NATIONAL
RURAL HEALTH
RESOURCE CENTER

Using Data Analytics to Manage Population Health Services

April 10, 2015

Scott W. Goodspeed, DHA, FACHE

STROUDWATER

Agenda

STROUDWATER

I. Analytics and Publically Available Data to Manage Population Health: CDC and CHIS

II. Analytics and Claims Data to Manage Population Health

III. Hot Spotting with Claims Data: Camden Coalition of Healthcare Providers Case Study

IV. Chronic Illness and Population Health Priorities

V. Action Planning and Next Steps

- On March 10, 2015 the CDC released the updated Community Health Status Indicators (CHSI) online tool that produces public health profiles for all 3,143 counties in the United States.
- Each profile includes key indicators of health outcomes, which describes the population health status of a county and factors that have the potential to influence health outcomes, such as health care access and quality, health behaviors, social factors, and the physical environment.

- The online application includes updated peer county groups, health status indicators, a summary comparison page, and U.S. Census tract data and indicators for sub-populations (age groups, sex, and race/ethnicity) to identify potential health disparities.
- In this new version of CHSI, all indicators are benchmarked against those of peer counties, the median of all U.S. counties, and Healthy People 2020 targets.

- Organizations conducting community health assessments can use CHSI data to:
  - Assess community health status and identify disparities;
  - Promote a shared understanding of the wide range of factors that can influence health; and
  - Mobilize multi-sector partnerships to work together to improve population health.
  - To access CHSI, visit http://wwwn.cdc.gov/communityhealth

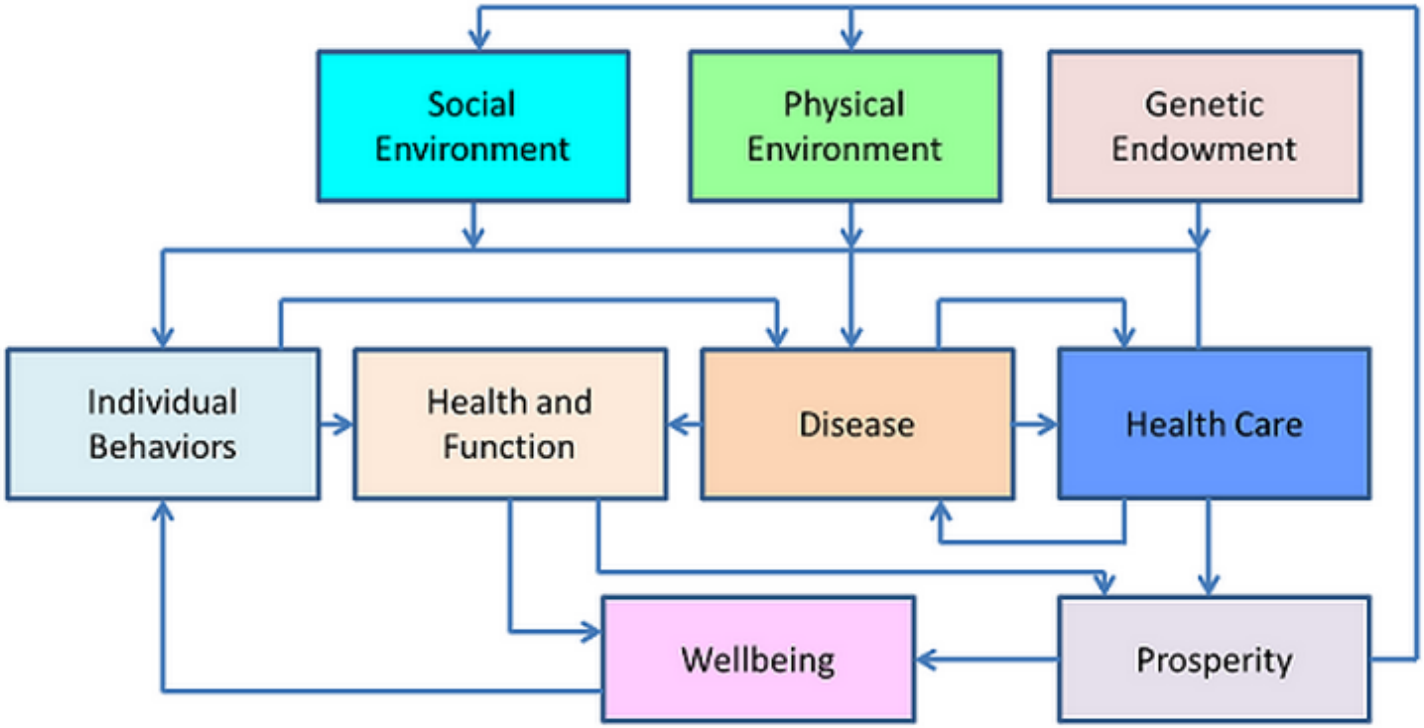
The indicator initiatives reviewed included, but were not limited to, the following:

- The County Health Rankings and Roadmaps (www.countyhealthrankings.org)
- United Health Foundation's America's Health Rankings (www.americashealthrankings.org)
- State of the USA Health Indicators (www.stateoftheusa.org)
- The Health Indicator's Warehouse (www.healthindicators.gov)
- Canadian Index of Wellness (www.atkinsonfoundation.ca)
- Healthy People 2020 (www.healthypeople.gov)
- National Prevention strategy (www.surgeongeneral.gov/initiatives/prevention/strategy/report.pdf)
- Annie E. Casey Foundation's KIDS COUNT (datacenter.kidscount.org)

CHSI 2015 Indicator Organization

CHSI 2015 indicators are organized in categories adapted from a population health framework originally developed in 1990 by Evans and Stoddart.

Evans and Stoddart Framework of Determinants of Health



Source: Evans R.G. & Stoddart, G.L. (1990). Producing health, consuming health care. Soc Sci Med. 31(12), 1347-1363

A population health framework can be used to promote healthy communities by emphasizing the upstream social factors and physical environments that can be modified to positively influence health behaviors. It can also be used to help shift attention from treating sick people to addressing the upstream health associated factors to prevent the development of diseases and health disparities and promote wellbeing.

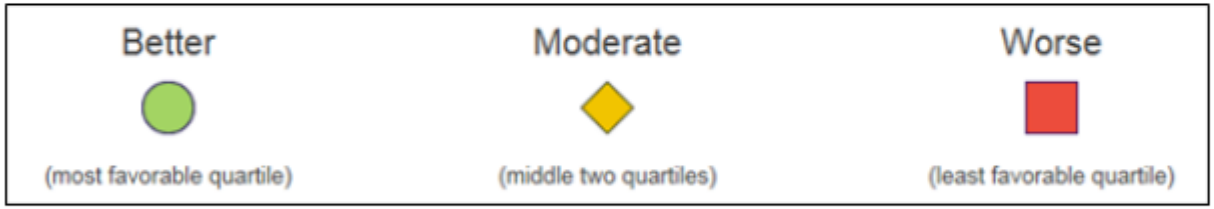
The CHSI 2015 category of health outcomes includes specific indicators of mortality and morbidity, which represent the aggregate disease burden in a community.

The CHSI 2015 indicators that have the potential to influence health outcomes include health care access and quality, health behaviors, social factors and physical environments.

CHSI 2015 does not include a category of genetic endowment because genetic factors are not typically modifiable.

CHSI 2015 Features

- **Summary Comparison Report** – provides an "at a glance" summary of how your county compares with peer counties on the full set of primary indicator. Indicators are presented as Better, Moderate, or Worse in comparison with their peer counties. Peer county values for each indicator were ranked and then divided into quartiles. These comparisons, while visually helpful, do not necessarily represent statistically significant differences between counties (See "Helpful Hints" below).



*Indicators in the **Better** category (green circle) fall into the most favorable quartile compared to peers.*

*Indicators in the **Moderate** category (yellow diamond) fall into the middle two quartiles.*

*Indicators in the **Worse** category (red square) fall into the most unfavorable quartile.*

- **Distribution Display** – bar charts allowing users to visually compare indicators for the selected county to those of its peer counties. The display also shows median values for all U.S. counties and *Healthy People 2020* targets, where applicable.
- **Show Peer Counties** feature (bottom of the Distribution display) – allows users to examine maps of the geographic distributions of each group of peer county categorized indicators.
- **Indicator Downloads** – indicator values for each group of peer counties can be downloaded for further examination and analysis. For indicators that are based on estimated values, this feature also allows users to examine the estimate and the associated margin of error (confidence interval). Larger margins of error suggest less reliability; smaller margins of error suggest greater reliability.
- **Indicator Description** – each CHSI 2015 indicator is accompanied by information describing the significance (importance) of the indicator, source and years of the data, methodology for creating the indicator, and important limitations, where applicable.
- **Populations** – allows users to compare an indicator value for the entire population of a county with sub-populations defined by sex, age groups, and race/ethnicity, where data are available. This feature can be used to assist with identifying potential health disparities that may warrant further attention.
- **Census Tract Maps** – help identify vulnerable populations and potential health disparities by examining the geographic distribution of select social factor indicators within a county (by census tract), where data are available.

Rockingham County, NH

The following Summary Comparison Report provides an "at a glance" summary of how the selected county compares with **peer counties** on the full set of **Primary Indicators**. Peer county values for each indicator were ranked and then divided into quartiles.

	Better (most favorable quartile)	Moderate (middle two quartiles)	Worse (least favorable quartile)
Mortality	Motor vehicle deaths Stroke deaths	Alzheimer's disease deaths Cancer deaths Chronic kidney disease deaths Chronic lower respiratory disease (CLRD) deaths Coronary heart disease deaths Diabetes deaths Female life expectancy Male life expectancy Unintentional injury (including motor vehicle)	

Rockingham County, NH

The following Summary Comparison Report provides an "at a glance" summary of how the selected county compares with peer counties on the full set of Primary Indicators. Peer county values for each indicator were ranked and then divided into quartiles.

	Better (most favorable quartile)	Moderate (middle two quartiles)	Worse (least favorable quartile)
Morbidity	Alzheimer's diseases/dementia Gonorrhea Older adult asthma Preterm births	Adult diabetes Adult obesity Adult overall health status HIV	Cancer Older adult depression Syphilis
Health Care Access and Quality		Older adult preventable hospitalizations Primary care provider access Uninsured	Cost barrier to care
Health Behaviors		Adult binge drinking Adult female routine pap tests Adult physical inactivity Adult smoking Teen Births	

CHSI INFORMATION FOR IMPROVING COMMUNITY HEALTH
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES, CENTERS FOR DISEASE CONTROL AND PREVENTION

STROUDWATER

Rockingham County, NH

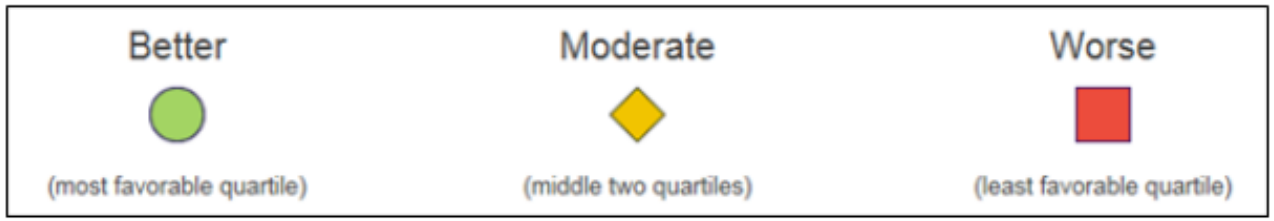
The following Summary Comparison Report provides an "at a glance" summary of how the selected county compares with peer counties on the full set of Primary Indicators. Peer county values for each indicator were ranked and then divided into quartiles.

Better	Moderate	Worse
(most favorable quartile)	(middle two quartiles)	(least favorable quartile)

Social Factors		Children in single-parent households Inadequate social support On time high school graduation Poverty Unemployment Violent crime	High housing costs
Physical Environment	Annual average PM2.5 concentration	Drinking water violations Living near highways	Access to parks Housing stress Limited access to healthy food

CHSI 2015 Features

- **Summary Comparison Report** – provides an "at a glance" summary of how your county compares with peer counties on the full set of primary indicator. Indicators are presented as Better, Moderate, or Worse in comparison with their peer counties. Peer county values for each indicator were ranked and then divided into quartiles. These comparisons, while visually helpful, do not necessarily represent statistically significant differences between counties (See "Helpful Hints" below).



*Indicators in the **Better** category (green circle) fall into the most favorable quartile compared to peers.*

*Indicators in the **Moderate** category (yellow diamond) fall into the middle two quartiles.*

*Indicators in the **Worse** category (red square) fall into the most unfavorable quartile.*

Rockingham County, NH

The following Summary Comparison Report provides an "at a glance" summary of how the selected county compares with **peer counties** on the full set of **Primary Indicators**. Peer county values for each indicator were ranked and then divided into quartiles.

	Better (most favorable quartile)	Moderate (middle two quartiles)	Worse (least favorable quartile)
Mortality	Motor vehicle deaths Stroke deaths	Alzheimer's disease deaths Cancer deaths Chronic kidney disease deaths Chronic lower respiratory disease (CLRD) deaths Coronary heart disease deaths Diabetes deaths Female life expectancy Male life expectancy Unintentional injury (including motor vehicle)	
Morbidity	Alzheimer's diseases/dementia Gonorrhea Older adult asthma Preterm births	Adult diabetes Adult obesity Adult overall health status HIV	Cancer Older adult depression Syphilis

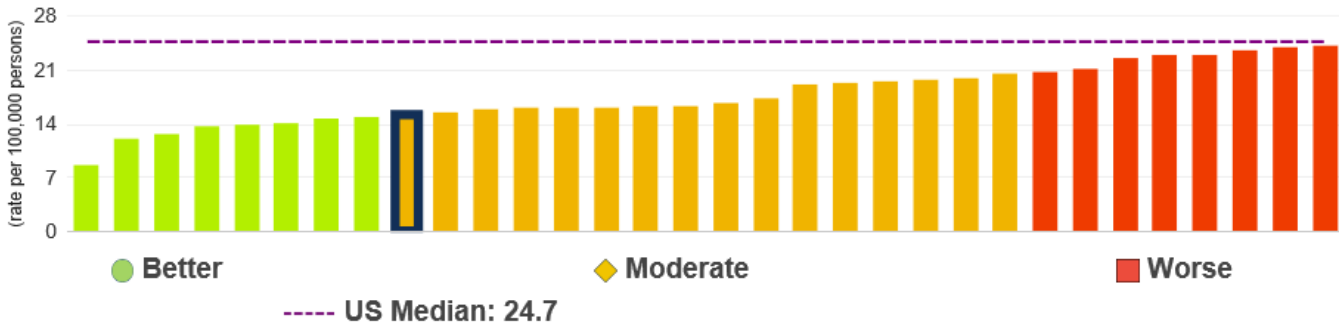
Mortality

Diabetes deaths (rate per 100,000 persons)

The age adjusted diabetes death rate for Rockingham County, NH is:

15.3 (per 100,000)

Distribution | Description | Populations | Census Tracts | Associated Indicators



Show peer counties

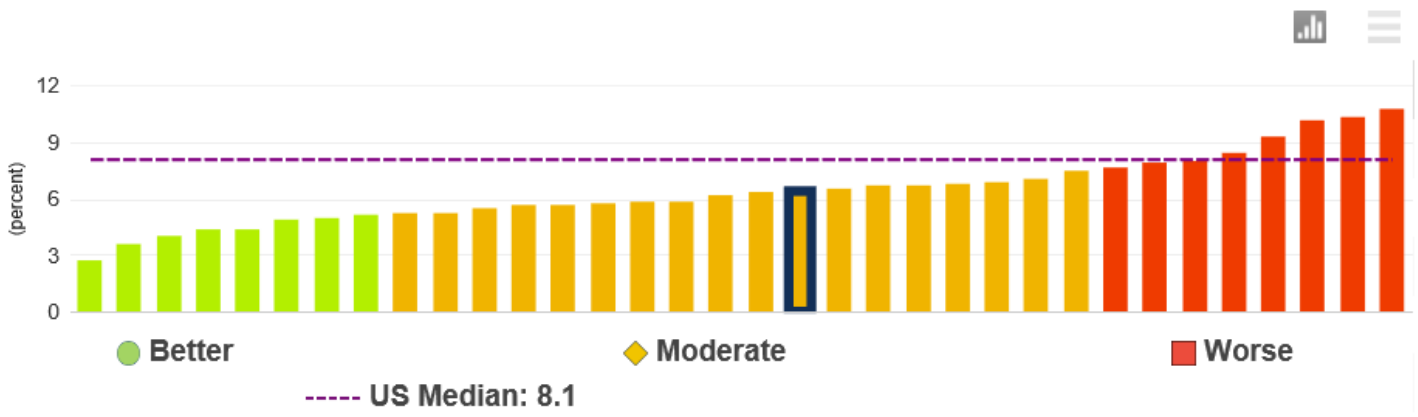
Morbidity

Adult diabetes (percent)

The percent of adults living with diagnosed diabetes for Rockingham County, NH is:

6.5 %

Distribution | Description | Populations | Census Tracts | Associated Indicators



Show peer counties

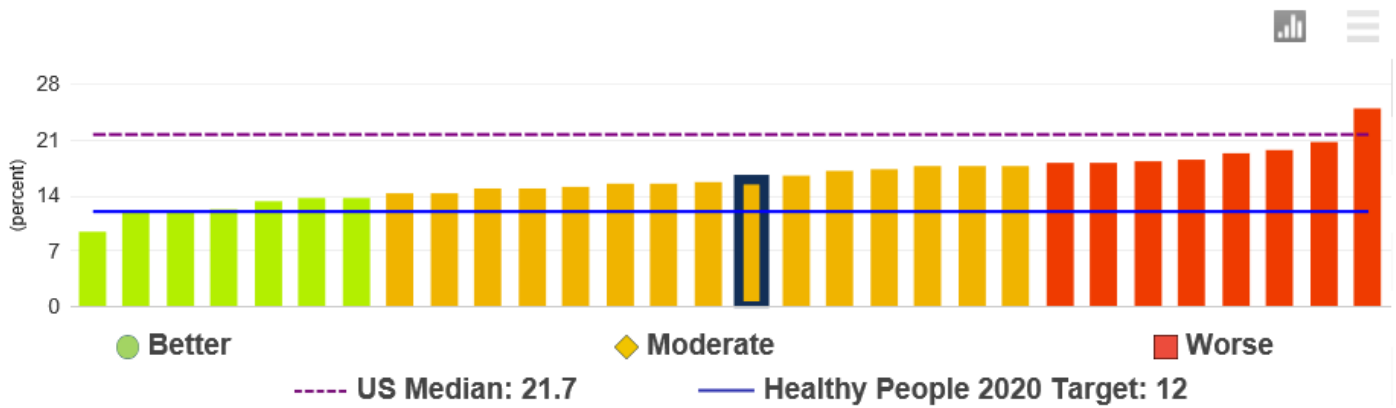
Health Behaviors

Adult smoking (percent)

The percent of adults who report smoking cigarettes in Rockingham County, NH is:

16.1 %

Distribution | Description | Populations | Census Tracts | Associated Indicators



Show peer counties

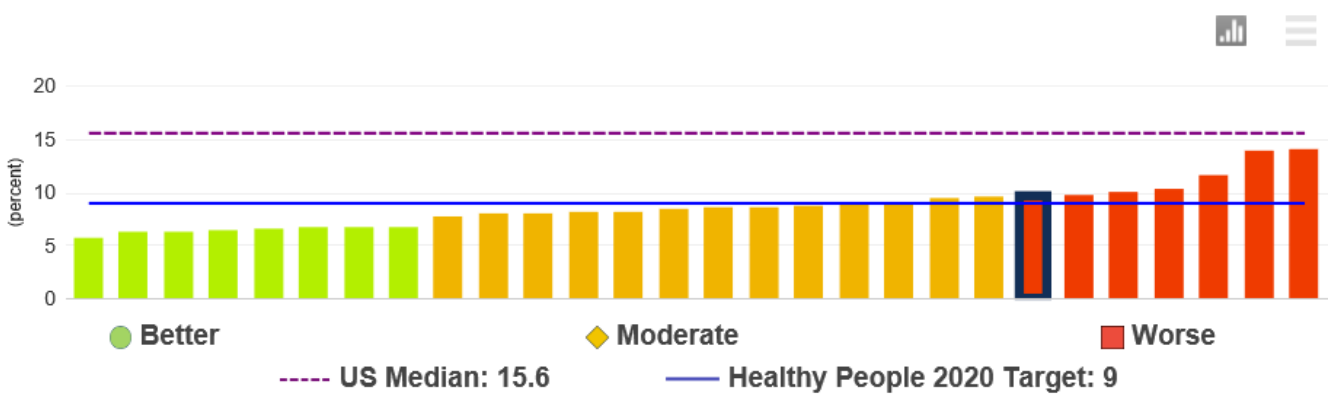
Health Care Access and Quality

Cost barrier to care (percent)

The percent of adults who did not see a doctor due to cost in Rockingham County, NH is:

9.8 %

Distribution | Description | Populations | Census Tracts | Associated Indicators



Show peer counties

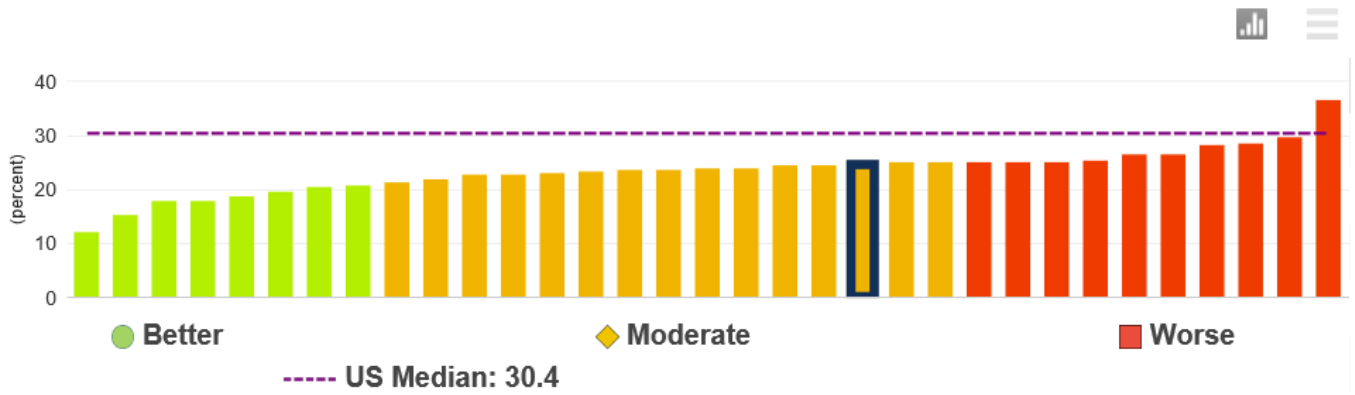
Morbidity

Adult obesity (percent)

The percentage of adult obesity for Rockingham County, NH is:

24.7 %

Distribution | Description | Populations | Census Tracts | Associated Indicators



Show peer counties

Analytics and Claims Data

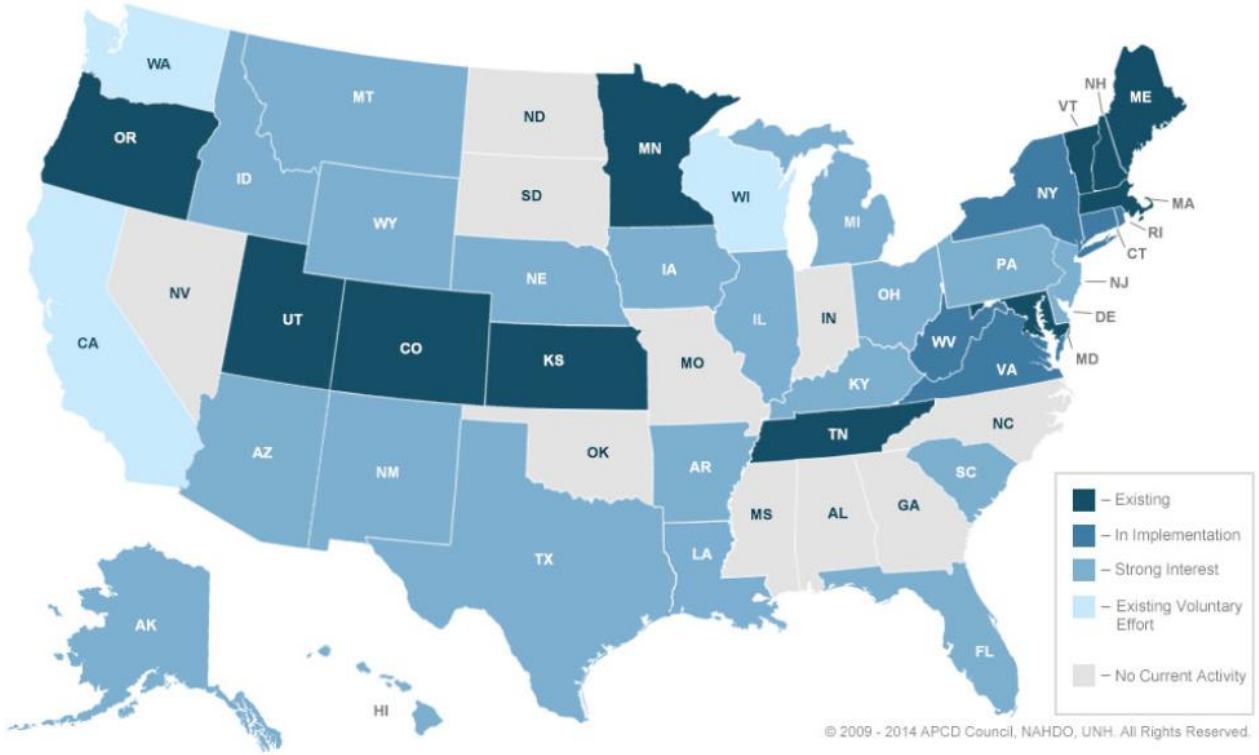
- All-payer claims databases (APCDs) offer policy-makers and stakeholders access to the information they need to evaluate the cost and quality of healthcare in their states. Currently, more than 30 states have implemented, are implementing, or have an interest in forming, an APCD

Analytics and Claims Data

STROUDWATER

2014 APCD State Progress Map
(as of March)

APCD COUNCIL All-Payer Claims Database



Support for this webinar is provided through a grant from the Robert Wood Johnson Foundation's State Health and Value Strategies Program.

Analytics and Claims Data

STROUDWATER

Typically Included Information

APCD All-Payer Claims Database COUNCIL℠

Information Typically Collected in an APCD	Data Elements Typically Not Included in an APCD
• Encrypted SSN or member identification number • Type of product (HMO, POS, indemnity, etc.) • Type of contract (single person, family, etc.) • Patient demographics (DOB, gender, ZIP code) • Diagnosis, procedure, and NDC codes • Information on service provider • Prescribing physician • Health plan payments • Member payment responsibility • Type and date of bill paid • Facility type • Revenue codes • Service dates	• Services provided to uninsured • Denied claims • Workers' compensation claims • Premium information • Capitation fees • Administrative fees • Back end settlement amounts • Referrals • Test results from lab work, imaging, etc. • Provider affiliation with group practice • Provider networks

Camden Coalition of Healthcare Providers

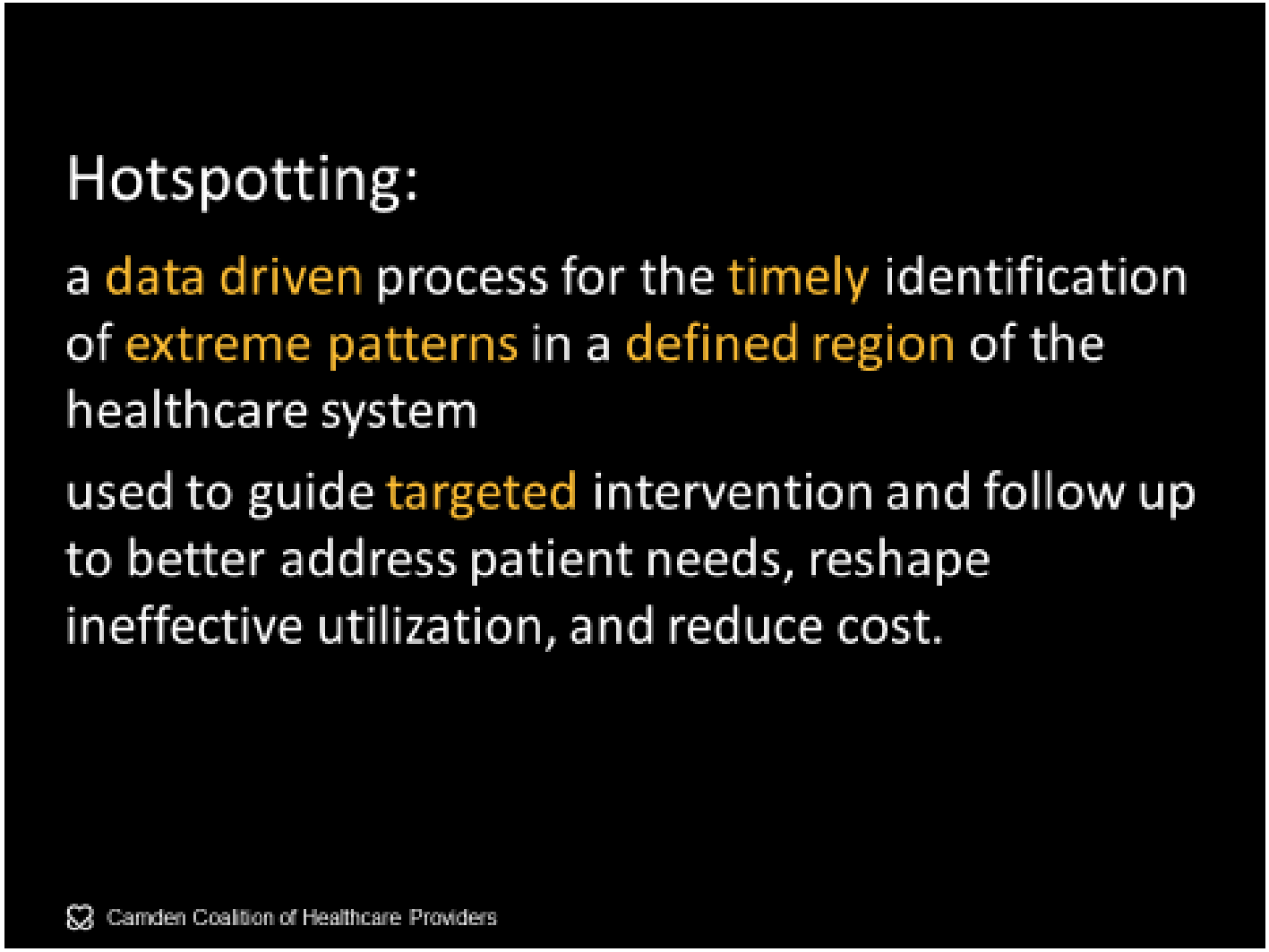
STROUDWATER

- The mission of CCHP is to improve the health of all Camden residents by increasing the capacity, quality, and accessibility of the city's healthcare delivery system.
- A core value of CCHP is to be data-driven.

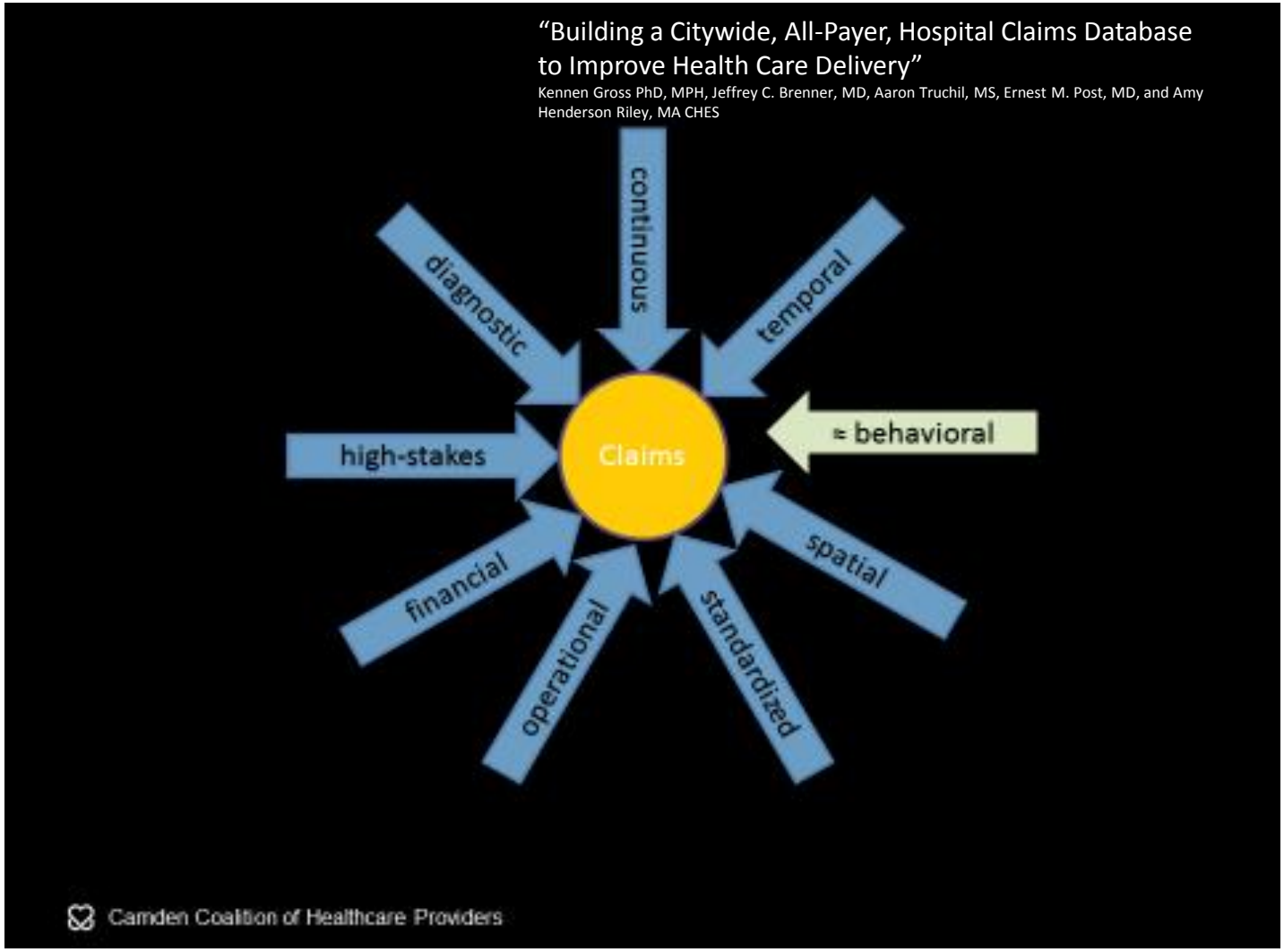
Camden Coalition of Healthcare Providers

Hot Spotting

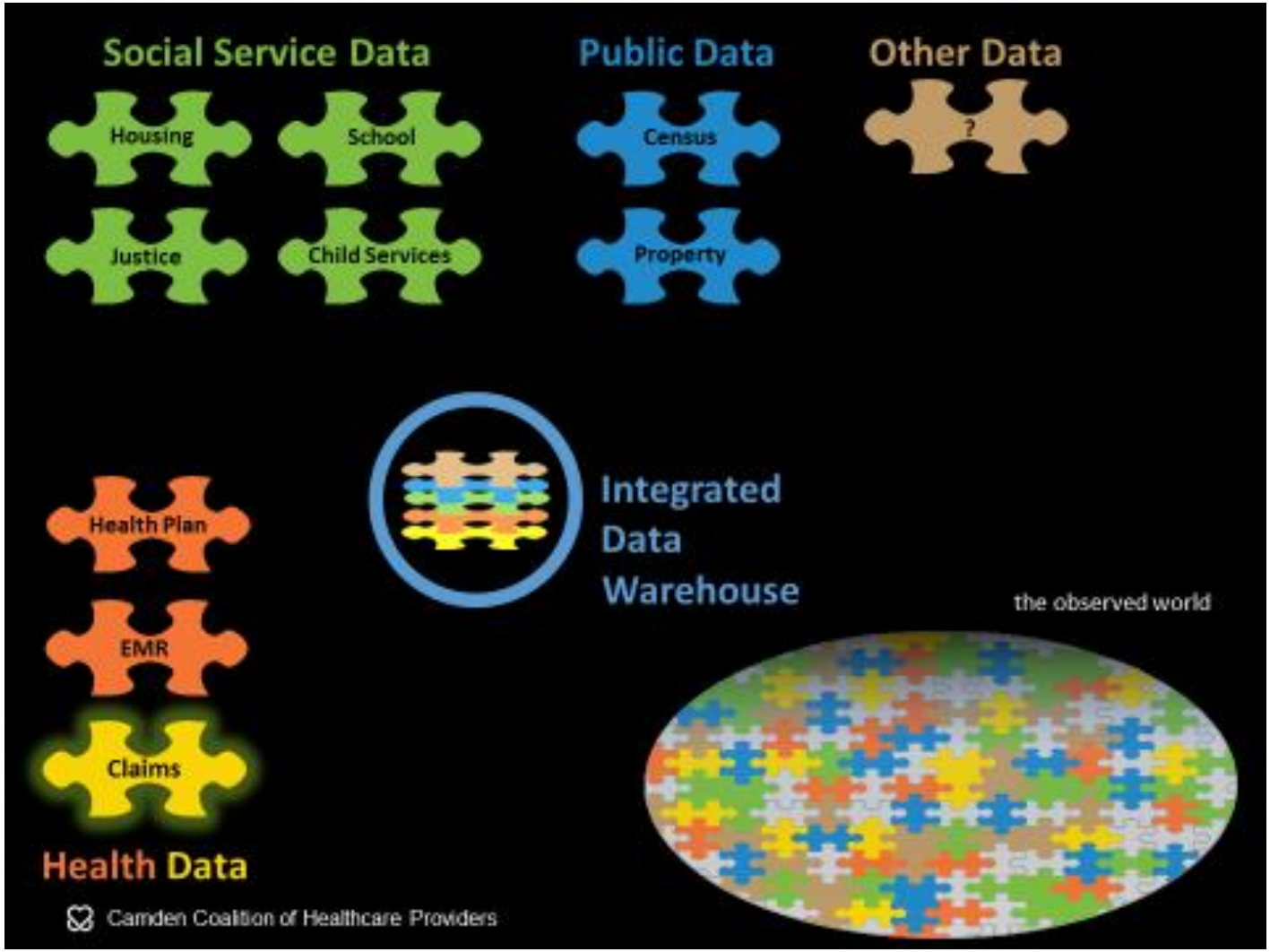
STROUDWATER



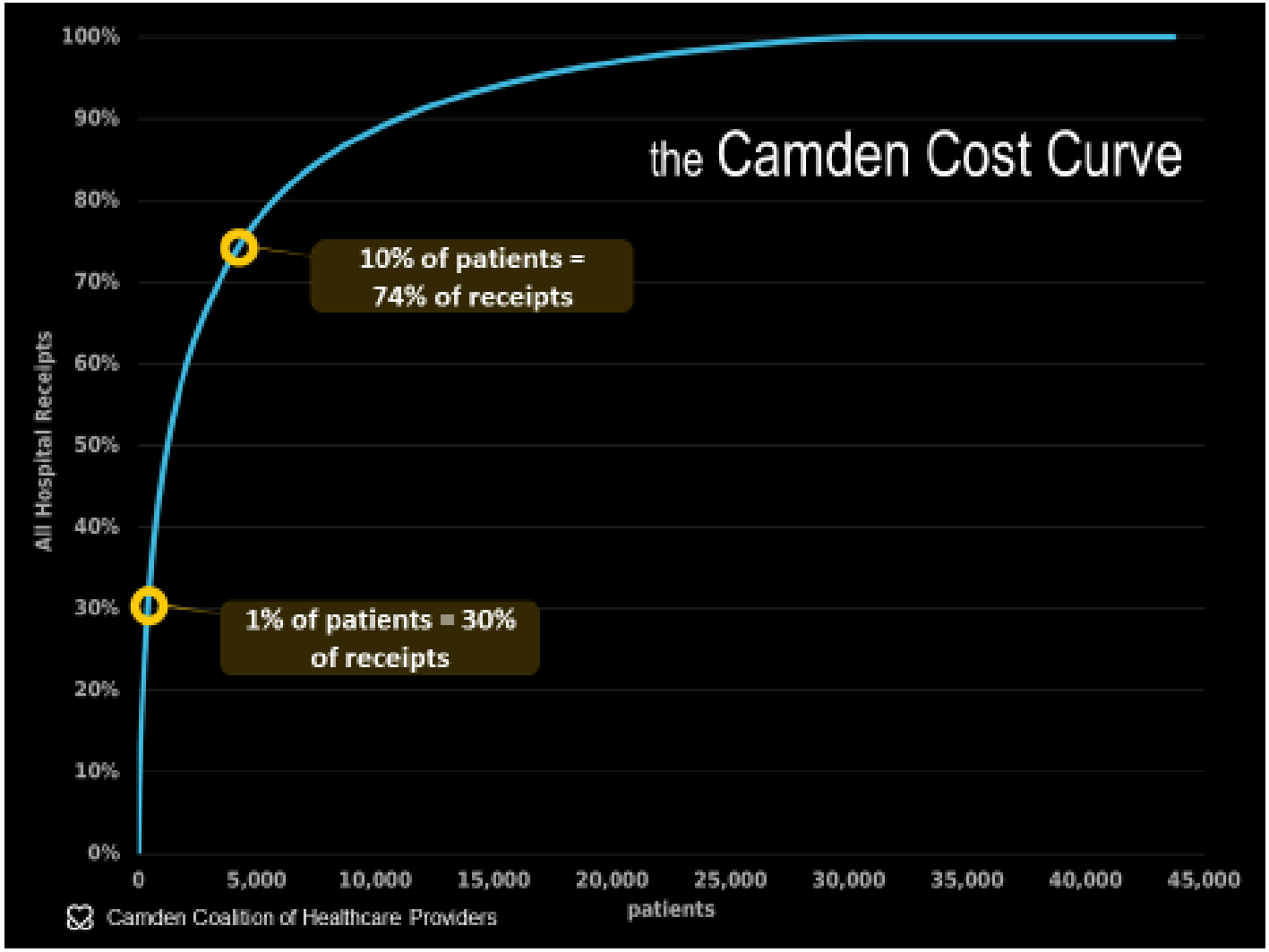
Why Claims Data?



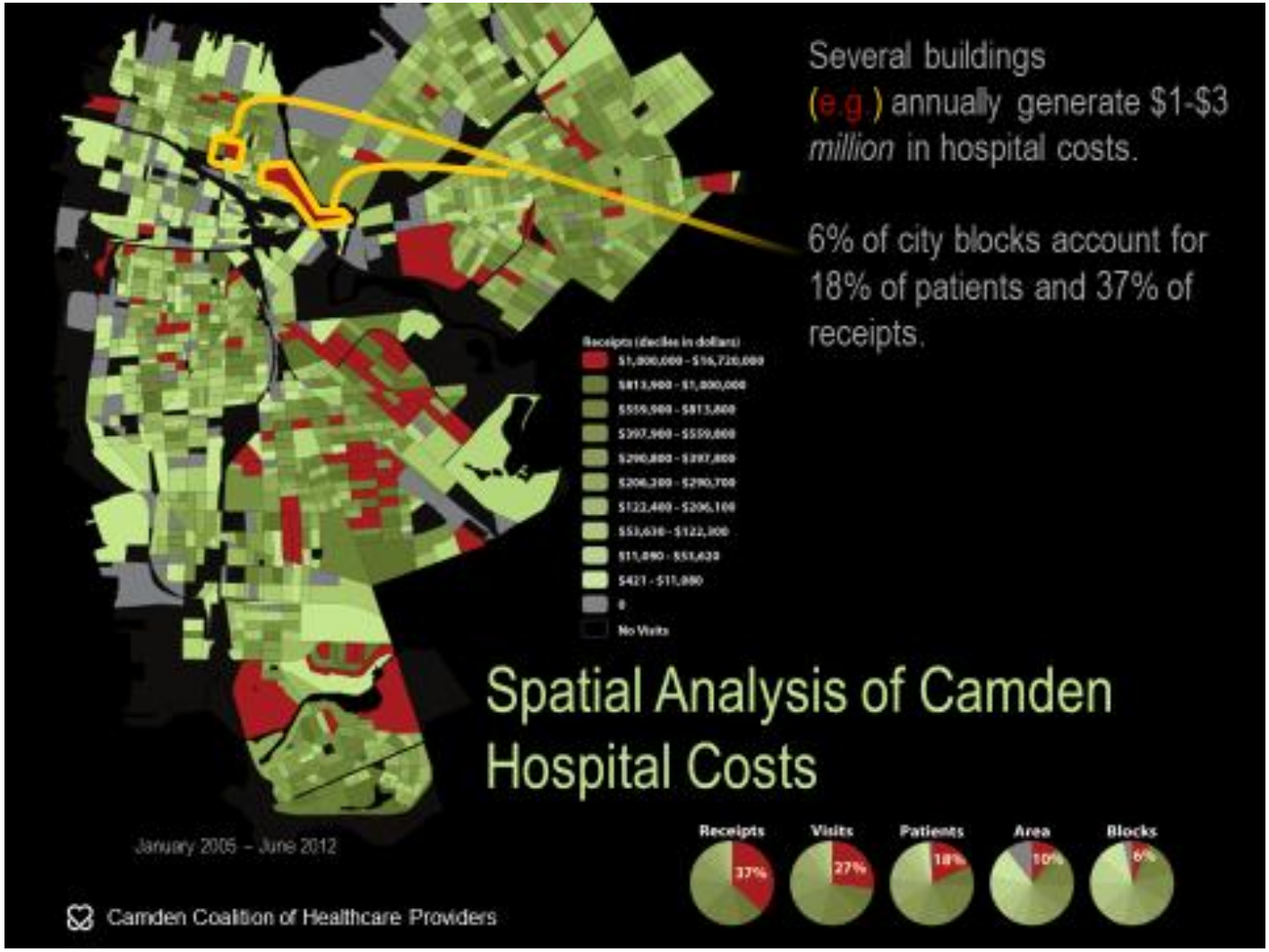
Claims Data


Social Service Data
Housing
School
Justice
Child Services
Public Data
Census
Property
Other Data
?
Integrated
Data
Warehouse
Health Plan
EMR
Claims
Health Data
the observed world
Camden Coalition of Healthcare Providers

Population Health

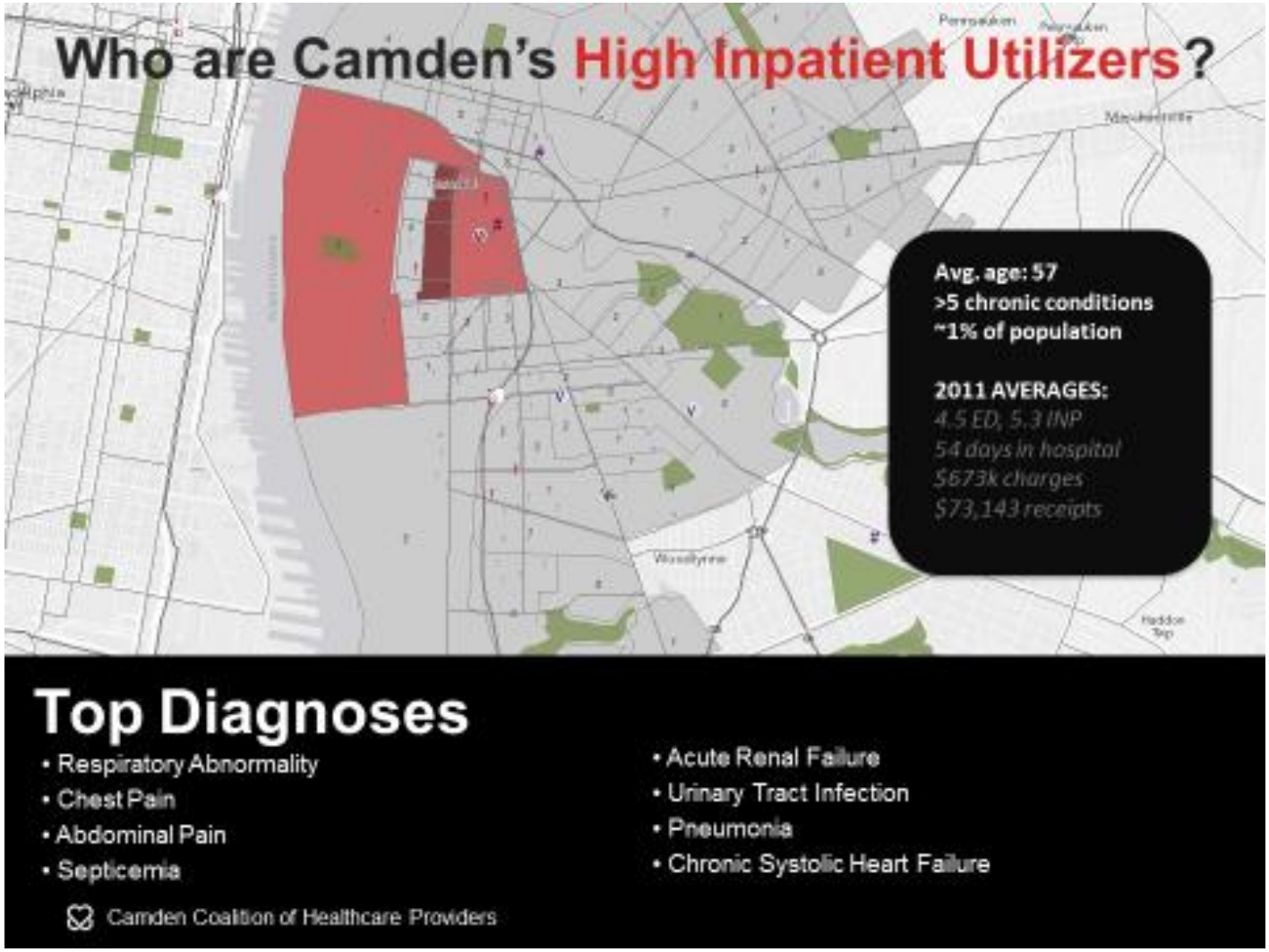


Population Health



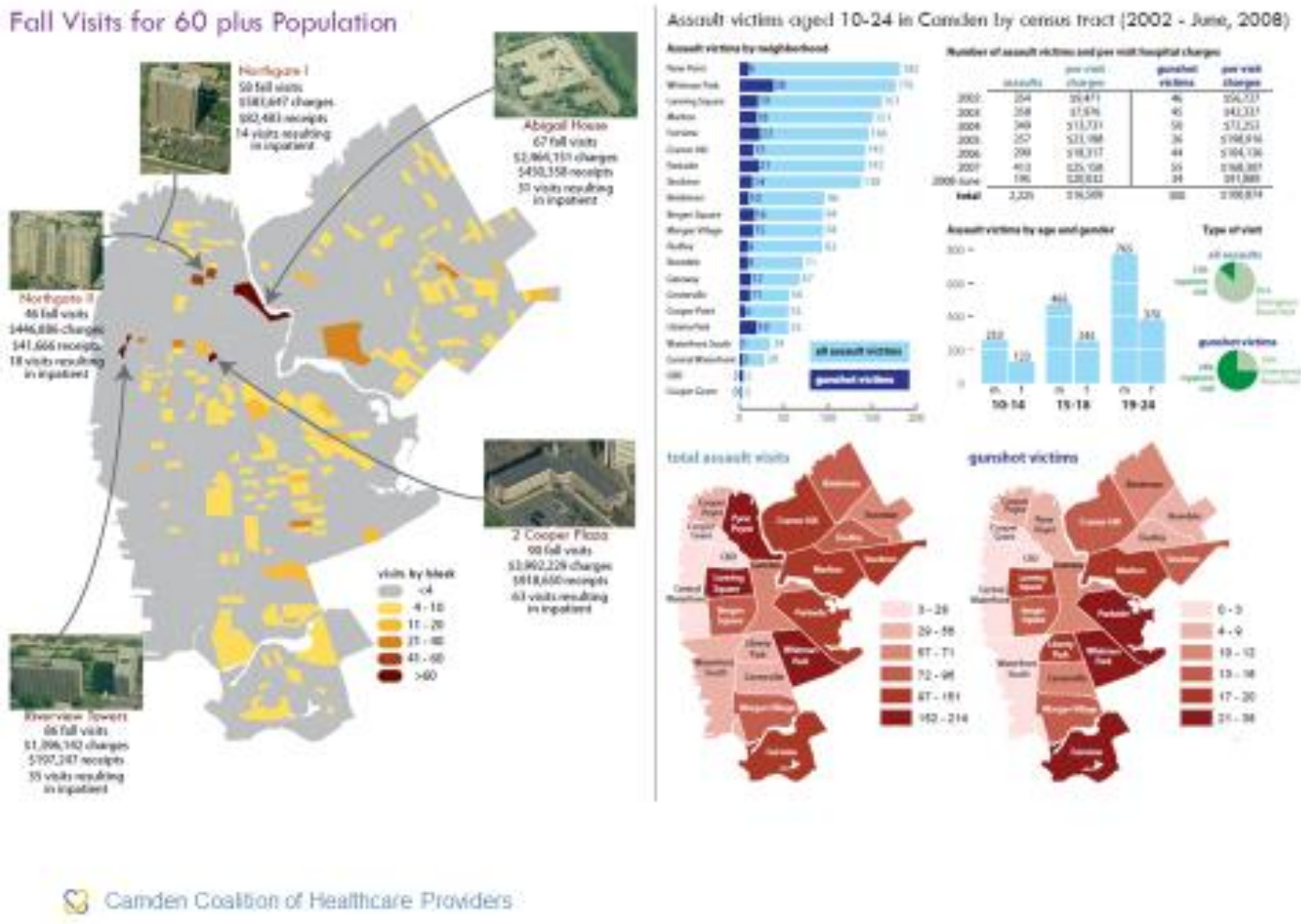
Population Health

STROUDWATER



Population Health

Hot Spotting



Chronic Illness in America

STROUDWATER

- More than 125 million Americans suffer from one or more chronic illnesses and 40 million are limited by them.
- Despite annual spending of nearly $1 trillion and significant advances in care, one half or more of patients still don't receive appropriate care.
- Gaps in quality care lead to thousands of avoidable deaths each year.
- Best practices could avoid an estimated 41 million sick days and more than $11 billion annually in lost productivity.
- Patients and families increasingly recognize the defects in their care.
- Chronic diseases and conditions, such as heart disease, stroke, cancer, diabetes, obesity, and arthritis, are among the most common, costly, and preventable of all health problems.

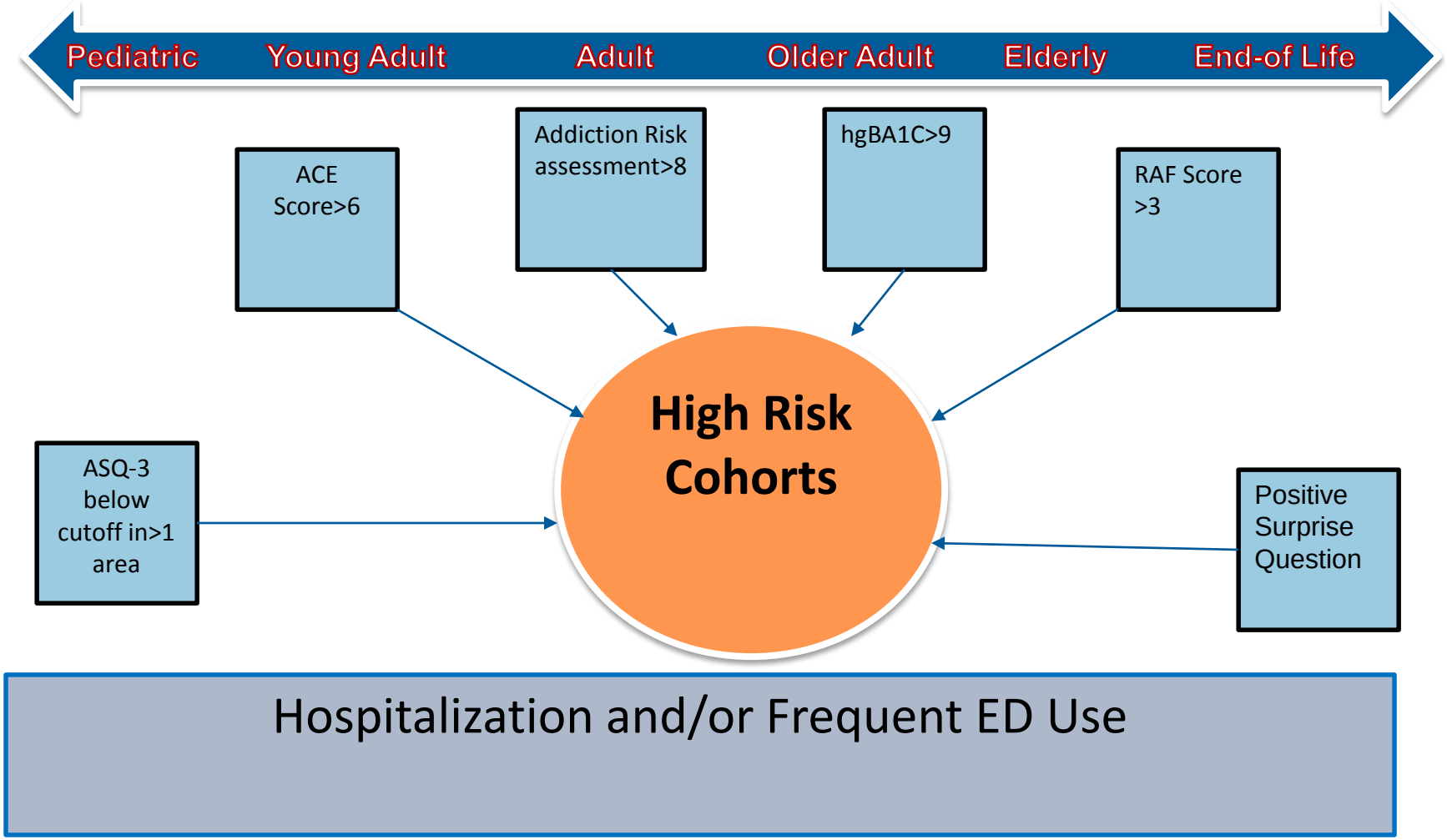
Number of Chronic Conditions per Medicare Beneficiary

Number of Conditions	Percent of Beneficiaries		Percent of Expenditures	
0	18		1	
1	19		4	
2	21		11	
3	18		18	
4	12	63%	21	95%
5	7		18	
6	3		13	
7+	2		14	

Number of Chronic Conditions per Medicare Beneficiary

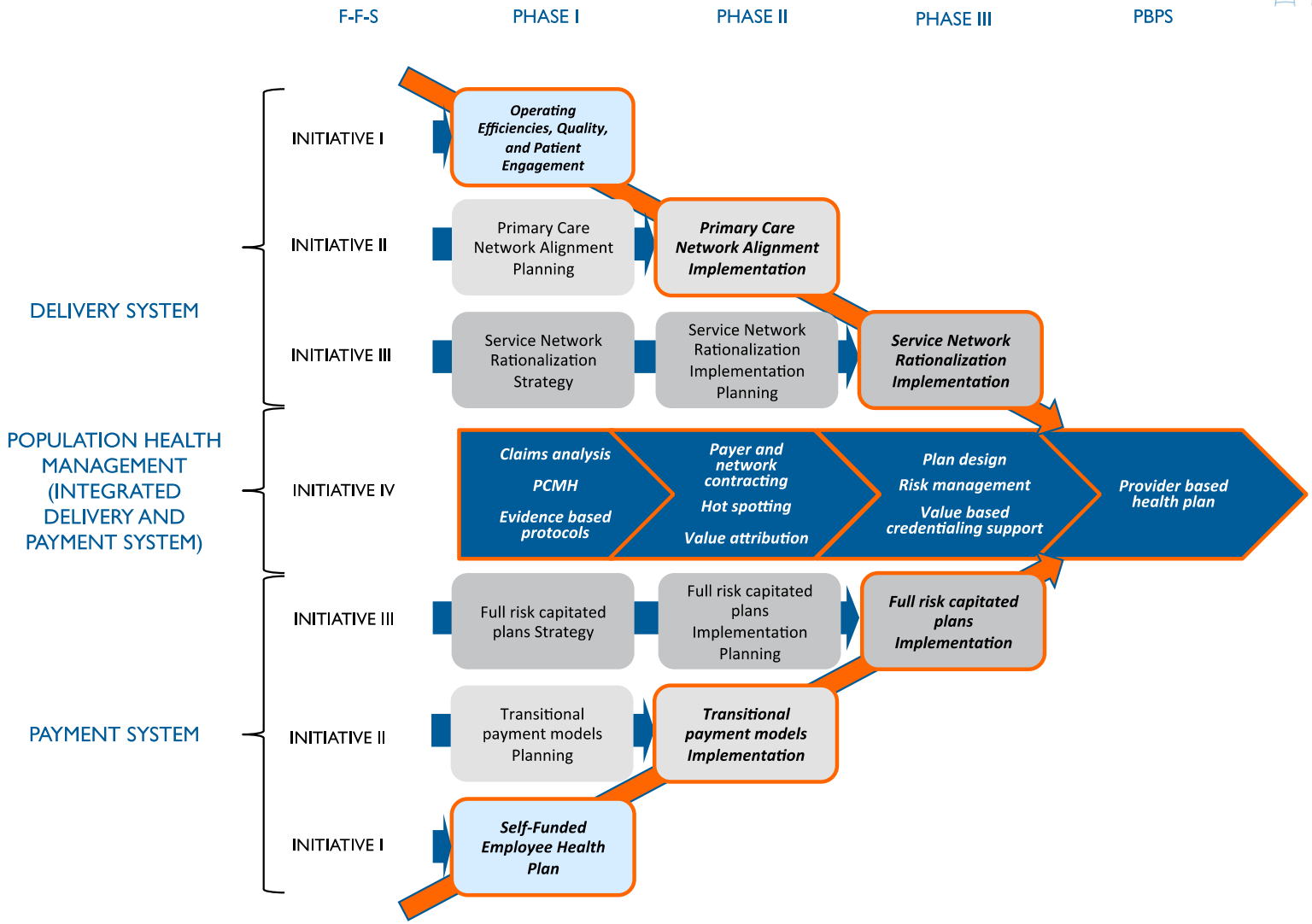
- Seven of the top 10 causes of death in 2010 were chronic diseases. Two of these chronic diseases—heart disease and cancer—together accounted for nearly 48% of all deaths.
- Obesity is a serious health concern. During 2009–2010, more than one-third of adults, or about 78 million people, were obese (defined as body mass index [BMI] ≥30 kg/m2). Nearly one of five youths aged 2–19 years was obese (BMI ≥95th percentile).
- Arthritis is the most common cause of disability.[4] Of the 53 million adults with a doctor diagnosis of arthritis, more than 22 million say arthritis causes them to have trouble with their usual activities.
- Diabetes is the leading cause of kidney failure, lower limb amputations other than those caused by injury, and new cases of blindness among adults.

Who Are Our High Risk Patients?



Source: MPHC

Population Health Framework



Action Planning and Next Steps

STROUDWATER

1. Operations Improvement
   - Quality, patient safety and financial
2. Primary care network alignment
3. Population health analytics and improvement initiatives
   - Ten-year insurance of covered lives
   - High risk, high cost patients
   - Free 20-minute consultation
4. Integration of population health into the hospital strategic plan
5. Participants can sign up for a free, 30-minute Population Health consultation using the Population Health checklist

STROUDWATER

Scott W. Goodspeed
Sgoodspeed@stroudwater.com
50 Sewall Street, Suite 102
Portland, Maine 04102
(207) 272-9934

www.stroudwater.com