parts of Northern Virginia, the District of Columbia and Maryland - - participate in the program. Quality indicators are trending positively, and CareFirst members served by PCMH have continued to show lower utilization and below expected costs. The program has incorporated provider incentives (using cost, quality and engagement criteria), and 84 percent of participating panels in 2014 achieved savings for their members, as measured against the expected costs of care. [72]

Alongside the expansion of the CareFirst's PCMH model, a number of other provider-payer initiatives in Maryland are worth noting, models that have been designed around the medical home model:

- Comprehensive Primary Care Initiative (CPC+): CMS recently announced the opportunity for payers and providers across a large region to establish a 5-year payment model designed to support case management and many other features of the PCMH. While not selected as a participant, Maryland may be expected to implement a similar model (in terms of payment structure and incentives) to strengthen primary care and build toward more of an attribution model.

- Employer-sponsored medical plan: Habeo[73] is a collaborative medical plan for employers - - aimed at reducing costs for self-funded employers and their member employees - - that are designed around the patient-centered medical home model. Its medical plan also includes Clinical Health Coaches, care coordinators and wellness activities, and it incorporates incentive rewards for members who hit wellness milestones. Currently, this plan works with GBMC and MedStar Health providers, and serves a number of employee beneficiaries.

CRISP: Maryland's Health Information Exchange (HIE)[74]

Chesapeake Regional Information System for our Patients (CRISP) – The HSCRC has been responsible for planning, operations, and funding of CRISP as the sustained HIE infrastructure to support care delivery transformation, improved care coordination and health care cost reduction. Indeed, CRISP has been central to population health management efforts in Maryland, providing the critical functions of communications, data exchange, and shared care plans across providers. While at different stages of operation and development, CRISP is rapidly extending across the continuum, and CRISP continues to develop new functions and new capabilities for customized reporting. As a result, CRISP continues to fuel population health management efforts in the State of Maryland by facilitating (a) the shift of services to the community setting, (b) more effective care coordination and improved quality of care for patients, and (c) reduced costs of care through reduced duplication, greater efficiencies, and improved outcomes. CRISP now represents a national HIE model.

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72 CareFirst BlueCross BlueShield. (2015).

73 Retrieved from https://www.habeohealthplan.com/

74 Beginning in FY2015, CRISP-related hospital rate adjustments have been paid into an MHCC fund, and MHCC and the HSCRC review the invoices for approval for appropriate payments to CRISP. *See* Health Services Cost Review Commission (2016, May 11).

Beginning in FY2010, the HSCRC funded the general operations and reporting services of CRISP through hospital rates; in other words, CRISP operations have been funded through an assessment on Maryland hospitals.[75] In FY2016, CRISP was funded for $3.25 million (HSCRC, May 11, 2016).

Going forward, funding for CRISP has been separated into two distinct categories and two distinct funding sources to distinguish between:

HIE core operations/standard CRISP reporting services, associated with general rate setting, methodology and monitoring functions of the Commission (consistent with the functions represented by the funding/operations supported in the budget above), and
Integrated Care Network functions ("ICN activities"), representing HIE connectivity expansion and ambulatory integration, statewide infrastructure needs, and expanded reporting services

The HSCRC has approved funding for CRISP over several years and continues to do so, recognizing the return on investment that CRISP provides. The funding is to support HIE connectivity functions and standard CRISP reporting services for the Commission (consistent with the functions documented in prior years above) along with core functions and reporting services, including Integrated Clinical Network activities. As noted in its most recent Staff Report: "A return on the investment will occur from having implemented a robust technical platform that can support innovative use cases to improve care delivery, increase efficiencies in health care, and reduce health care costs."

Care Management for Dual Eligible[76]

The State of Maryland expects to submit a proposal to CMMI for approval to launch a dual eligible demonstration model designed to provide more effective care management for one of the highest utilizing payer populations. The total number of dual eligible in Maryland is approximately 126,000 people, with the current focus for this new initiative on the approximately 70,000 residents in the non-developmentally disabled dual eligible population. Expectations are that one of three models will be selected: a managed fee-for-service model, an ACO, or a capitated managed care model. It is too early to determine the level of risk that will be assumed, and what incentive models may operate.

Community Health Worker Models

Community health workers are being used by Maryland providers in various non-clinical roles to provide education, health system navigation/care coordination and counseling. Worth noting is the effective use of community health workers by the Health Enterprise Zone in West Baltimore - - where community health workers are used for outreach and education - - and by the Johns Hopkins Community Health Partnership (J-CHiP) in East Baltimore - - where community health workers provide health care education, home visits, counseling, care coordination, and linkage to resources for financial and social services.

This past year, the HSCRC authorized $10 million in additional funding to be awarded on a competitive basis to hospitals committed to hire community health workers and care coordinators from disadvantaged communities (Population Health Work Force Support for Disadvantaged Areas Program). Funding is to be awarded to those hospitals committed to train and hire workers from geographic areas of high economic disparities and unemployment to fill new care coordination, population health, Health Information Exchange, and consumer engagement positions. In this way, the MAPM is functioning to support two goals: MAPM revenues are helping to support the manpower resources for population health improvement and helping to create employment opportunities for individuals in disadvantaged areas. The HSCRC requires awardee hospitals to provide matching funds of at least 50% of the amount included in

[75] HSCRC. (2016, May 11).
[76] Individuals who quality for both Medicaid and Medicare benefits

rates, and hospitals that receive funding under this program will report to the Commission annually about the number of workers employed under the program, the types of jobs supported by this program, retention rates, and an estimate of the impact that these funded positions have had in reducing potentially avoidable utilization or in meeting other objectives of the MAPM.

Hospital-Sponsored Program Initiatives

Under the MAPM, Maryland hospitals have been largely focused on the population of high utilizers and high-risk patient populations, identified by multiple chronic conditions and hospital utilization patterns; Maryland hospitals have invested heavily in to reduce unnecessary emergency room visits and acute care admissions of this patient population. As a result, several new functions/new manpower have now become integral functions in many Maryland hospitals; core hospital services now include care transitions, care coordination, medication reconciliation, and 30-day post-discharge follow-up.

More specifically, many Maryland hospitals have introduced/expanded the following delivery models and support services:

- Case management services, with the largest investments made for case managers in the Emergency Room
- Patient-centered medical homes to provide more patient-centered care and care coordination
- Primary care linkage: Protocols for linking ER patients more immediately to a primary care physician
- Care transitions, including education/counseling at the point of discharge, standardized practices for communications to nursing homes, and 30-day post-discharge follow-up for high risk patients/high utilizers
- Telehealth technology to extend the reach of specialists, improve quality of care, and reduce operating costs across hospitals, clinics, Department of Corrections, and nursing homes.
- Care coordination functions through the use of CRISP and risk stratification software
- EHR-based systems to identify high utilizers and vulnerable patients across service settings

More recently, Maryland hospitals have begun investing in initiatives that further enrich primary care service delivery to maximize the opportunities provided by this setting. Efforts are focused on standardizing disease management protocols and integrating medical and behavioral health management in the primary care setting. Most of the activity described has been operationalized through Maryland's hospitals and is expected to be sustained largely through hospital operating income. For some hospitals, this will include a rate increase awarded through the HSCRC for distinct initiatives. New initiatives will include:

    - Community-based care coordination: Care coordinators embedded in primary care practices, and care coordination teams to monitor and coordinate a response to readmissions/high utilization patterns
        - Behavioral health services embedded in the primary care setting: This includes mental health professionals positioned within primary care sites for early identification and early treatment, and formal referral networks for behavioral health services
        - Increased availability of palliative care resources in the hospital
        - Closer working relationships and protocol development across hospitals and post-acute facilities (with some initiatives accompanied by bundled payment models)

Understood together, these interventions have been designed to improve continuity of care, reduce medical complications, reduce avoidable utilization, and reduce the costs of care for high utilizers and

high risk patients, *with the impact on utilization patterns often produced within the same year of operationalizing these new initiatives*.

Integration of Faith-Based Organizations to Support Care

The Maryland Faith Community Health Network is a partnership to connect hospital navigators and volunteer liaisons from local places of worship - - such as churches, synagogues and mosques - -to help coordinate care and support patients both during and after a hospital stay. This two year pilot program is a partnership between LifeBridge Health, the Maryland Citizens Health Initiative and dozens of local houses of faith. With the patient's consent, faith leaders are notified when a member of their own congregation is admitted to the hospital, and then trained liaisons from the patient's own faith organization works with hospital navigators to provide support to patients and their families. This might include prayer, transportation and/or providing meals[77]

Regional Partnerships

In response to the HSCRC's incentives and a joint HSCRC – DHMH Planning Grant in 2015 that provided funded and technical assistance, Maryland has seen the formation of 8 regional partnerships each of which includes hospitals, County Health Departments, community-based organizations and social services agencies. These Partnerships are working collaboratively to identify community needs, determine resource requirements to best meet community needs, and design strategies for deploying resources across the region. The collaborative model is expected to produce more effective care coordination models and maximize the use of specialized resources required of distinct populations such as frail elders, dual eligible and chronic disease patients with specialty requirements. The long-term expectation is that these partnerships will collaborate to define long-term population health improvement goals with particular attention to reducing risk factors. The HSCRC has actively supported the development and continued operation of these Partnerships by initially (a) awarding planning and development funds, (b) continuing to offer technical assistance to the Partnerships, and (c) incentivizing collaborative operations through project implementation awards (on a competitive basis).

[77] Boston, S., & DeMarco, V., (2016).

Re-Balancing of Health Care Resources to Support Outpatient Care

With the investments made in care coordination and outpatient delivery models, Maryland has seen a major decline in admissions and a re-balancing of health care resources. The focus on post-acute care setting is intensifying and plans for reducing inpatient capacity are rapidly developing:

- Three hospitals in Maryland have announced plans to close inpatient facilities and construct/expand an ambulatory services campus in place of these inpatient facilities
- A proposal to CMS to waive the 3-day rule is being submitted with the hope that the post-acute setting can be further leveraged and that acute care capacity can then be further reduced
- Several Maryland hospitals have introduced physician house call programs, likely to be expanded in the coming two years, further reducing the demand on hospital capacity

These efforts are expected to generate further savings to the health care system as capacity reductions produce even more meaningful cost reductions to health care operations.

Appendix B: Hospital Utilization per Capita, by County in Maryland (CY2014-2015)

Use Rates By Region (Adjusted for Outmigration)

Calendar 2014

	Calendar Year 2014				Variance Above / (Below) Statewide		
Region	Population	Inpatient Discharges Rate per 1,000	Emergency Department Visits per 1,000	Observation Visits per 1,000	Inpatient Discharges Rate per 1,000	Emergency Department Visits per 1,000	Observation Visits per 1,000
Baltimore City-West	248,818	179.25	913.75	70.40	72.52	537.14	37.38
Baltimore City-East	185,734	166.89	771.69	60.88	60.16	395.08	27.85
Dorchester	31,874	142.09	712.39	22.58	35.37	335.78	(10.44)
Anne Arundel-Baltimore	137,785	146.38	617.54	50.50	39.65	240.93	17.48
Wicomico	101,399	118.52	573.27	21.39	11.79	196.65	(11.63)
Somerset	24,455	106.76	512.33	26.18	0.04	135.72	(6.85)
Worcester	52,034	115.86	511.51	27.87	9.13	134.89	(5.15)
Baltimore City-North	190,488	133.39	506.36	45.93	26.67	129.75	12.91
Garrett	27,923	96.34	486.27	28.63	(10.38)	109.65	(4.40)
Kent	25,150	121.57	473.76	18.52	14.85	97.15	(14.50)
Allegany	76,120	130.17	459.26	42.19	23.44	82.65	9.16
Talbot	38,270	128.61	453.04	14.56	21.89	76.43	(18.46)
Caroline	34,082	120.19	447.97	16.62	13.47	71.36	(16.41)
St Marys	114,884	96.30	441.85	33.94	(10.42)	65.24	0.92
Baltimore-East	320,615	142.74	430.49	53.37	36.01	53.88	20.34
Queen Annes	44,320	99.40	426.13	16.41	(7.32)	49.51	(16.61)
Baltimore-West	292,940	132.04	409.31	37.83	25.32	32.70	4.81
Charles	149,134	92.72	405.63	29.28	(14.01)	29.01	(3.74)
Calvert	92,004	90.16	402.22	29.50	(16.56)	25.61	(3.52)
Cecil	102,836	96.77	398.44	37.20	(9.96)	21.83	4.18
Washington	149,025	122.00	387.08	45.54	15.27	10.46	12.51
Prince Georges-Central	262,771	102.79	336.60	35.22	(3.93)	(40.02)	2.19
Harford	249,230	104.44	312.97	51.30	(2.28)	(63.64)	18.28
Prince Georges-South	299,976	85.67	310.74	36.30	(21.06)	(65.87)	3.28
Carroll	158,442	102.11	295.98	33.00	(4.62)	(80.64)	(0.02)
Prince Georges-East	77,042	93.41	294.98	23.38	(13.32)	(81.63)	(9.64)
Anne Arundel	434,811	91.01	289.93	21.99	(15.71)	(86.68)	(11.04)
Frederick	253,346	91.54	279.25	27.29	(15.18)	(97.37)	(5.73)
Prince Georges-North	238,675	90.24	264.11	22.28	(16.49)	(112.51)	(10.74)
Baltimore-North	170,011	96.14	248.86	24.80	(10.59)	(127.75)	(8.22)
Montgomery	1,031,950	81.22	238.93	18.53	(25.50)	(137.68)	(14.50)
Howard	314,249	82.07	211.50	15.95	(24.65)	(165.12)	(17.08)
Statewide Total	**5,930,394**	**106.73**	**376.62**	**33.02**	**-**	**-**	**-**
Eastern Shore Total	**173,697**	**120.96**	**495.77**	**17.48**	**14.24**	**119.16**	**(15.54)**

Notes:

[1] Population Source: Neilson Claritas population estimates based on 2010 census numbers

[2] Source for utilization numbers: HSCRC Abstract data FY2014 final, FY2015 Q1&Q2 final

[3] Adjusted for outmigration using FY 2012 MedPar data. Calculated total charges divided by instate charges for each county

Appendix C: Community Benefits Spending by Maryland Hospitals (FY2015) in Maryland (CY2014-2015)

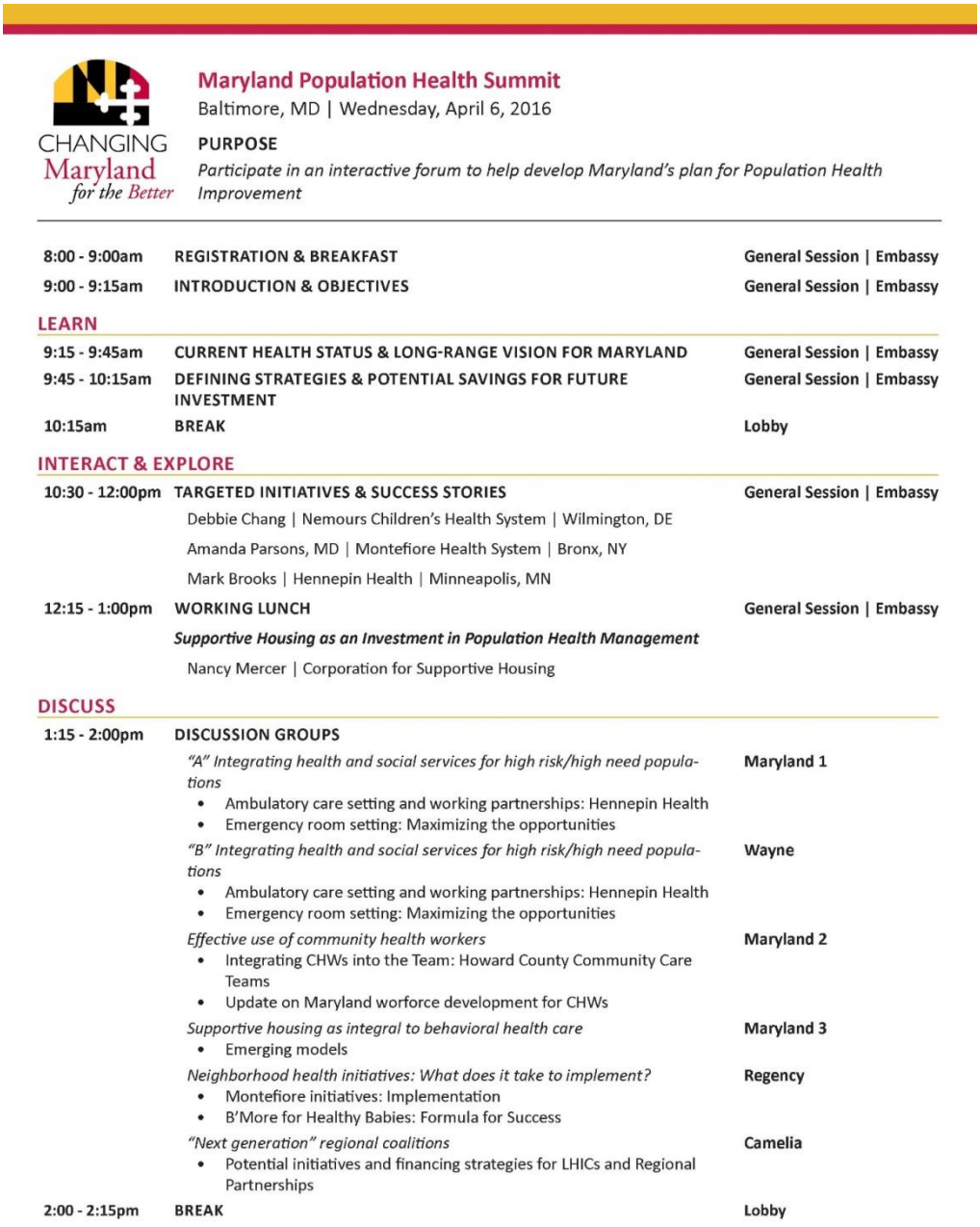
All Maryland Hospitals
Total Community Benefit Dollars
Fiscal Year 2014

Hospital Name	Community Benefits, Less Charity Care
Southern Maryland	
Dimensions Prince Georges Hospital Center	$43,859,005
Dimensions Laurel Regional Hospital	11,153,630
Doctors Community	3,900,417
Ft. Washington	608,774
MedStar Southern Maryland	7,250,765
Calvert Hospital	12,884,303
Southern Maryland Subtotal	$79,656,894
Nexus Montgomery	
Holy Cross Hospital	$25,117,340
Suburban Hospital	16,931,192
Shady Grove*	18,654,686
Nexus Montgomery Subtotal	$60,703,217
West Baltimore Collaborative	
UMMC	$146,030,684
UM Midtown	21,055,244
Bon Secours	10,198,220
St. Agnes	15,118,559
West Baltimore Collaborative Subtotal	$192,402,708
UMUCH/UHCC	
UM Upper Chesapeake	$10,053,599
Union Hospital of Cecil County	7,583,715
UMUCH/UHCC Subtotal	$17,637,314
Bay Area	
Anne Arundel Medical Center	$30,362,891
UM Baltimore Washington	17,927,450
Bay Area Subtotal	$48,290,341
Baltimore City	
Johns Hopkins Hospital	$155,549,622
Johns Hopkins Bayview Medical Center	35,976,948
Mercy Medical Center	36,936,225
LifeBridge Sinai	45,895,619
Baltimore City Subtotal	$274,358,414
Howard County	
Howard County Hospital	$15,126,025
Howard County Subtotal	$15,126,025
All Other Hospitals	
All Other Hospitals Subtotal	$326,117,290
Total	**$1,014,292,203**

Notes:
* The Adventist Hospital System has requested and received permission to report their Community Benefit activities on a CY Basis. This allows them to more accurately reflect their true activities during the Community Benefit Cycle. The numbers listed in the 'FY 2014 Amount in Rates for Charity Care, DME, and NSPI' Column reflect the Commission's activities for FY14 and therefore will be different from the numbers reported by the Adventist Hospitals.

*Total Community Benefit is Net Community Benefit of Direct Costs + Indirect Costs - Offsetting Revenue.

Appendix D: Maryland Population Health Summit Agenda



CHANGING Maryland *for the Better*

Maryland Population Health Summit

Baltimore, MD | Wednesday, April 6, 2016

PURPOSE

Participate in an interactive forum to help develop Maryland's plan for Population Health Improvement

8:00 - 9:00am	**REGISTRATION & BREAKFAST**	**General Session | Embassy**
9:00 - 9:15am	**INTRODUCTION & OBJECTIVES**	**General Session | Embassy**
LEARN		
9:15 - 9:45am	**CURRENT HEALTH STATUS & LONG-RANGE VISION FOR MARYLAND**	**General Session | Embassy**
9:45 - 10:15am	**DEFINING STRATEGIES & POTENTIAL SAVINGS FOR FUTURE INVESTMENT**	**General Session | Embassy**
10:15am	**BREAK**	**Lobby**
INTERACT & EXPLORE		
10:30 - 12:00pm	**TARGETED INITIATIVES & SUCCESS STORIES** Debbie Chang | Nemours Children's Health System | Wilmington, DE Amanda Parsons, MD | Montefiore Health System | Bronx, NY Mark Brooks | Hennepin Health | Minneapolis, MN	**General Session | Embassy**
12:15 - 1:00pm	**WORKING LUNCH** ***Supportive Housing as an Investment in Population Health Management*** Nancy Mercer | Corporation for Supportive Housing	**General Session | Embassy**
DISCUSS		
1:15 - 2:00pm	**DISCUSSION GROUPS**	
	"A" Integrating health and social services for high risk/high need populations • Ambulatory care setting and working partnerships: Hennepin Health • Emergency room setting: Maximizing the opportunities	**Maryland 1**
	"B" Integrating health and social services for high risk/high need populations • Ambulatory care setting and working partnerships: Hennepin Health • Emergency room setting: Maximizing the opportunities	**Wayne**
	Effective use of community health workers • Integrating CHWs into the Team: Howard County Community Care Teams • Update on Maryland worforce development for CHWs	**Maryland 2**
	Supportive housing as integral to behavioral health care • Emerging models	**Maryland 3**
	Neighborhood health initiatives: What does it take to implement? • Montefiore initiatives: Implementation • B'More for Healthy Babies: Formula for Success	**Regency**
	"Next generation" regional coalitions • Potential initiatives and financing strategies for LHICs and Regional Partnerships	**Camelia**
2:00 - 2:15pm	**BREAK**	**Lobby**

COLLABORATE

2:15 - 3:00pm	**WORKGROUP SESSION: PRIORITIES FOR POPULATION HEALTH**	
	#1 Urban communities	**Regency**
	#2 Rural communities	**Maryland 1**
	#3 Senior care and homebound populations	**Maryland 3**
	#4 Mental health/addictions treatment and prevention	**Camelia**
	#5 Multisector service planning for children and families	**Maryland 2**
3:00 - 4:00pm	**MARYLAND PANEL DISCUSSION: WHAT ARE THE PRIORITY INVESTMENTS?**	**General Session | Embassy**
4:00 - 4:15pm	**WRAP-UP & PROCESS FOR FURTHER INPUT**	**General Session | Embassy**

Appendix E: Maryland Population Health Summit List of Participants

Maryland DHMH OPHI Population Health Summit Attendee List, April 6, 2016

Last	First	Org/Inst/Geographic Region
Abney	Dianna	Charles County
Afzal	Scott	CRISP
Alborn	Salliann	HSCRC Data and Infrastructure
Altman	Rebecca	BRG
Argabrite	Shelley	Garrett County Health Department
Banks-Wiggins	Barbara	Prince George's County Health Department
Barmer	Katherine	NexusMontgomery
Barth	Jason	Frederick Regional Health System
Bash	Camille	Southern Maryland Regional Coalition
Bauman	Alice	OPHI staff
Behm	Craig	CRISP
Bowles	Daniel	Aledade
Brookmyer	Barbara	Frederick County
Brooks	Mark	Project Manager
Brown	Dawn	Carroll County Health Department
Carter	Dr. Ernest	Prince George's County Health Department
Chan	Jinlene	Anne Arundel County
Cheng	Debbie	Nemours Children's Health Center
Chernov	David	TLC-MD
Ciotola	Joseph	Queen Anne's County
Clark	Liz	Healthy Howard
Cohen	Robb	Advanced Health Collaborative
Dain	Renee	The Coordinating Center
DeVito	Lisa	Johns Hopkins Health Care
Dineen	Rebecca	Baltimore City Health Department
Donahoo	Jean-Marie	Union Hospital of Cecil County
Dooley	Patrick	University of Maryland Medical System
Duffy	Angela	Chase Brexton Health Care
Edsall Kromm, PhD	Elizabeth	Howard County Regional Partnership
Elliott	Natalie	Mosaic Community Services
Farrakhan	Dana	University of Maryland Medical System
Feeney	Dianne	HSCRC
Funmilayo	Damilola	Chase Brexton Health Care

Garcia-Bunuel	Liddy	Healthy Howard
Garrity	Stephanie	Cecil County
Gerovich	Sule	HSCRC Performance Measurement
Glotfelty	Rodney	Garrett County
Goodling	Zachary	NexusMontgomery
Goodman	Laura	DHMH Steering Committee
Griffin	Tammy	Wicomico County
Haft	Howard	DHMH
Harrell	Roger	Dorchester County
Haswell, MD	Scott	Post Acute Physician Partners, LLC
Hatef Naimi, MD	Elham	JHU School of Public Health
Highsmith Vernick	Nikki	Horizon Foundation
Hiner	Kimberly	Maryland Office of Minority Health and Health Disparities
Horrocks Jr.	David	BRG
Hugenbruch	Genevieve	OPHI staff
Hummer	Jim	Lorien at Home
Hurley	Lindsay	BRG
Jacobs	Michael	Dimensions
Jenkins	Yolanda	Owensville Primary Care
Jones	Rebecca	Worcester County
Kalyanaraman	Nilesh	Health Care for the Homeless
Kessler	Livia	LifeBridge Health
Khangura	Loretta	Chase Brexton Health Care
King	Sharyn	The Coordinating Center
Knight, MD	Dr. Terralong	Greater Baden Medical Services
Kuchka-Craig	Deborah	MedStar
Larrimore	Aaron	Medicaid
Lee	Jessica	HSCRC
Lichtenstein	Karen Ann	The Coordinating Center
Lipford	Sharon	Healthy Hartford
Luckner	Mark	CHRC
Mandel	Laura	OPHI staff
Marcozzi	David	Univ of Maryland, SOM
Markley	Susan	HSCRC Community Engagement
Mayer	Jennifer	Priority Partners MCO/Johns Hopkins Health System
McClean	Sheila	VHQC
Mercer	Nancy	Director
Montgomery	Russ	OPHI staff
Morgan, PhD	Dr. Tanya	Greater Baden Medical Services
Moy	Russell	Harford County
O'Brien	John A	TLC-MD
O'Neill	Dawn	Baltimore City Health Department
Parsons	Amanda	Montefiore

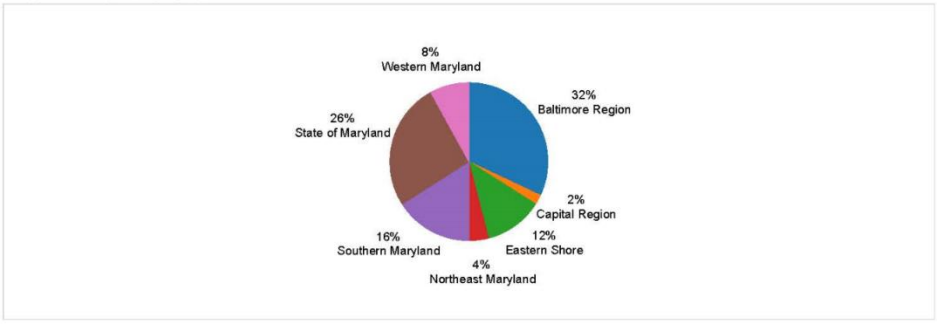
Pemberton	Tahira	Chase Brexton Health Care
Penniston	Erin	Center for Chronic Disease Prevention and Control
Perman	Chad	OPHI staff
Pier	Kristi	Chronic Disease and Prevention
Polsky	Larry	Calvert County
Ports	Steve	HSCRC
Preston	Leni	Maryland Women's Coalition for Health Care Reform
Proctor	Suzanne	MedStar
Raswant	Maansi	Maryland Hospital Association
Redmon	Patrick	BRG
Repac	Kimberly	Western Maryland
Richardson	Regina	Johns Hopkins HealthCare LLC
Roddy	Tricia	Medicaid
Rossman	Maura	Howard County
Rubin	Michelle	Chase Brexton Health Care
Samson	Raquel	Amerigroup
Schlattman	Suzanne	Maryland Citizens' Health Initiative Education Fund
Schneider	Kathleen	BRG
Sciabarra	Jeananne	Healthy Howard
Sciabarra	Jeananne	Healthy Howard
Shahan	Judy	Chase Brexton
Slusar	Kim	OPHI staff
Spencer	Leland	Caroline County/Kent County
Starn	Amber	Charles County Department of Health
Stephens	Bob	Garrett County Health Department
Swanner	Lauren	Mosaic Community Services
Talbert	Kate	Healthy Howard
Teal, MD	Cydney	Union Hospital of Cecil County
Thompson	Patricia	Upper Chesapeake Health and Union Hospital of Cecil
Tillman	Ulder	Montgomery County
Tisdale, Jr.	James Lee	JHHC/PP
Vachon, MD	Gregory	Health Management Associates
Wadley	Fredia	Talbot County
Weinstein, MD	Adam	UM Shore Health
Werthman	Tom	BRG
Wheeler	Megan	BRG
Woldu	Feseha	MedStar
Won	Darleen	LifeBridge Health
Yang	Chris	BRG
Yuhas	Michael	Integra ServiceConnect

Appendix F: Maryland Population Health Summit Results Post Summit Survey Analysis

Respondent Characteristics

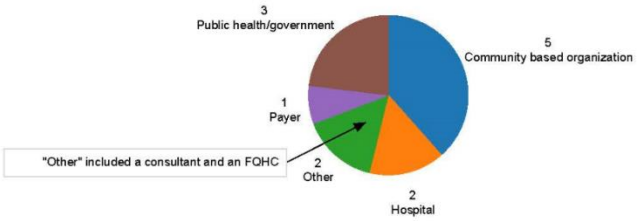
50 responses received out of 130 sent (39% response rate)

Responses by Geography

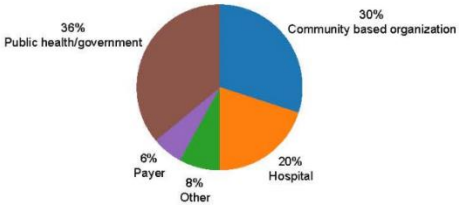


Responses by Sector for "State of Maryland"

26% of respondents stated that their attention is primarily focused on the entire State of Maryland. A breakdown of the sectors that these individuals represent is shown below.



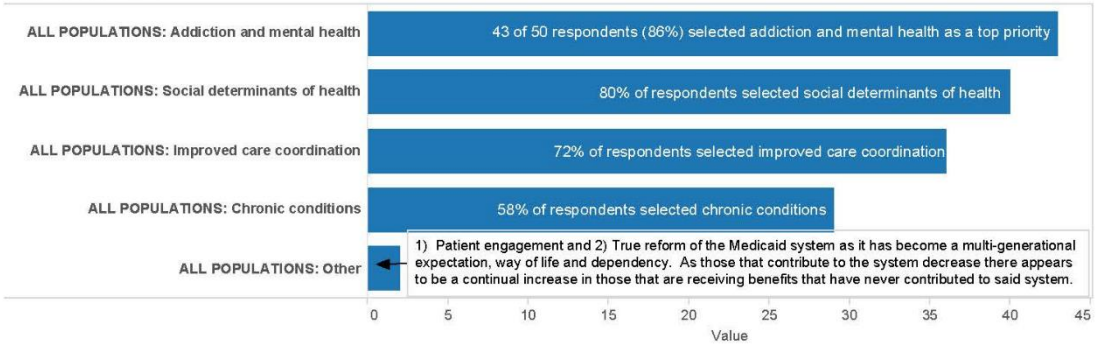
Responses by Sector



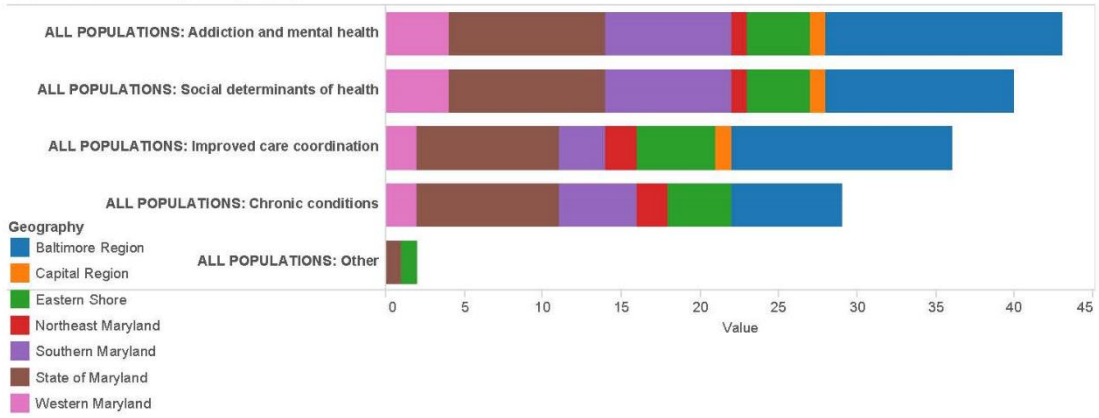
Global Priorities Overview

Respondents were asked to select the 3 items that most require new investments and strategies to improve the health of people in Maryland. They could select from a list of 4 predefined options and/or write in up to 2 items.

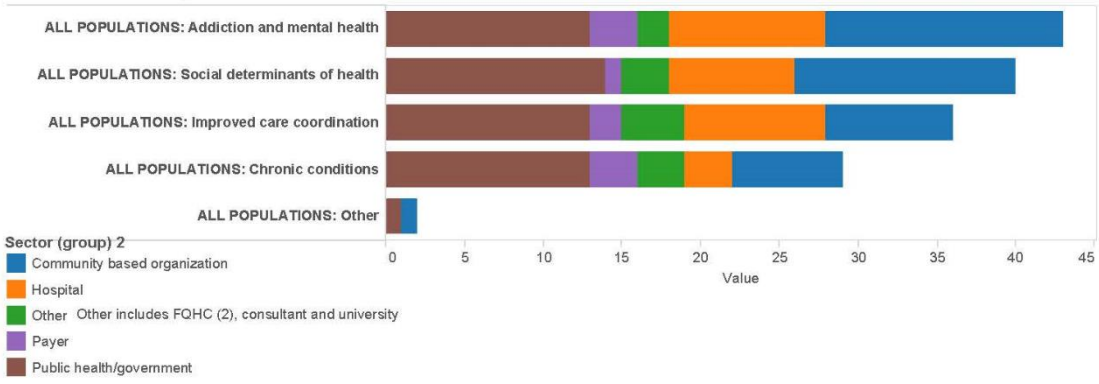
Global Priorities



Global Priorities by Geography



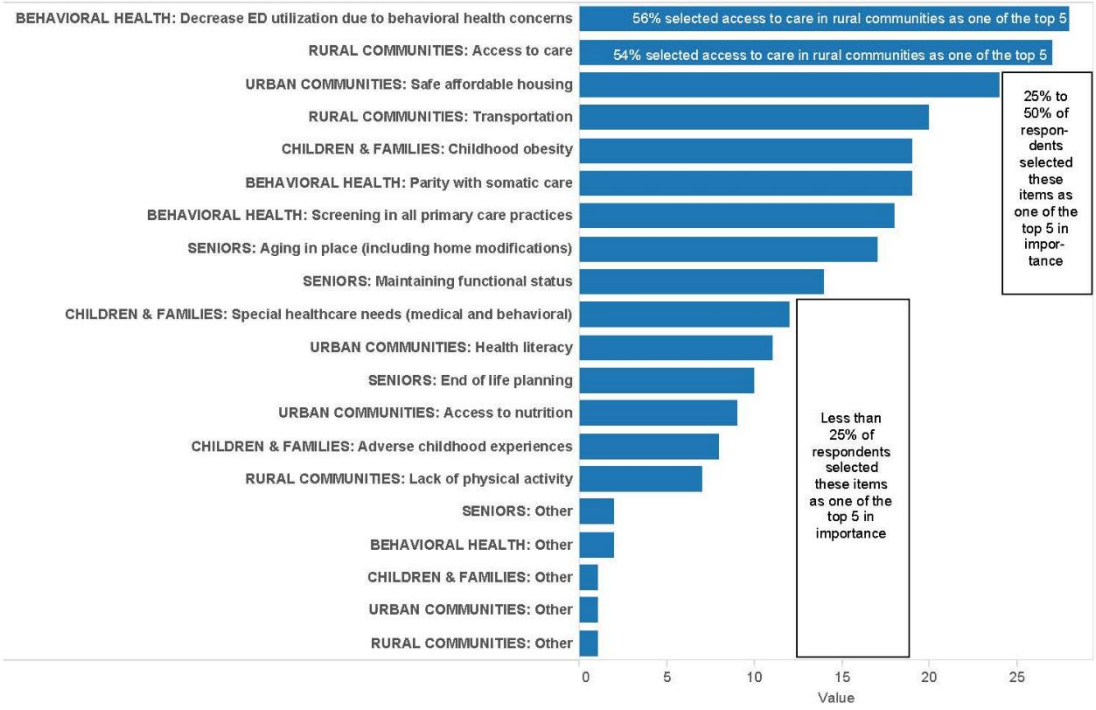
Global Priorities by Sector



Focused Priorities Overview

Respondents were asked to select 5 items across 5 population groups based on predetermined priorities developed by workgroups at the Summit. They could also write in one additional item in each of the population groups rather than selecting from the list.

Focused Priorities



Responses were distributed remarkably evenly across the 5 population groups, although respondents could have selected up to 4 of their 5 responses in a single population group:

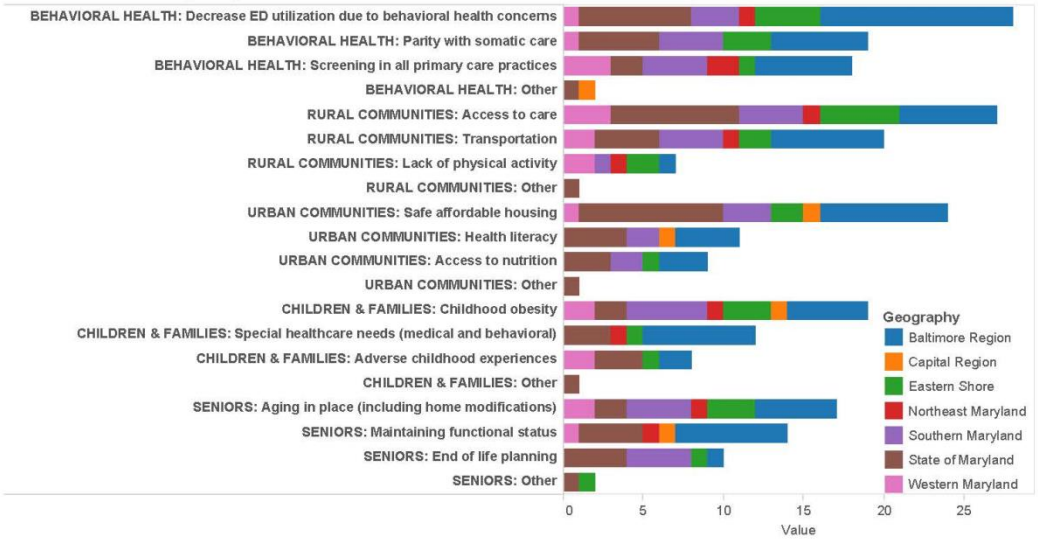
Behavioral health	67 responses/27% of total
Rural	55 responses/22% of total
Urban	45 responses/18% of total
Seniors	43 responses/17% of total
Children & families	40 responses/16% of total

Focused Priorities Other

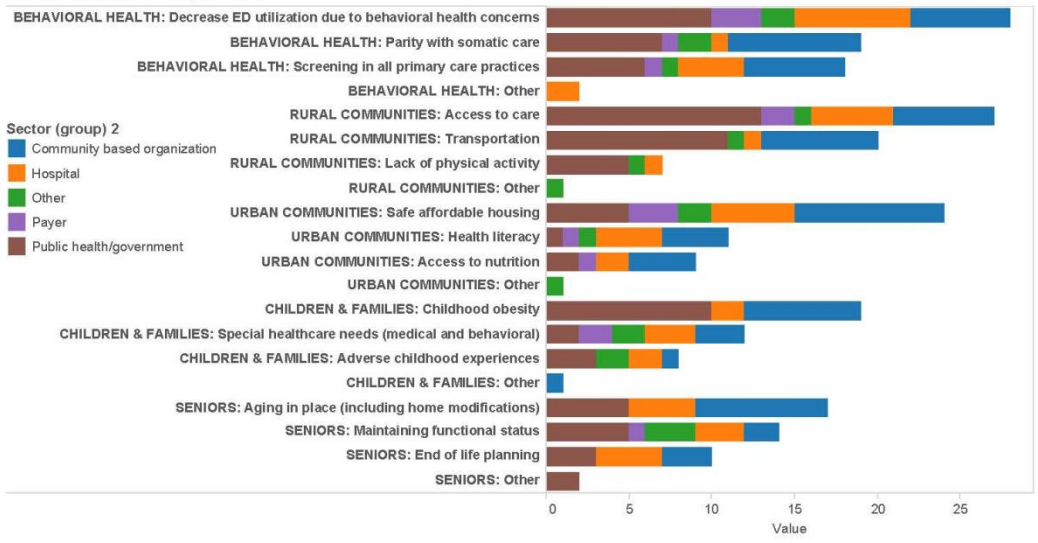
Focused Priorities by Geography & Sector

Respondents were asked to select 5 items across 5 population groups based on predetermined priorities developed by workgroups at the Summit. They could also write in one additional item in each of the population groups rather than selecting from the list.

Focused Priorities by Region



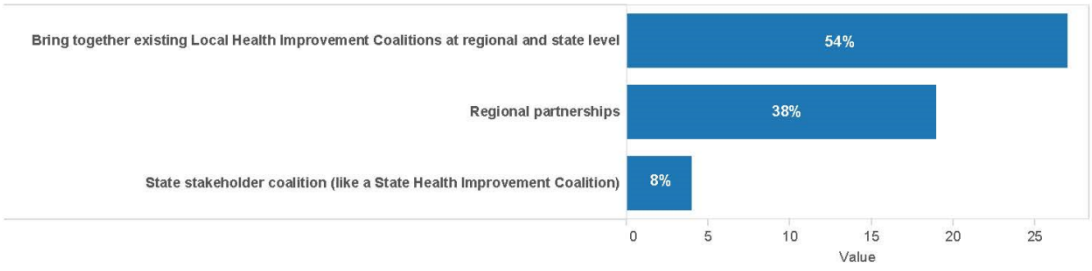
Focused Priorities by Sector



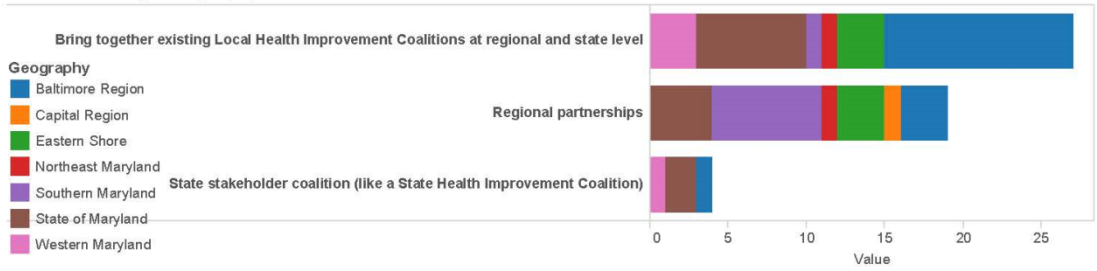
Governance

Respondents were asked to select the the preferred structure for shared decision-making on long-term population health improvements at the state and regional level in Maryland. Although a write-in choice was provided, no one used that option, nor did anyone select the "state government" option.

Governance Options

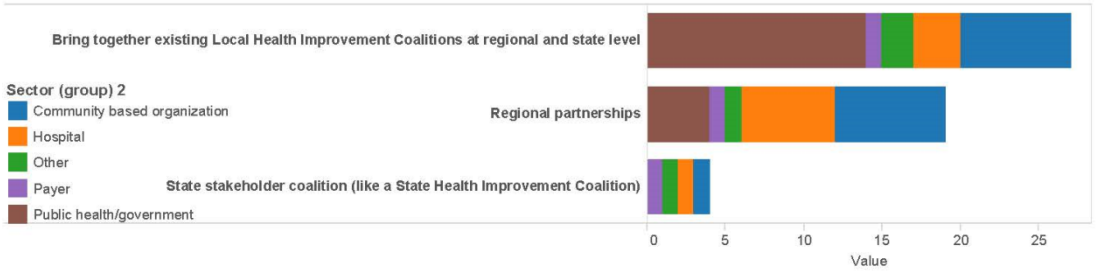


Governance by Geography



88% of respondents from Southern Maryland prefer regional partnerships, while 75% of respondents from the Baltimore region and Western Maryland prefer bringing LHICs together at a regional/state level.

Governance by Sector

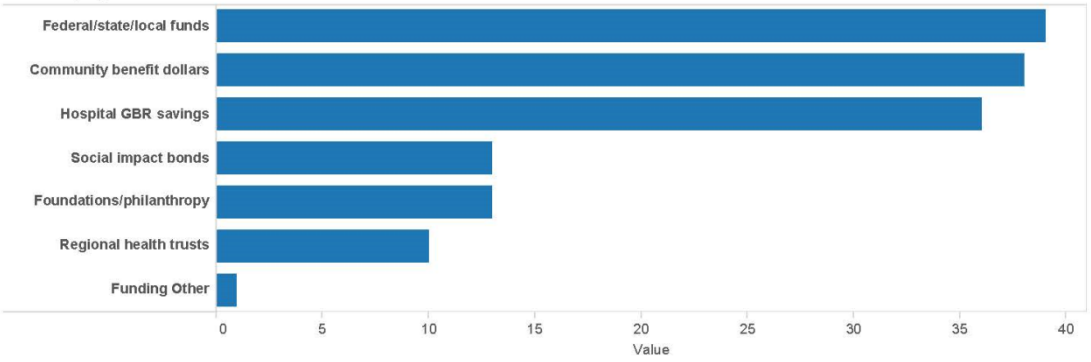


78% of respondents from the public health/government sector prefer bringing LHICs together at a regional/state level, while 60% of hospital respondents prefer regional partnerships. Respondents from community based organizations "split" their preference across both options.

Funding

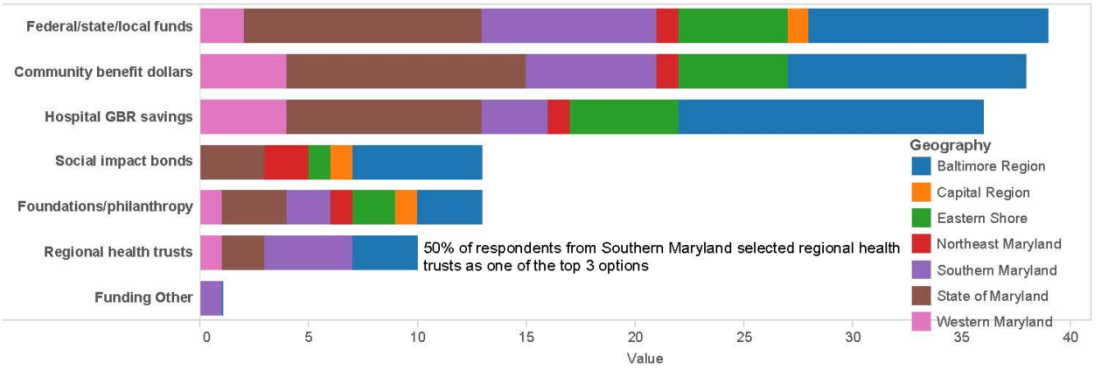
Respondents were asked to select 3 items from a list of 6 choices plus a write-in option to prioritize the funding options that would be most effective for improving the health of Maryland residents.

Funding Options

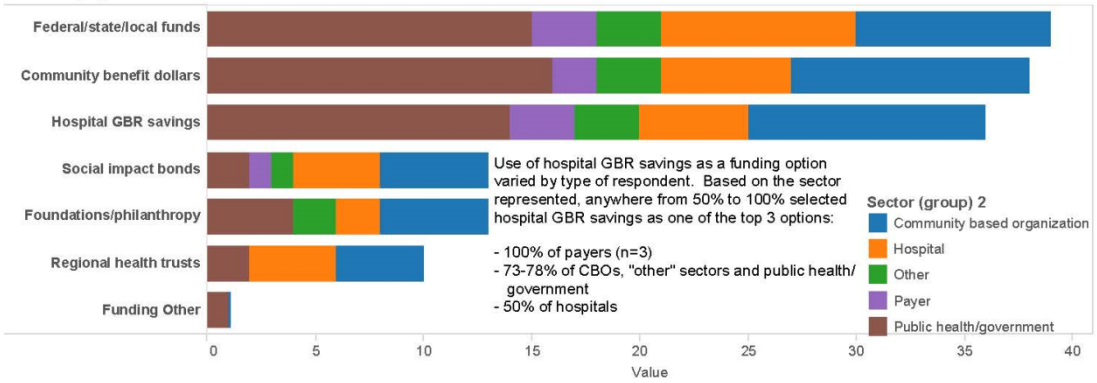


72% to 78% of all respondents picked the top 3 options above as the most effective sources of funding. The 1 respondent who selected "other" wrote in *other sources aren't as sustainable*

Funding by Geography



Funding by Sector

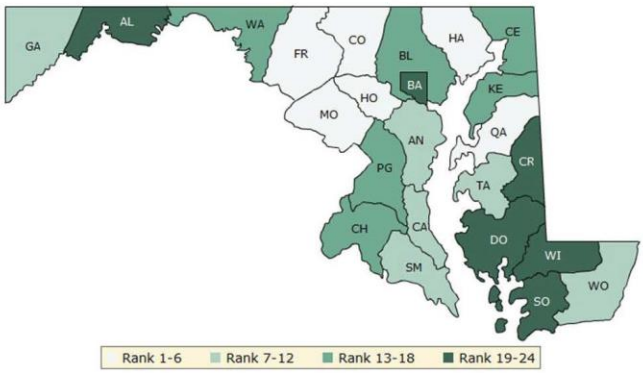


Appendix H: Maryland Health Ranking Report – State of Maryland

HOW DO COUNTIES RANK FOR HEALTH OUTCOMES?

The green map below shows the distribution of Maryland's **health outcomes**, based on an equal weighting of length and quality of life.

Lighter shades indicate better performance in the respective summary rankings. Detailed information on the underlying measures is available at **countyhealthrankings.org**.

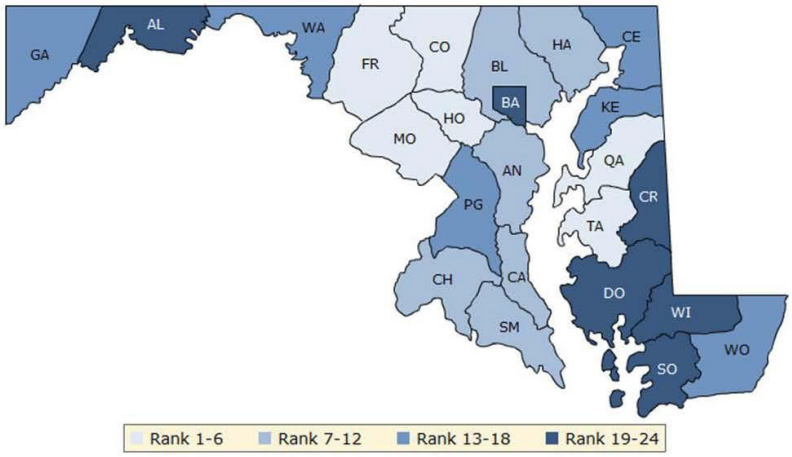


County	Rank	County	Rank	County	Rank	County	Rank
Allegany	19	Carroll	3	Harford	5	Somerset	22
Anne Arundel	9	Cecil	17	Howard	2	St. Mary's	10
Baltimore	14	Charles	13	Kent	18	Talbot	8
Baltimore City	24	Dorchester	21	Montgomery	1	Washington	15
Calvert	7	Frederick	4	Prince George's	16	Wicomico	20
Caroline	23	Garrett	11	Queen Anne's	6	Worcester	12

HOW DO COUNTIES RANK FOR HEALTH FACTORS?

The blue map displays Maryland's summary ranks for **health factors**, based on weighted scores for health behaviors, clinical care, social and economic factors, and the physical environment.

Lighter shades indicate better performance in the respective summary rankings. Detailed information on the underlying measures is available at **countyhealthrankings.org**



County	Rank	County	Rank	County	Rank	County	Rank
Allegany	19	Carroll	3	Harford	9	Somerset	23
Anne Arundel	7	Cecil	17	Howard	1	St. Mary's	10
Baltimore	11	Charles	12	Kent	13	Talbot	6
Baltimore City	24	Dorchester	21	Montgomery	2	Washington	18
Calvert	8	Frederick	4	Prince George's	16	Wicomico	20
Caroline	22	Garrett	14	Queen Anne's	5	Worcester	15

Appendix I: Progress Measurement and Opportunities for Expanded Datasets

Maryland's State Health Improvement Process (SHIP) was implemented in 2011 by the Office of Population Health Improvement (OPHI) as a framework for accountability, local action and public engagement to advance the health of Maryland residents.[1] The goal was to assist communities in identifying critical health needs and guide implementation of evidence-based strategies for change, using a statewide platform for measuring progress. The framework was designed to align closely with Healthy People 2020 objectives, and measures have been both added and removed since program inception. The measures are heavily focused on children and adolescents:

- 15 measures (38%) apply exclusively to newborns, children and adolescents (some other measures also include this population)

- 1-2 measures focus on issues specific to the senior population (dementia-related hospitalizations and fall-related mortality)
- None of the measures focus on the "at risk" population of people with multiple chronic conditions and the complex needs of that population segment

The State revised the SHIP framework to now incorporate 39 measures in five focus areas:

- Healthy Beginnings – 8 measures
- Healthy Living – 8 measures
- Healthy Communities – 7 measures
- Access to Health Care – 4 measures
- Quality Preventive Care- 12 measures

However, the current measures are not aligned with the Maryland All Payer Model, particularly under a total cost of care model which will make post-acute care an integral focus area. As Maryland transitions to this total cost of care model, the State will want to adopt more expanded constructs to align with these targets of population health management and health improvement. For example, Maryland may want to include measures of functional status, rate of falls, caregiver experience, affordability, community-based service needs. . More broadly, DHMH will need to document cost of care experience for those served by new initiatives for population health improvement.

Moreover, it is critical to expand the measurement tools need to be expanded to be consistent with the goals of addressing social determinants of health and the multisector impact of selected initiatives; this would include the impact on school readiness, the criminal justice system, road safety, and social services, In order to monitor progress and the cost impact of selected initiatives, then, DHMH will require data exchange with law enforcement, Department of Education, and the Medicaid program.

OPHI has engaged the Johns Hopkins School of Public Health's Center for Population Health Information Technology to assist with a detailed assessment and consideration of future measurement frameworks and metrics. For purposes here, a brief description is provided simply to illustrate expanded measurement constructs/features that have developed around the country and the value that these new constructs provide. A more expansive list is provided in Appendix K.

Organization or Program	Title	Details
Robert Wood Johnson Foundation (RWJF)	Culture of Health Action Framework	A framework and 41 corresponding measures designed to improve population health and motivate cultural change that builds a shared value of health and an integrated cross-sector approach. The framework consists of four action areas and one set of desired outcomes
Robert Wood Johnson Foundation (RWJF) & University of Wisconsin Population Health Institute (UWPHI)	County Health Rankings	The County Health Rankings helps communities identify and implement solutions to improve health in neighborhoods, schools, and workplaces. There are four domains and 14 focus areas in the framework
National Academy of Sciences, Institute of Medicine (IOM)	Vital Signs: Core Metrics Set	Based on IOM Committee work, this framework defines core measures for health and health care designed to streamline and standardize the multiple measurement sets in use across the United States. The Committee proposed a set of 15 standardized measures in four domains
The Commonwealth Fund	Commonwealth Fund Scorecard on State Health System Performance	The scorecard measures performance in five areas and introduces a number of community-based measures improvements in functional status of the elderly, use of antipsychotics and high risk medications and measures of long term supports. The scorecard also includes equity indicators based on race, ethnicity and income.
Agency for Healthcare Research and Quality (AHRQ)	Quality measures	Includes 250 quality measures and comparisons across states. Includes access and care coordination measures; includes metrics around disease-specific conditions; includes measures for mental health conditions among nursing home patients and completion rates for those in substance abuse treatment. New focus areas proposed include: · Functional status in older adults · Health literacy/patient engagement
CMS: Medicare Program	Medicare Shared Savings Program	Shared savings are awarded based on performance across 34 quality measures in

		4 domains that include (1) Patient/caregiver experience (2) Care coordination/patient safety (3) Clinical care for at-risk populations and (4) Preventive health. Notable measures include such items as functional status, falls prevention, shared decision-making and access to timely appointments
CMS: Medicare Advantage	Medicare Advantage Plans / Special Needs Plans	The STAR ratings framework is designed around 5 broad categories that include health outcomes, intermediate outcomes, patient experience, access, and process by which health care is provided. Performance measures have been well-vetted nationally, with measures that include those related to medication adherence and care transitions.

Sources

Access Health Spartanburg. (2015). 2015 Report to the Community. Retrieved from http://www.accesshealthspartanburg.org/community_report_2015

Agency for Healthcare Research and Quality. (2016, September).National Healthcare Quality and Disparities Report: Chartbook on Effective Treatment. Retrieved from: http://www.ahrq.gov/research/findings/nhqrdr/chartbooks/effectivetreatment/index.html.

Agency for Healthcare Research and Quality. *Physical Functional Health Status: Average Change in Patient Functional Status from Initial to Discharge Visit Among Patients Receiving Outpatient Rehabilitation Services*. Retrieved from https://www.qualitymeasures.ahrq.gov/summaries/summary/28287/physical-functional-health-status-average-change-in-patient-functional-status-from-initial-to-discharge-visit-among-patients-receiving-outpatient-rehabilitation-services

Agency for Healthcare Research and Quality. (2016, June). Telehealth: Mapping the Evidence for Patient Outcomes From Systematic Reviews. Technical Brief Number 26. Retrieved from https://www.effectivehealthcare.ahrq.gov/ehc/products/624/2254/telehealth-report-160630.pdf

Alper, J., & Baciu, A. (2015, January 6). *Financing Population Health Improvement: Workshop Summary. Quoting Kevin Barnett, Senior Investigator, Public Health Institute.* Washington, DC: National Academies Press.

American Elder Care Research Organization (2015, May). *Kansas Medicaid (KanCare) HCBS Frail Elderly Waiver: Qualifications and Services*. Retrieved from: https://www.payingforseniorcare.com/medicaid-waivers/ks-hcbs-frail-and-elderly.html

America's Health Insurance Plans. (2008). Innovations in Prevention, Wellness, and Risk Reduction.

Arons, A. (2011, January). Childhood Obesity in Texas -The Costs, the Policies, and a Framework for the Future. Children's Hospital Association of Texas. Retrieved from http://www.childhealthtx.org/pdfs/Childhood%20Obesity%20in%20Texas%20Report.pdf

Auerbach, J. (2016). The 3 Buckets of Prevention. Journal of Public Health Management Practice 22(3), 215-218.

AWARE Recovery Care. (2016, June 8). *OPEN MINDS Strategy and Innovation Institute*. Presentation. Retrieved from: http://strategy.openminds.com/years/2016/

Bachrach, D., Guyer, J., & Levin, A. (2016, July). Medicaid Coverage of Social Interventions: A Road Map for States. Milbank Memorial Fund. Retrieved from http://www.milbank.org/uploads/documents/medicaid_coverage_of_social_interventions_a_road_map_for_states.pdf

Bahrampour, T. (2015, December 6). Doctors Prescribe Old-Fashioned House Calls When Treating the Old and Frail. *The Washington Post*. Retrieved from

https://www.washingtonpost.com/local/social-issues/doctors-prescribe-old-fashioned-house-calls-when-treating-the-old-and-frail/2015/12/06/e0b476fc-9aa2-11e5-8917-653b65c809eb_story.html.

Baltimore City Health Department. (2016, Winter). *White Paper, State of Health in Baltimore: Summary of Key Issues, Services and Policies*.

Bamberger, J. D. & Dobbins, S. (2014, July). Long-Term Cost Effectiveness of Placing Homeless Seniors in Permanent Supportive Housing. Federal Reserve Bank of San Francisco. Retrieved from http://www.frbsf.org/community-development/files/wp2014-01.pdf

Beacon Health Options. (2015, June). Confronting the Crisis of Opioid Addiction, White Paper. Retrieved from http://beaconlens.com/wp-content/uploads/2015/11/Confronting-the-Crisis-of-Opioid-Addiction.pdf

Bergum A.H., Catlin B.B., Timberlake K. (2015, July). What Works? Strategies to Improve Rural Health. University of Wisconsin Population Health Institute. Retrieved from https://uwphi.pophealth.wisc.edu/programs/match/healthiest-state/what-works-rural-report-july-2015.pdf

Blieweis, J. (2015, April 22). Health Literacy Program Expands in Worchester Schools. *Delmarva Now*. Retrieved from http://www.delmarvanow.com/story/news/local/maryland/2015/04/22/worcester-health-literacy/26175779/

Blumenthal, D., Malphrus, E., & McGinnis, J. (2015). Vital signs: Core Metrics for Health and Health Care Progress. *National Academies Press.* Retrieved from https://www.nap.edu/catalog/19402/vital-signs-core-metrics-for-health-and-health-care-progress

Bodenheimer, T. (2013). Strategies to Reduce Costs and Improve Care for High-Utilizing Medicaid Patients: Reflections on Pioneering Programs. San *Francisco: Center for Health Care Strategies, Inc.* Retrieved from https://www.anthem.com/provider/noapplication/f1/s0/t0/pw_e211389.pdf

Boston, S., & DeMarco, V., (2016, February 15). Maryland Faith Community Health Network Aims to Connect Hospitals and Places of Worship to Improve the Health of Marylanders. *Lifebridge Health*. Retrieved from http://lifebridgehealth.org/Main/PressReleases/Maryland-Faith-Community-Health-Network-Aims-to-Co-540.aspx

Bradley, E., Canavan, M., Rogan, E., Talbert-Slagle, K., Ndumele, C., Taylor, L. & Curry, L. (2016, May).Variation in Health Outcome: The Role of Spending in Social Services, Public Health and Health Care." *Health Affairs 35:*(5). Retrieved from https://www.nap.edu/catalog/19402/vital-signs-core-metrics-for-health-and-health-care-progress

Bureau of Community Health and Prevention. (2015, January). The Massachusetts Prevention and Wellness Trust Fund-2014 Legislative Report. Massachusetts Department of Public Health. Retrieved from http://www.mass.gov/eohhs/docs/dph/com-health/prev-wellness-advisory-board/annual-report-2014.pdf

Burke, C. (2014, October 28). NYS Health Initiatives to Improve Population Health. Presentation. New York Department of Health. Retrieved from http://nyshealthfoundation.org/uploads/general/pop-health-summit-2014-burke-slides.pdf

California Department of Health Services. (2015, August 14). *Federal Government Approves New Model of Treatment for Drug Medi-Cal Program*. Retrieved from http://www.dhcs.ca.gov/formsandpubs/publications/opa/Documents/15-02%20DMC%20ODS%20Waiver%208-14-15.pdf

Campbell, C. (2016, March 16). Baltimore Approves Bike Rental Program to Launch in Fall with 500 Bicycles. *Baltimore Sun*. Retrieved from http://www.baltimoresun.com/news/maryland/baltimore-city/bs-md-ci-bike-share-approved-20160316-story.html

Cantor, J., Mikkelsen, L., Simons, B., & Waters, R. (2013, January). How Can We Pay For a Healthy Population? Innovative New Ways to Redirect Funds to Community Prevention. Prevention Institute. Retrieved from https://www.preventioninstitute.org/publications/how-can-we-pay-healthy-population-innovative-new-ways-redirect-funds-community

CareFirst BlueCross BlueShield. (2015, June 30). *Quality Remains Strong as Cost Increases Slow Dramatically for Members in Patient-Centered Medical Home Program.* Retrieved from https://member.carefirst.com/employer/news/employer-news/2015/quality-remains-strong-as-cost-increases-for-members-in-patient-centered-medical-home-program-slow-dramatically.page

Centers for Disease Control and Prevention. (2015). Compendium of Effective Falls Interventions: What Works for Community-Dwelling Older Adults," 3d Edition, Division of Unintentional Injury Prevention, National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. Retrieved from http://www.cdc.gov/homeandrecreationalsafety/falls/compendium.html

Centers For Disease Control and Prevention,. Case Study: The Effect of Expanding Cessation Coverage – the Massachusetts Medicaid Cessation Benefit. Washington, DC: US Department of Health and Human Services.

Center for Supportive Housing. (2014, July). *Housing is the Best Medicine: Supportive Housing and the Social Determinants of Health.* Retrieved from www.org/wo-content/uploads/2014/07/SocialDeterminantsofHealth_2014.pdf.

ChangeLab Solutions. (2014, June 2). ChangeLab Solutions Promotes Strategies for Reducing SSB Consumption. Retrieved from http://www.changelabsolutions.org/news/reducing-ssb

Clary, A. (2016, March 29).State Strategies to Improve Health Through Housing Services. National Academy for State Health Policy. Retrieved from http://www.nashp.org/state-strategies-to-improve-health-through-housing-services/

CMS. (2015). 2015-06-18 - Centers for Medicare & Medicaid Services. Retrieved 15 December 2015. Retrieved from https://www.cms.gov/newsroom/mediareleasedatabase/press-releases/2015-press-releases-items/2015-06-18.html

CMS. (2015). 2015-09-29 - Centers for Medicare & Medicaid Services. Retrieved 15 December 2015. Retrieved from https://www.cms.gov/Newsroom/MediaReleaseDatabase/Fact-sheets/2015-Fact-sheets-items/2015-09-29.html

CMS. *Dual Eligile Special Needs Plans (D-SNP)*. Retrieved from https://www.cms.gov/Medicare/Health-Plans/SpecialNeedsPlans/DualEligibleSNP.html

CMS. *Quality Measures, Reporting and Performance Standards*. Retrieved from https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Quality-Measures-Standards.html

Cohen, D. & Briggs, R. (2016, June 29)."Do Pediatricians Have a Role in Addressing Maternal

Depression? New Medicaid Guidance Shows the Way," HealthAffairs Blog. Retrieved from http://healthaffairs.org/blog/2016/06/29/do-pediatricians-have-a-role-in-addressing-maternal-depression-new-medicaid-guidance-shows-the-way/

Cohen, L., & Iton, A. (2014). Closing the Look: Why We Need to Invest-and Reinvest- in Prevention. The California Endowment. Retrieved from http://tcenews.calendow.org/blog/closing-the-loop:-why-we-need-to-investand-reinvestin-prevention

Colorado Association for School-Based Health Care. (2011). Colorado's investment in School-Based Health Centers. Retrieved from http://www.casbhc.org/Publications/Policy%20Briefs/Colorado's%20Investment%20in%20SBHCs.pdf

Corporation for Supportive Housing. (2014). *Briefing: Maryland 115 Housing Supports Waiver*.

Crawford, M. & Houston, R. (2015, February). State Payment and Financing Models to Promote Health and Social Service Integration. Center for Health Care Strategies, Inc. Retrieved from http://www.chcs.org/media/Medicaid_-Soc-Service-Financing_022515_2_Final.pdf

Davis, K. (2015, July 14). To Lower The Cost Of Health Care, Invest In Social Services. Health Affairs Blog. Retrieved from https://www.pcpcc.org/2015/07/14/lower-cost-health-care-invest-social-services

De Jonge. K. (2015, August 11). Back to the Future: Making House Calls for Better Care, Reduced Costs. Health & Human Services Blog. Retrieved from http://www.hhs.gov/blog/2015/08/11/making-house-calls-better-care-reduced-costs.html

Dobson, L. (2014). Community Care of North Carolina. Retrieved from https://www.nmlegis.gov/handouts/LHHS%20101012%20Item%200%20L.%20Allen%20Dobson,%20JR.%20MD,%20Community%20Care%20of%20North%20Carolina.pdf

Duke, E. (2012). Investing in What Works for America's Communities. Foreward: Building Sustainable Communities*. San Francisco: Federal Reserve Bank & Low income Investment Fund.* Retrieved from http://www.whatworksforamerica.org/the-book

Farley, T. (2013, December 3). Take Care New York: A Strategy for Population-Based Prevention. Retrieved from https://www.health.ny.gov/events/population_health_summit/docs/public_health_sector.pdf

Fish, D., (2015, September 24). *Prevention Agenda and DSRIP*. New York Prevention Agenda Update, New York Department of Health. Retrieved from https://www.health.ny.gov/facilities/public_health_and_health_planning_council/meetings/2015-09-24/docs/ad_hoc_committee_slides.pdf

Garrett, K. (2015, January). Bridging Health Care and Population Health: Payment and Financing Models. New York Academy of Medicine. Retrieved from http://nyshealthfoundation.org/uploads/resources/bridging-health-care-and-population-health-nyam-jan-2015.pdf

Galea, S. & Annas, G. (2016, February 16). Aspirations and Strategies for Public Health. *JAMA: Journal of the American Medical Association, 315*(7)*,* 655-656. Retrieved from: http://jama.jamanetwork.com/article.aspx?articleid=2486470

George, T. & Bai, B. (2015, May 21). The Weak Housing Market Recovery in Baltimore Has Hurt African Americans the Most. The Urban institute, Urban Wire. Retrieved from http://www.urban.org/urban-wire/weak-housing-market-recovery-baltimore-has-hurt-african-americans-most

Gordon, D. (2015). Telemedicine: Using Remote Monitoring to Reduce Hospital Readmissions. GW Public Health. Retrieved from https://mha.gwu.edu/blog/telemedicine-reduce-hospital-readmissions/

Guo, JJ, Jang, R., Keller, KN, McCracken, AL, Pan, W., & Cluxton, RJ. (2005, October). Impact of School-Based Health Centers on Children with Asthma. *Journal of Adolescent Health 37*(4): 266-274. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16182136

Health and Human Services. (2015). About the Division of Prevention and Wellness. Retrieved from http://www.mass.gov/eohhs/gov/departments/dph/programs/community-health/chronic-disease/about-the-division-of-prevention-and-wellness.html

Health Policy Institute of Ohio. (2015, September 1). *Wellness Trust, Beyond Medical Care Fact Sheet.* Retrieved from: http://www.healthpolicyohio.org/wp-content/uploads/2015/09/Beyond_WellnessTrustsFactSheet_Final.pdf

Health Resources in Action. (2014, January 31).Universal Health Insurance Access Efforts in Massachusetts: A Case Study: Lessons Learned for Public Health Systems Across the U.S. Retrieved from https://nnphi.org/wp-content/uploads/2015/08/UniversalHealthIns_CaseStudy_FINAL.pdf

HSCRC. (2016, February). Executive Director's Report. Retrieved from http://www.hscrc.state.md.us/documents/commission-meeting/2016/02-10/HSCRC-post-meeting/2016/02-10/HSCRC-Post-Meeting-Packet-%202016-02-10.pdf

Health Services Cost Review Commission (2016, May 11). Staff Report: Maryland Statewide Health Information Exchange, The Chesapeake Regional Information System for our Patients: FY2017 Funding to Support HIE Operations and CRISP Reporting Services. *Post-Meeting Packet – Health Services Cost Review Commission*. Retrieved from: www.hscrc.state.md.us/.../2016/05-11/HSCRC-Post-Meeting-Packet-2016-05-11.pdf

Healthy Baltimore 2015. (2016, May). *Interim Status Report.* Retrieved from http://health.baltimorecity.gov/sites/default/files/HealthyBaltimore2015_May2016Update_web.pdf

Healthy St Mary's County 2020. Retrieved from http://healthystmarys.com/wp-content/uploads/2016/03/HealthyStMarys2020.pdf

Healthy Baltimore 2015. (2016, May). *Interim Status Report*. Retrieved from: http://health.baltimorecity.gov/sites/default/files/HealthyBaltimore2015_May2016Update_web.pdf

Hennepin County. (2015). Hennepin Health's 2014 Reinvestment Initiatives. Retrieved from https://content.govdelivery.com/accounts/MNHENNE/bulletins/9e701c

Hennepin Health. (2015, January 30). National Health Policy Forum. Retrieved from https://www.nhpf.org/uploads/Handouts/Owen-slides_01-30-15.pdf

Hennepin Health (2011). A Social Disparities Approach to Health & Health Care. Retrieved from https://stateinnovation.org/node/6438

Hester, J., & Stange, P. (2014, March 6). A Sustainable Financial Model for Community Health Systems. National Academy of Sciences. Retrieved from https://nam.edu/perspectives-2014-a-sustainable-financial-model-for-community-health-systems/

Hester, J., Stange, P., Seeff, L., Davis, J., & Craft, C. (2015, February 11). Toward Sustainable Improvements in Population Health: Overview of Community Integration Structures and Emerging Innovations in Financing. Atlanta, GA: CDC Health Policy Series, No. 2. Retrieved from: https://www.cdc.gov/policy/docs/financepaper.pdf

Hester, J., Auerbach, J., Chang, D., Magnan, S., & Monroe, J. (2015, April 16). Opportunity Knocks Again for Population Health: Round Two in State Innovation Models. Washington, DC: National Academy of Sciences. Retrieved from https://nam.edu/wp-content/uploads/2015/06/SIMsRound21.pdf

Institute for Health Technology Transformation. (2012). Giving Congregations the Tools to Track Health Together. Retrieved from http://ihealthtran.com/pdf/Community_Dashboard_iHT2.pdf

Institute for Population Health Improvement. (2016). University of California, Davis Health System. Retrieved from: https://www.ucdmc.ucdavis.edu/iphi/

Institute on Urban Health Research and Practice. (2013). The Massachusetts Prevention and Wellness Trust. Northeastern University. Retrieved from http://www.northeastern.edu/iuhrp/wp-content/uploads/2013/12/PreventionTrustFinalReport.pdf

Kellermann, A., Vaiana, M., Hussey, P., Chari, R., Lowsky, D., & Mulcahy, A. (2012). Flattening the Trajectory of Health Care Spending: Insights from RAND Health Research. Santa Monica, CA: RAND Corporation. Retrieved from http://www.rand.org/pubs/research_briefs/RB9690z1.html

Kindig, D. (2014, April). Improving Population Health: Ideas and Action. University of Wisconsin Population Health Institute. Retrieved from https://uwphi.pophealth.wisc.edu/publications/other/blog-collection-final-2014-04-05.pdf

Kindig, D. (2010, June 7). *Obstacles to Population Health Policy: Is Anyone Accountable? Improving Population Health, Policy. Practice. Research*. Retrieved from: http://www.improvingpopulationhealth.org/blog/2010/06/obstacles-to-population-health-policy-i-is-anyone-accountable.html

Kindig, D. (2014, October 28, 2014). Paying for Population Health Improvement. Presentation, NYSHF Population Health Summit. Retrieved from http://nyshealthfoundation.org/uploads/general/pop-health-summit-2014-kindig-slides.pdf

Kindig, D., & Isham, G. (2014, Summer). Population Health Improvement: A Community Health Business Model That Engages Partners in All Sectors. *Frontiers of Health Services Management, 30*(4). 3-20. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/25671991

Kindig, D. & Stoddart, G. (2003, March). What Is Population Health? *American Journal of Public Health 93*(3). 380-383. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447747/

Koh, H. (2016, February 11). The importance Of Promoting Tobacco Cessation Services For Medicaid Beneficiaries. Health Affairs Blog. Retrieved from

http://healthaffairs.org/blog/2016/02/11/the-importance-of-promoting-tobacco-cessation-services-for-medicaid-beneficiaries/

Kresge Foundation. (2014, July 9). Kresge Invests $4.5M in Effort to Capture and Share Health Innovations that Shift Focus Upstream from Care to Health. Retrieved from http://kresge.org/news/kresge-invests-45m-effort-capture-and-share-health-innovations-shift-focus-upstream-care-health

Lawton, E., & Sandel, M. (2015, July 8). What's Law Got to Do With It? How Medical-Legal Partnerships Reduce Barriers to Health. Robert Wood Johnson Foundation. Retrieved from http://www.rwjf.org/en/culture-of-health/2015/07/what_s_law_got_todo.html

Lutes, M., & Wilson, T. (2014, June 2). Population Health Management: New Perspectives on a Familiar Concept. EBG Advisors.

Maryland Department of Health and Mental Hygiene. (2015, June). Drug-and Alcohol-Related Intoxication Deaths in Maryland, 2015. Retrieved from http://bha.dhmh.maryland.gov/OVERDOSE_PREVENTION/Documents/2015%20Annual%20Report_final.pdf

Maryland Department of Transportation (2016, February). Maryland Strategic Highway Safety Plan, 2016-2020. Retrieved from http://www.mva.maryland.gov/_resources/docs/MarylandSHSP_2016-2020-Final.pdf

Maryland Health Benefits Exchange (2016, May 16). Population Eligible for Maryland Health Connection Coverage Trimmed by 40 Percent in Three Years. Retrieved from http://www.marylandhbe.com/wp-content/uploads/2016/01/05162016_SHADACEstimates.pdf

Maryland State Health Improvement Process (SHIP) measures. Retrieved from http://dhmh.maryland.gov/ship/Pages/home.aspx

Massey, W., & Dressner, M. (2016, August 4). Advocates Rally for Baltimore Safe Streets Program After Funding Cut. *Baltimore Sun*. Retrieved from http://www.baltimoresun.com/news/maryland/baltimore-city/bs-md-ci-safe-streets-funding-rally-20160804-story.html

Mattessich, P., & Rausch, E. (2013, June 19). Collaboration to Build Healthier Communities. Wilder Research, Federal Reserve Bank of Minnesota. Robert Wood Johnson Foundation. Retrieved from http://www.rwjf.org/en/library/research/2013/06/collaboration-to-build-healthier-communities.html

McCarthy, D., Radley, D., & Hayes, S. (2015, December) Aiming Higher: Scorecard on State Health System Performance 4th ed. The Commonwealth Fund. Retrieved from http://www.commonwealthfund.org/publications/fund-reports/2015/dec/aiming-higher-2015

McCluskey, P. D., (2014, May 31) Paramedics Branch into Home Care. *Boston Globe*. Retrieved from https://www.bostonglobe.com/business/2014/05/30/paramedics-branch-into-home-care/WIBIbjRuBx6mQCeoNb3c3K/story.html

McGinnis, T., Crawford, M., & Somers, S. (2014). A State Policy Framework for Integrating Health and Social Services. Commonwealth Fund. Retrieved from: http://www.commonwealthfund.org/~/media/files/publications/issue-brief/2014/jul/1757_mcginnis_state_policy_framework_ib.pdf

MedStar Health. Community Health Needs Assessment 2015 for St. Mary' County. Retrieved from http://ct1.medstarhealth.org/content/uploads/sites16/2014/08/MedStar_CHNA_2015_FINAL.pdf

Menon, D., & Wolf, D. (2015, October 29-30) Enhancing Access of Underserved Populations to Pediatric Specialty Care through Telemedicine. 2015 Rural Health Conference. Retrieved from http://www.mdruralhealth.org/wp-content/uploads/2015/12/Menon.Wolf_.pdf

MHA. (2016). *Maryland Waiver Performance Dashboard*. Retrieved from http://www.mhaonline.org/transforming-health-care/tracking-our-all-payer-experiment/waiver-dashboard

Moses, K. & Davis, R. (2015, July 22).Housing is a Prescription for Better Health. Health Affairs Blog. Retrieved from Healthaffairs.org/blog/2015/07/22/housing-is-a-prescription-for better-health/

Nardone, M., Cho, R. & Moses, K. (2012, June). Medicaid-Financed Services in Supportive Housing for High-Need Homeless Beneficiaries: The Business Case. Center for Health Care Strategies, Inc., Policy Brief. Retrieved fromhttp://www.csh.org/wp-content/uploads/2012/06/SH-Medicaid-Bz-Case_Final.pdf.

National Academies Press (2015) *Collaboration Between Health Care and Public Health: Workshop in Brief*. Retrieved from https://www.nap.edu/catalog/21687/collaboration-between-health-care-and-public-health-workshop-in-brief

National Council on Aging. (2015, June 2). Highest Tier Evidence-Based Health Promotion/Disease Prevention Programs. Retrieved from https://www.ncoa.org/wp-content/uploads/Title-IIID-Highest-Tier-Evidence-FINAL.pdf

New Strategies for a New Era in Population Health. (2015, August). Health Leaders Magazine. Retrieved from http://www.healthleadersmedia.com/whitepaper/new-strategies-new-era-population-health#

New York Academy of Medicine. (2013). A Compendium of Proven Community-Based Prevention Programs Retrieved from http://healthyamericans.org/assets/files/Compendium_Report_1016_1131.pdf

Nice Ride Minnesota. (2015, May 7). *Nice Ride: Five-Year Assessment and Strategic Plan*. Retrieved from https://www.niceridemn.org/_asset/dvhz30/Nice-Ride-Five-Year-Assessment-060415.pdf

Mandros, A. (2015, May 29). For Supportive Housing, Creativity Required. Open Minds, Retrieved from https://www.openminds.com/market-intelligence/executive-briefings/supportive-housing-creativity-required/

National Association of Psychiatric Health Systems (2014) Population Health and Integration: Shaping the Future of Treatment for Mental and Addictive Disorders. NAPHS Leadership Forum. Retrieved from https://www.naphs.org/resourcemanager/handlerresource.aspx?id=827

Oregon Health Authority. (2015) *CCO Metrics Performance Report*. Retrieved from https://www.oregon.gov/oha/Metrics/Pages/HST-Reports.aspx

Oregon Health Authority. (2014). *Oregon's Health Transformation Final Report*. Retrieved from

https://www.oregon.gov/oha/Metrics/Documents/2014%20Final%20Report%20-%20June%202015.pdf

Oregon Health Authority, *Office of Health Analytics*. Retrieved from http://www.oregon.gov/oha/analytics/Pages/Child-Family-Well-Being-Measures

Oregon Health Authority. (2016). Oregon School-Based Health Centers: Status Update. *Oregon Health Authority, Public Health Division*. Retrieved from https://public.health.oregon.gov/HealthyPeopleFamilies/Youth/HealthSchool/SchoolBasedHealthCenters/Documents/SBHC__Pubs/2016_SBHC-Status-Update.pdf

O'Toole, T. & Kane, V. (2014, March). Return on Investment Analysis and Modeling. VA National Center on Homelessness Among Veterans*, U.S. Department of Veterans Affairs*. Retrieved from http://www.va.gov/homeless/nchav/docs/Return%20 on% 20Investment%20Analysis%20and%20Modeling%20White%20Paper.pdf

Parsons, A. (2016, April 6). *Montefiore's Population Health Programs and Strategies*. Presentation, Maryland Population Health Summit.

Patnode, C., Henderson, J., Thompson, j., Senger, C., Fortmann, S., & Whitlock, E. (2015, September 22). Evidence Summary: Tobacco Smoking Cessation in Adults, Including Pregnant Women: Behavioral and Pharmacotherapy Interventions. U.S. Preventive Services Task Force. Retrieved from http://www.uspreventiveservicestaskforce.org/Page/Document/behavioral-counseling-and-pharmacotherapy-interventions-for-/tobacco-use-in-adults-and-pregnant-women-counseling-and-interventions1

Paying for Senior Care. (2016, February). Oregon's Aged and Physically Disabled Medicaid Waiver. Retrieved from https://www.payingforseniorcare.com/medicaid-waivers/or-aged-and-physically-disabled.html

Plaza, C., Arons, A., Rosenthal, J., & Heider, F. (2014, April). Financing Prevention: How States are Balancing Delivery System & Public Health Roles. *ChangeLab Solutions.* Retrieved from http://www.changelabsolutions.org/financing-prevention

Pollitz, L. & Rae, M. (2016, May 19). Workplace Wellness Programs, Characteristics and Requirements. *Kaiser Family Foundation*. Retrieved fromhttp://kff.org/private-insurance/issue-brief/workplace-wellness-programs-characteristics-and-requirements/

Prybil, L., Jarris, P., & Montero, J. (2015, November 3). A Perspective on Public - Private Collaboration in the Health Sector. *National Academy of Medicine*. Retrieved from https://nam.edu/a-perspective-on-public-private-collaboration-in-the-health-sector/

Prybil, L., Scutchfield, F., Killian, R., Kelly, A., Mays, G., & Carman, A. et al. (2014). *Improving Community Health through Hospital - Public Health Collaboration*. Lexington, KY: Commonwealth Center for Governance Studies. 1-105.

Radley, D., McCarthy, D., & Hayes, S. (2016). Rising to the Challenge, The Commonwealth Fund Scorecard on Local Health System Performance. *The Commonwealth Fund*. Retrieved from http://www.commonwealthfund.org/interactives/2016/jul/local-scorecard/

Rausch, E. (2014, April 1). CDFIs Emerge as Key Partners in Improving Community Health. Community Dividend. *Federal Reserve Bank of Minneapolis*. Retrieved from https://www.minneapolisfed.org/publications/community-dividend/cdfis-emerge-as-key-partners-in-improving-community-health

Regenstein, M., Teitelbaum, J., Sharac, J., & Phyu, E. (2015, February). Medical-Legal Partnerships and Health Centers: Addressing Patients' Health-Harming Civil Legal Needs as Part of Primary Care. *National Center for Medical-Legal Partnership.* Retrieved from http://medical-legalpartnership.org/wp-content/uploads/2015/08/Medical-Legal-Partnership-and-Health-Centers.pdf

Richter, L. (2009, May 13). Prescription for Healthy Communities: Community Development Finance. Community Development Investment. *Federal Reserve Bank of San Francisco*. Retrieved from http://www.frbsf.org/community-development/files/richter.pdf

Robert Wood Johnson Foundation. *County Health Rankings and Roadmaps*. Retrieved from http://www.countyhealthrankings.org/\

Robert Wood Johnson Foundation. (2012, September 26). What Works for Health: A New Resource for Community Leaders. *Culture of Health*. Retrieved from http://www.rwjf.org/en/culture-of-health/2012/09/what_works_for_healt.html

Robert Wood Johnson Foundation. (2015, November 11). *Measuring What Matters: Introducing a New Action Framework. Culture of Health*. Retrieved from: http://www.rwjf.org/en/culture-of-health/2015/11/measuring_what_matte.html

Rosenthal, S., Meara, A., & Hollingsworth, N. (2015). Improving Care Coordination and Strategies for Managing Greater Risk and Accountability. *Presentation, Montefiore Medical Center.*

RTI International. (2014, November 4). *State Innovation Models (SIM) Initiative Evaluation*. Retrieved from https://downloads.cms.gov/files/cmmi/SIM-Round1-ModelTest-FirstAnnualRpt_5_6_15.pdf
.

Salvation Army (2015, March 9) *Community Paramedics On Duty at Harbor Light*. Retrieved from http://salvationarmynorth.org/?community-news=community-paramedics-on-duty-at-harbor-light

Schulz, R. (2015, June 23). A New Model for Private Sector Partnerships to Improve Economic Well-Being and Community Outcomes. *National Academy of Sciences*. Retrieved from https://nam.edu/perspectives-2015-a-new-model-for-private-sector-partnerships-to-improve-economic-well-being-and-community-outcomes/

Silow-Carroll, S., Edwards, J., & Lashbrook, A. (2011, April). Reducing Hospital Readmissions: Lessons from Top-Performing Hospitals. *The Commonwealth Fund*. Retrieved from http://www.commonwealthfund.org/~/media/Files/Publications/Case%20Study/2011/Apr/1473_SilowCarroll_readmissions_synthesis_web_version.pdf

Staterefor(u)m (2014, January). Population Health Components of State Innovation Model (SIM) Plans: Round 2 Model Testing States. Retrieved from http://www.statecoverage.org/node/5302

Stoto, M., & Ryan Smith, C. (2015, April 9). Community Health Needs Assessments - Aligning the Interests of Public Health and the Health Care Delivery System to Improve Population Health. *Institute of Medicine of the National Academies*. Retrieved from https://nam.edu/wp-content/uploads/2015/07/CHNAalignment.pdf

Taylor E., Lake T., Nysenbaum J., Peterson G., Meyers D. (2011, June). Coordinating Care in

the Medical Neighborhood: Critical Components and Available Mechanisms. White Paper (Prepared by Mathematica Policy Research under Contract No. HHSA290200900019I TO2). AHRQ Publication No. 11-0064. Rockville, MD: Agency for Healthcare Research and Quality.

Taylor, L., Coyle, C., Ndumele, C., Rogan, E., Canavan, M., Curry, L., & Bradley, E. (2015, June 29). Leveraging the Social Determinants of Health: What Works? *Blue Cross Blue Shield of Massachusetts Foundation.* Retrieved from http://bluecrossfoundation.org/sites/default/files/download/publication/Social_Equity_Report_Final.pdf

Thomas, J., (2014, July 21). Veterans Administration is Leader in Telemental Housing. *National Psychologist.* Retrieved from http://nationalpsychologist.com/2014/07/veterans-administration-is-leader-in-telemental-health/102562.html

Tipirmeni, M.D., R., Vickery, M.D., K., & Ehlinger, M.D., E. (2015, July/August). Accountable Communities for Health: Moving From Providing Accountable Care for Creating Health. *Annals of Family Medicine, Vol. 13*(4). Retrieved from http://www.annfammed.org/content/13/4/367.full

Townley, C., & Yalowich, R. (2015, November). Improving Behavioral Health Access & Integration Using Telehealth & Teleconsultation: A Health Care System for the 21st Century. *National Academy for State Health Policy*. Retrieved from http://www.nashp.org/wp-content/uploads/2015/11/Telemedicine.pdf

Union Hospital & Cecil County Health Department. *Cecil County's Community Health Needs Assessment, 2015-2016*. Retrieved from https://www.uhcc.com/wp-content/uploads/2016/04/CHNA-Report_FY15-FY16_public-feedback-draft.pdf

United Health Foundation, America's Health Rankings. Retrieved from www.americashealthranking.org

UnitedHealth Group. (2014, October 7). *United Healthcare provides $5.1 Million to Build Affordable-Housing Community in Boston's Jamaica Plain Neighborhood for People Struggling with Homelessness*. Retrieved from https://www.uhc.com/news-room/2014-news-release-archive/affordable-housing-in-boston

Vitality Institute, *Health Metrics Reporting*. Retrieved from http://thevitalityinstitute.org/projects/health-metrics-reporting/

Vitality Institute. (2014, June). *Investing in Prevention: A National Imperative - Our Pledges & Calls-to-Action*. Retrieved from http://thevitalityinstitute.org/site/wp-content/uploads/2014/06/Vitality_Recommendations2014.pdf

Webber, MP., Carpiniello, K., Oruwariye, T., Lo, Y., Burton, W., & Appel, D. (2003). Burden of Asthma in Inner-city Elementary Schoolchildren. *Pediatric and Adolescent Medicine 157*: 125-129. Retrieved from http://www.attendanceworks.org/wordpress/wp-content/uploads/2011/10/Burden-of-Asthma_Do-SBHCs-Make-Difference_Webber-et-al_Arch-Ped-Adol-Med_2003.pdf

Webster, D., Mendel Whitehill, J., Vernick, J. & Parker, E., (2012, January 11). *Evaluation of Baltimore's Safe Streets Program*. Baltimore, MD: Johns Hopkins Bloomberg School of Public Health, Center for the Prevention of Youth Violence. Retrieved from http://www.rwjf.org/content/dam/web-assets/2012/01/evaluation-of-baltimore-s-safe-streets-program

Wenger, Y. (2016, September 2). Affordable Housing Advocates Push for Trust Fund, Money to

Fill It. *The Baltimore Sun*. Retrieved from http://www.baltimoresun.com/news/maryland/baltimore-city/politics/bs-md-ci-housing-amendment-20160830-story.html

Western Maryland Health System & Allegany County Health Department. (2013, December). *Allegany County Community Health Needs Assessment*. Retrieved from http://www.alleganyhealthdept.com/alleganyhealthplanningcoalition/pdf/Community%20Health%20Needs%20Assessment%20FY14%20(final).pdf

Worcester County, Maryland. *Community Health Improvement Plan (CHIP), 2012-2017*. Retrieved from http://www.worcesterhealth.org/community-health-improvement-planning-chip

Zimmerman, J., Campisteguy, M., Parks, L., & Richardson, J. (2011, December). *The School-Based Health Care Policy Program: Capstone Evaluation. Outcomes, Impact and Lessons Learned, 2004-2010*. Retrieved from http://www.schoolbasedhealthcare.org/wp-content/uploads/2011/12/SBHCPP-Capstone-Evaluation-Report-2004-2010-Rev-Dec-2011-2.pdf