



CENTER FOR POPULATION HEALTH  
INFORMATION TECHNOLOGY

# Maryland SIM Planning Grant Contract: CPHIT/ CRISP Population Health Measurement Development

Presented by: Office of Population Health Improvement  
Maryland DHMH &  
The Center for Population Health IT (CPHIT)  
The Johns Hopkins Bloomberg School of Public Health

Presented to: HSCRC Performance Measurement Workgroup  
Date: October 21st, 2016



# Intro: Purpose of Today's Discussion

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- Introduce DHMH Population Health Measures Project
- Present draft measurement framework and measures
- Obtain feedback from stakeholders on opportunities to improve measurement framework and plans being developed



# Intro: Alignment with Health Transformation

## Background

- Project
- Partners
  - HSCRC, Medicaid, CRISP
  - CMMI
  - Consultant – JHU-Center for Population Health IT (CPHIT)

## Aims

- Integrate with SIM Design Grant from CMMI for system-wide health transformation
- Support the All Payer Model drive for TCOC and population health
- Build on existing innovative measurement systems for prevention and community health including:
  - ACOs, PCMH
  - SHIP
  - Core Measure Set



## Care Redesign Amendment

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- At stakeholder request, we asked CMS to approve an amendment to our All-Payer Model (Model) to obtain comprehensive patient level Medicare data to support care coordination, to allow hospitals to share resources with non-hospital providers, and to allow hospitals to share savings with non-hospital providers.
- More information on implementation of the Care Redesign Programs is available on HSCRC's website: <http://www.hscrc.maryland.gov/care-redesign.cfm>



# Amendment: Care Redesign Programs

## Hospital Care Improvement Program (HCIP)

- **Who?** For hospitals and providers practicing at hospitals
  - **What?** Facilitates improvements in hospital care that result in care improvements and efficiency
- ▶ Hospitals can select which program(s) to participate in
  - ▶ Through these voluntary programs, hospitals will be able to obtain data, share resources with providers, and offer optional incentive payments
  - \*Maryland will modify program as needed to adapt to Medicare's CPC+ program

## Complex and Chronic Care Improvement Program (CCIP)

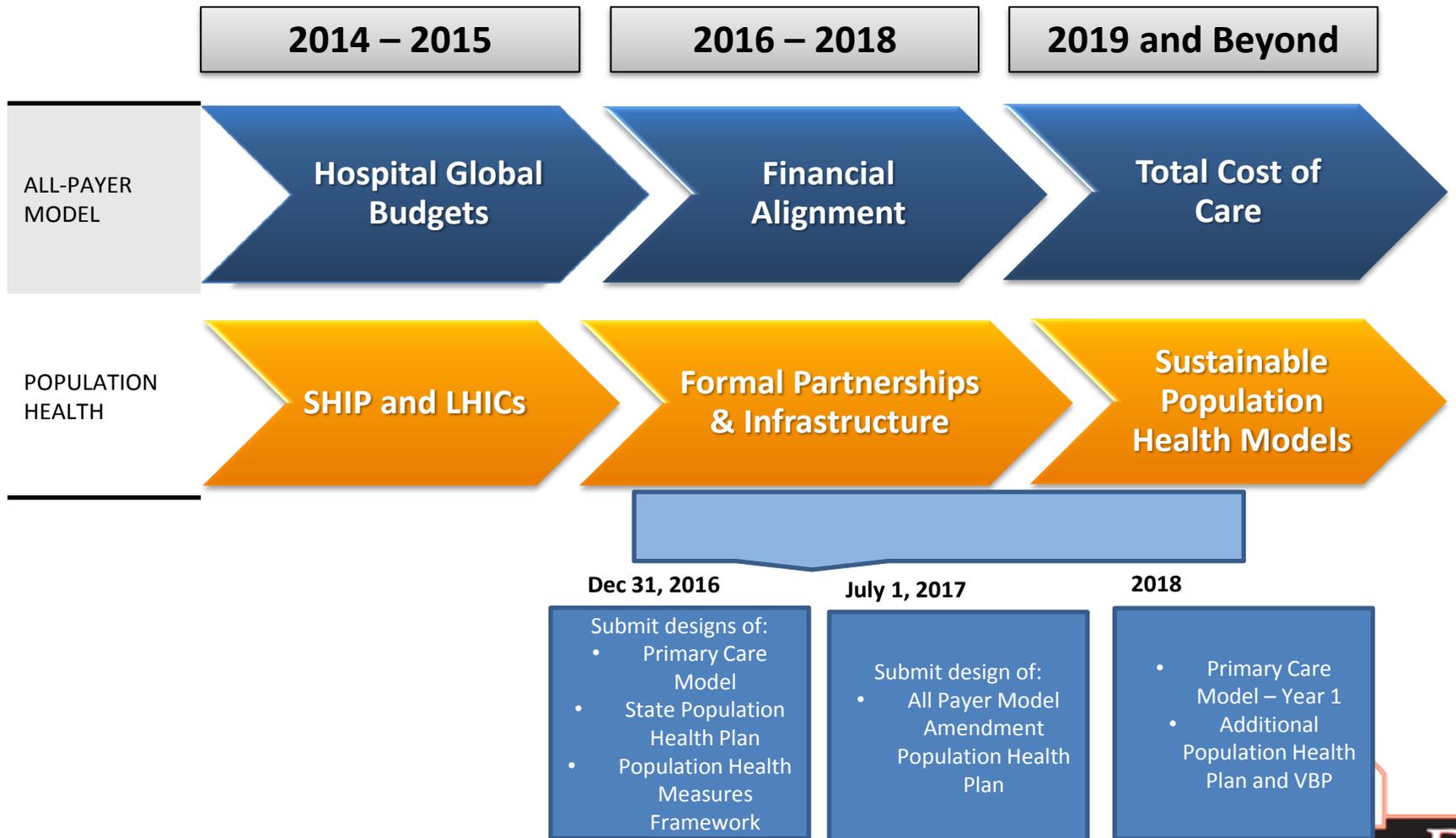
- **Who?** For hospitals and community providers and practitioners
- **What?** Facilitates high-value activities focused on high needs patients with complex and rising needs, such as multiple chronic conditions
- Leverages Medicare Chronic Care Management (CCM) fee\*



- Working towards this goal, the State will submit a **Population Health Plan** to CMS by June 30, 2017. The Population Health Plan will describe a transformation to value-based payments for selected population health measures. This plan will include:
  - Identifying measures that will be incorporated into the State's Appendix 7 measure reporting to CMS, as described in the Model Agreement;
  - **Identifying at least three priority improvement measures for improving the State's population health;**
  - **Proposing potential interventions to improve population health in these priority areas, including those that promote collaboration among State entities, public health agencies, and providers;**
  - **Proposing outcomes-based measures that assess progress on population health improvement; and**
  - Describing pathways to transition to population-based, hospital payments.



# TRANSFORMATION PROGRESSION



PROPOSED POPULATION HEALTH MEASUREMENT  
FRAMEWORK DEVELOPED BY THE JOHNS HOPKINS  
CENTER FOR POPULATION HEALTH IT, IN  
COLLABORATION WITH THE DHMH, CRISP AND THE  
HSCRC



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# Project Information

- Project funding: Maryland SIM Planning Grant
- CPHIT contract through CRISP for development of population health measures and data assessment
- CPHIT team
  - Jonathan Weiner, DrPH: Principal Investigator ([jweiner1@jhu.edu](mailto:jweiner1@jhu.edu))
  - Elham Hatef, MD, MPH: Project Lead
  - Elyse Lasser, MS
  - Hadi Kharrazi, MD, PhD
  - Christopher Chute, MD, DrPH



# Project Background

- In Maryland and on a national level the implementation of ACA has brought increased attention to the population health among healthcare professionals and policy makers.
- Despite ongoing discussions on broad goals for population health there is lack of consensus on its specific definition, related indices, and how to measure the current status of health in a population as well as its improvement within and across different subpopulations.
- This highlights the importance of identifying a framework and set of measures for the population health.



# Project Goals

- Develop a proposed population health measurement framework for the State of Maryland
- Develop and Propose population health specific measures based on the framework, the current environment and future progress in the state of Maryland
- To be completed:
  - Understand current and future data environment for the proposed population health measures
  - Propose plans for measures to evolve from process to outcome measures as data and information becomes more available (deployment plans)

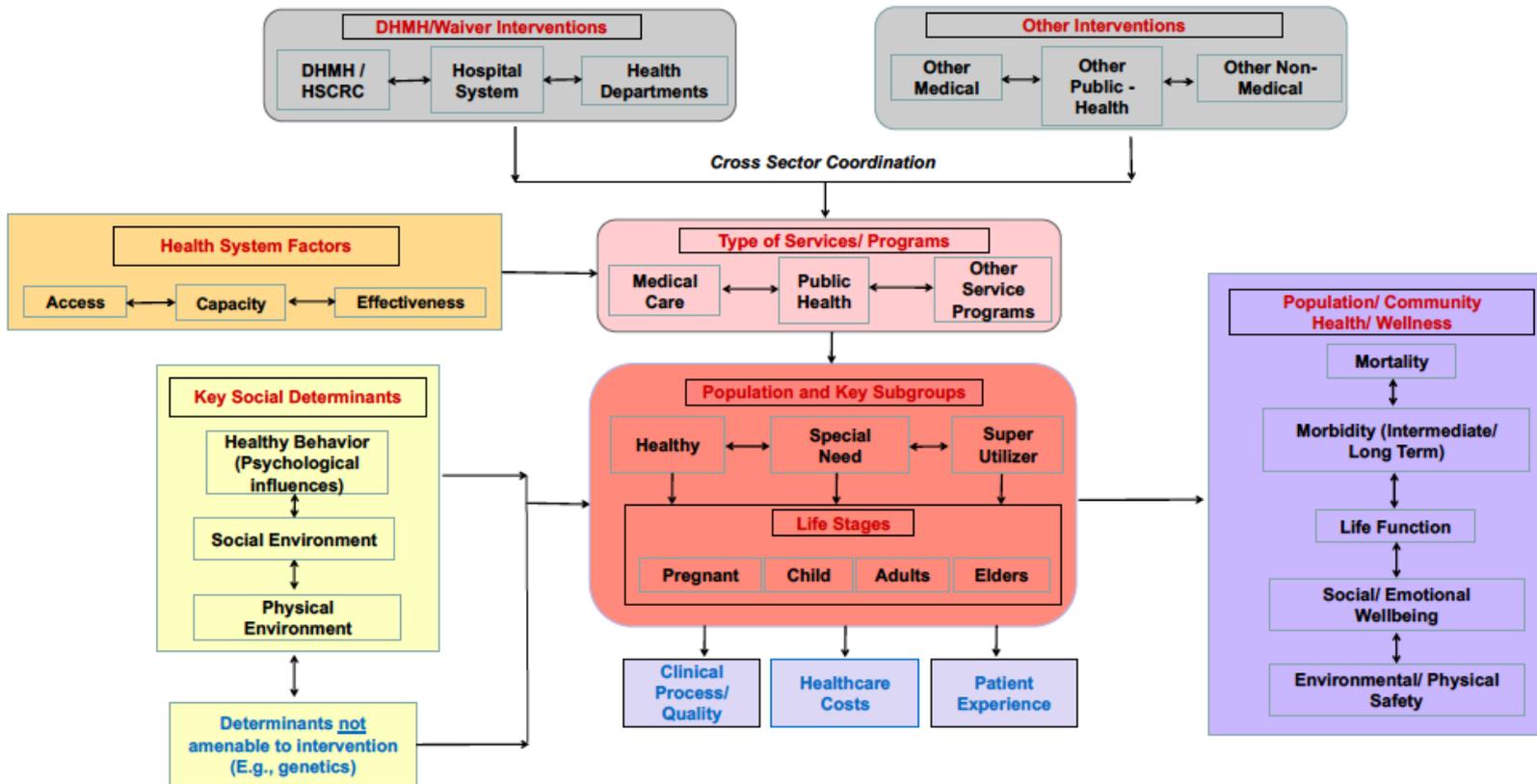


# Project Process

- Identify existing population health frameworks and measures
- Extensive search of peer-reviewed and other expert-authored literature, as well as an environmental scan including gray literature, those lacking formal peer review.
- Scan current population health and public health measures at
  - DHMH and similar state as well as local public health agencies
  - CMS
  - IOM
  - NQF
  - IHI
  - CDC
  - AHRQ
  - WHO
- Perform a semi-structured analysis to identify common themes and topics related to population health as already defined, and then developing a comprehensive list of available population health measures.



# Proposed Population Health Framework for Maryland



# Selection Criteria for Population Health Measures

**1. Population/Community Focused:** measures that are relevant to one or more of the three population level perspectives (aka the three CDC pop health "buckets"):

- Relevant to community level interventions (e.g., for entire state or county or special target population across region)
- Health system interventions (e.g., a hospital system, Accountable Care Organization or provider consortia)
- Bringing population issues into clinical services (e.g., primary care physician or care manager/ outreach nurse)

**2. Importance/Applicability for use as:**

- Population based performance measures
- Population level factors that are important to take into account for clinical/public health intervention



# Selection Criteria for Population Health Measures

## 3. Helps to complete a “balanced score card” of population health:

- Measures not only related to medical care (i.e., more social)
- Focuses on population facets of medical care (i.e., the full denominator in need not just those getting care.)
- Focusing on interplay between public health interventions and medical care
- A type of structure oriented quality improvement measure that will serve as a motivator to help build new infrastructure for data collection for population health (e.g., a metric assessing the collection of socioeconomic status data in electronic health records)
- Tools that will support not just the current Maryland's all-payer model, but also future innovations (e.g., as described in the state innovation model grant)
- Relevant to small areas, i.e. when defining communities, we can go beyond just county or large zip codes.
- Range of temporality. I.e., some measure address short term outcomes, other longer term. (Some of the outcomes will require being in it for the long haul)



# Selection Criteria for Population Health Measures

## 4. Overall practicality / strategic value

- Measurement areas not previously addressed by HSCRC/ DHMH or measures already identified, but further work is needed
- Could be accomplished with limited resources (i.e., not a new major community survey)
- Fills a gap in the framework

## 5. Scientific Evidence / Measures Attributes

- Evidence that measures matter for health and welfare
- Preliminary measurement work exists
- Previous validation of accuracy / feasibility desirable
- Previous measure standards / certification



# Selection Criteria for Population Health Measures

## 6. Data Feasibility / supports and expands digital infrastructure

- CRISP/ Admission-Discharge-Transfer
- Maryland Health Care Commission All payer/Medicare claims
- Claims and administrative data (CRISP/HSCRC/MHCC)
- Census and other regularly collected geo data
- Vital records / DHMH/ public health data available but not yet used
- EMRs (in and out of CRISP's current possession)
- Innovative social/non-medical big data currently available



# Review - What Makes Our Proposed Measures Unique?

- **The Types of Measures We Recommend:**

- Existing, validated measures (e.g., NQF, CMS) that until now have been used for a health plan/provider defined “denominator”
- Existing public health / community health measures used to date mainly for needs assessment at State or County level
- Innovative measures (from IOM and others) addressing broader definitions of pop health and newly expanded digital data sources

- **Some Unique Features of our Measures;**

- Denominator/ “populations” are defined more broadly:
  - *Geographic or pop-subgroup defined cohort without regard to provider*
- Makes use of expanded data sources:
  - *Electronic health records and expanded social/geo data sources*
  - *Proposed a phased near-term/long term deployment based on data system progression*
- Moves beyond the “clinical/medical” model to address “social/environmental” factors known to have larger impact on health.



# Proposed Community/Population Level Measures

1. Diabetes-related emergency department visits for community/population (A1/A2)
2. Asthma-related emergency department visits for community (A1/A2)
3. Body Mass Index (BMI) screening and follow-up for community/ population (A3/ C2/PQ) (PQ= process quality)
4. Screening for high blood pressure and follow-up for community/population (A3/ /C2 /PQ)
5. Food – nutrition; fruit and vegetable consumption for population (B1)
6. Counseling on Physical Activity in the Population (B1)
7. Current adult smoking within population (B1)
8. Median household income within population (B2)
9. Levels of housing affordability and availability (B2/B3)
10. Age-adjusted mortality rate from heart disease for population (C1)
11. Addiction-related emergency department visits (A1/C2)
12. Falls; Fall-related injury rate (A4/B3/C1/C2/C3)
13. Social connections and isolation (B2)
14. Functional Outcome Assessment (B1/C2)
15. Self-Reported Health Status (C2)



# Mapping The Proposed Population Health Measures onto Our Recommended Population Health Framework

Overview of Population Health Measurements																				
Target Population	Life Courses	Health System Factors			Key Social Determinants			Outcomes												
		Access	Capacity	Effectiveness	Healthy Behavior	Social Environment	Physical Environment	Mortality	Population/ Community Health/ Wellness			Clinical Process/ Quality	Healthcare Cost	Patient Experience						
									Intermediate	Long Term	Life Function				Social/ Emotional Wellbeing	Environmental/ Physical Safety				
Healthy	Across Target Populations & Life Courses	A1		A3	B1	B2	B3						C3							
	Pregnant																			
	Child/ Adolescent																			
	Adult																			
	Elderly																			
Special Needs	Across Target Populations & Life Courses		A2					A3 & A4				C1			C2					
	Pregnant																			
	Child/ Adolescent																			
	Adult																			
	Elderly																			
Super Utilizers	Across Target Populations & Life Courses																			
	Pregnant																			
	Child/ Adolescent																			
	Adult																			
	Elderly																			

*(See measure mapping codes on previous slide)*



# Subset of Measure Suggested as Priority for Md.

Measure #	Domain	Title	Target Population	Possible Sources of Data
3	System Effectiveness/ Process Quality/ Morbidity	<b>BMI Screening/ Follow-up</b>	Adult (& Children)	EHR & Claims
4	System Effectiveness/ Process Quality/ Morbidity	<b>Hypertension Screening &amp; Follow-up</b>	Adult	EHR & Claims
6	Healthy Behavior/ Determinant	<b>Physical Activity</b>	Adult (& Children)	EHR or BRFSS / Survey-Pt. Portal
7	Healthy Behavior/ Determinant	<b>Smoking</b>	Adult	EHR or BRFSS / Survey /Patient Portal
12	Morbidity/Mortality Physical Environment/ Safety	<b>Falls related acute utilization</b>	Adult / Elders	HSCRC/ Claims/ EHR Vital records (optional)
15	Morbidity	<b>Self-Reported Health Status - Fair or Poor</b>	Adult	BRFSS /Survey or EHR / Patient portal



# Next Steps

- Data assessment: Assess feasibility of current EHR type data being collected at an HIE level
- Data Infrastructure development plan and strategic plan to capture the broader 15 measures of population health
- Develop Measure Deployment Progression Plan for 4 of the 6 Priority Population Health Measures (BMI, HTN, Smoking, Falls-Dual Eligible)
  - Detail the transition from process to outcome measures for capturing and measuring population health
  - E.g. BMI
    - Near-term Measure: 6 months to two years
    - Mid/Long-term Measure: 3 to 5 years



# Initial Assessment of Alternative Data Sources For Each Measure

## Summary of Potential Data Sources Contributing to Recommended Population Health Measures and The Expected level of Available Geographic Details

### Summary of Data Likely Sources For Each Measure

Measure by number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
EHR	x	x	x	x	x	x	x	x		x	x	x	x	x	x
HSCRC	x	x	x			x	x			x	x	x			
MHCC	x	x	x			x	x			x	x	x			
BRFSS					x	x	x						x		x
CRISP		x				x					x	x			
Census					x			x	x				x		x
Vital Records										x					
Medicaid	x	x		x		x				x	x	x			
MDP								x	x						
BHA					x								x	x	x
YRBSS					x	x									
Mobile Health Vans			x	x			x								x
School Health Clinics			x	x	x	x							x	x	x
Community Health Fairs			x	x	x	x			x				x	x	x
Community Outreach			x	x	x	x	x	x	x			x	x	x	x
Medicare Health Outcomes Survey						x									



# Assessment of Level of Geographic “Granularity” for Alternative Data Sources

**The Expected level of Geographic Details By Type/Source of Data**

<u>Data Type</u>	<u>Individual</u>	<u>Zip code /Track</u>	<u>County</u>	<u>State</u>	<u>National</u>
Clinical	EHR				
Administrative	CRISP	HSCRC, MHCC/ Claims		Medicaid	
Survey		Census MDP	BRFSS	YRBSS BHA	YRBSS
Vital Records			Birth, Death, Mortality		



# Preliminary EHR Data Assessment:

## For the BMI and Falls Measures

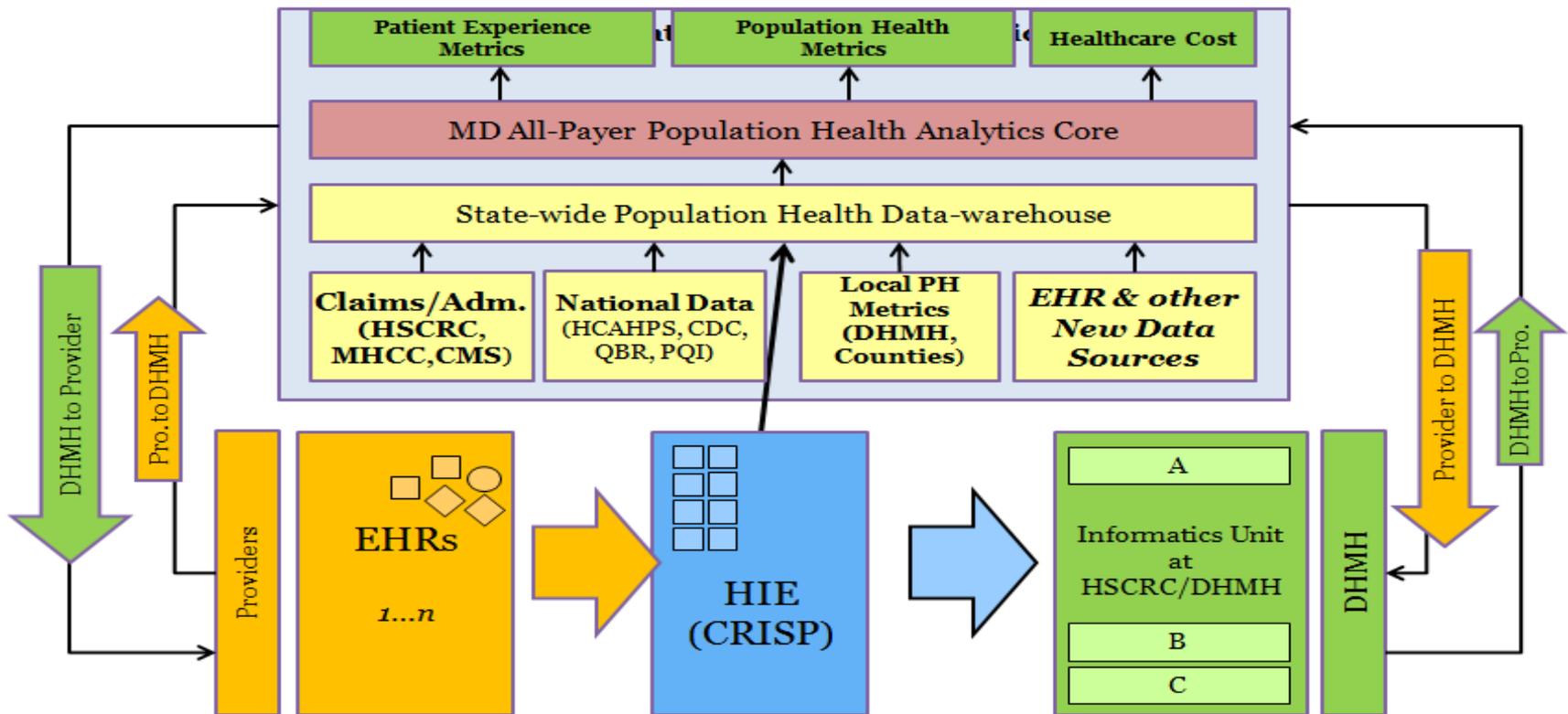
DHMH #	CMS ID #	Measure Title	QDM Data Types Needed	Data Available in EHR-CCDA Summary Record
Measure 3	CMS69	Preventive Care and Screening: BMI Screening and Follow-Up Plan	Diagnosis, Active	Yes
			Encounter, Performed	Likely
			Intervention, Order	No
			Medication, Order	More Analysis Needed
			Physical Exam, Performed	Yes
			Procedure, Order	No
			Attribute: Reason	Yes
Measure 12	CMS139	Falls: Screening for Future Fall Risk	Encounter, Performed	Likely
			Risk Category Assessment	Possible
			Risk Category Assessment not done	No



# Building on Maryland's Developing HIT Infrastructure

## A Future Vision

### Conceptual model for the "Maryland Population Health Information Network" (M-PHIN) in Support of the "All Payer" and Other Community Level Initiatives



# Sketch of a Possible Measurement Deployment Plan (**BMI as an Example**): Time Frame Dimensions, Possible Next Stage Metrics and New Data Sources

	<u>Time Frame</u>	<u>Process and Output Measures</u>			<u>Outcomes Measures</u>	<u>Impact</u>	
		<u>Short Term (Current)</u>	<u>Near Term (6 months to 2 years)</u>		<u>Mid to Long Term (3 to 5 years)</u>	<u>Longer Term (5 to 10 yrs)</u>	
		<u>Geographic Level</u>	County	Individual/ Community		EHR/ Individ/ Comm.	EHR/ Individ/ Comm.
		<u>Data Sources</u>	BRFSS	E.H.R	CRISP		
Cost of Care	TBD						
Population Health	Body Mass Index (BMI) screening and follow-up for community/ population (NQF#0421 and CMS#69)	BMI score based on self-reported weight and height of a representative sample (12,369 people ) for the state of Maryland	BMI score based on measured height a and weight in C-CDA	BMI screening is possible with C-CDA. intervention and are not available, which is necessary to calculate f/u visits.	Adults who are a healthy weight  Children and adolescents who are obese	Obesity surveillance in a specific catchment area using E.H.R data	
Patient Experience of Care	TBD						



# Feedback?

- Please provide your impressions.
- Questions to think about:
  - Given the current speed of health transformation in the State and the priorities under the All Payer Model, does the combination of process and outcome measures by domain seem appropriate?
  - Are there opportunities for improvement?
    - Sourcing of data
    - Major areas of omission when measuring community health
    - Additional partners
  - When can we expect improvements in the proposed measures?
  - How can we leverage E.H.R. and other timely data sources to capture population health?
  - Other comments?



# Contact Information

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To provide additional comments, please contact:

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