Brief Overview of Select Metrics Sets

Staff-prepared background materials

Contents

NOTE: This staff-prepared compilation of metrics[1] sets is not intended to be comprehensive or systematic, but simply to illustrate the growing array of non-clinical metrics sets available; their level(s) of use, i.e., local, regional, state, or national; and the criteria used to identify them. Two local or regional sets are provided as examples of what is possible, but numerous state governments and local jurisdictions in California and across the United States have developed sets of measures, dashboards, or equivalent tools to help them accomplish varying objectives. In the words of the 2010 Institute of Medicine report *For the Public's Health: The Role of Measurement in Action and Accountability*[2]: "measuring health outcomes and their determinants at both the individual level and the community level and in multiple sectors is an essential ingredient, with policy and resources, in motivating change, mobilizing action, measuring progress, and improving performance."

[1] The terms metrics, measures, and indicators are used interchangeably, but generally in keeping with a given source's use.
[2] This IOM report is available for free download at http://www.nap.edu/catalog/13005.

IOM's *Vital Signs: Core Metrics for Health and Health Care Progress* (2015)

Level of use: national, state

Domains and measures

1. Life expectancy (infant mortality, maternal mortality, violence and injury mortality)
2. Well-being (multiple chronic conditions, depression)
3. Overweight and obesity (activity levels, healthy eating patterns)
4. Addictive behavior (tobacco use, drug dependence/illicit use, alcohol dependence/ misuse)
5. Unintended pregnancy (contraceptive use)
6. Healthy communities (childhood poverty rate, childhood asthma, air quality index, drinking water quality index)
7. Preventive services (influenza immunization, colorectal cancer screening, breast cancer screening)
8. Care access (usual source of care, delay of needed care)
9. Patient safety (wrong-site surgery, pressure ulcers, medication reconciliation)
10. Evidence-based care (cardiovascular risk reduction, hypertension control, diabetes control composite, heart attack therapy protocol, stroke therapy protocol, unnecessary care composite)
11. Care match with patient goals (patient experience, shared decision making, end-of-life/advanced care planning)
12. Personal spending burden (health care–related bankruptcies)
13. Population spending burden (total cost of care, health care spending growth)
14. Individual engagement (involvement in health initiatives)
15. Community engagement (availability of healthy food, walkability, community health benefit agenda)

Selection criteria

Criteria for Core Measure Development

Criteria for core measures

- Importance for health
- Strength of linkage to progress
- Understandability of the measures
- Technical integrity
- Potential for broader system impact
- Utility at multiple levels

Criteria for the set

- Systemic reach
- Outcomes-oriented
- Person meaningful
- Parsimonious
- Representative
- Utility at multiple levels

Source: http://www.nap.edu/catalog/19402 (available for free download)

County Health Rankings

Level of use: local/county, state

Domains and measures

HEALTH OUTCOMES

- Length of life (premature death)
- Quality of Life (poor or fair health, poor physical health days, poor mental health days, low birthweight)

HEALTH FACTORS

Health behaviors

- Tobacco (adults smoking)
- Diet and Exercise (adult obesity, food environment index, physical activity, access to exercise opportunities)
- Alcohol and drug use (excessive drinking, alcohol-impaired driving deaths)
- Sexual activity (STIs, teen births)

Clinical care

- Access to care (uninsured, primary care physicians, dentists, mental health providers)
- Quality of care (preventable hospital stays, diabetic screening, mammography screening)

Social and economic factors

- Education (high school graduation, some college)
- Employment (unemployment)
- Income (children in poverty)
- Family and social support (inadequate social support, children in single-parent households)
- Community safety (violent crime, injury deaths)

Physical environment

- Air and water quality (air pollution – particulate matter, drinking water violations)
- Housing and transit (severe housing problems, driving alone to work, long commute – driving alone)

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Selection criteria

1. Reflect important aspects of population health that can be improved
2. Availability and reliability of indicators at the county level throughout the nation
3. Ability for conditions underlying a measure to be modified through community action
4. Valid, reliable, recognized, and used by others
5. Available at low or no cost
6. Recently and regularly updated
7. Feedback from a panel of technical experts

8. Alignment with America's Health Rankings' indicators
9. Fewer measures are better than more

Sources: http://www.countyhealthrankings.org/ and
http://www.pophealthmetrics.com/content/13/1/11

America's Health Rankings

Level of use: state (also international comparisons for national level data)

Domains and measures

Core measures [3]:

Determinants

- Behaviors
- Community and environment
- Policy
- Clinical care

Outcomes

Behaviors

- Smoking – percentage of population over age 18 that smokes on a regular basis; percentage of adults who are smokers, self-report of smoking at least 100 cigarettes in their lifetime and currently smoke.
- Binge drinking percentage of adults who drank excessively in the last 30 days; binge drinking is defined as 5 drinks/man and 4 drinks/woman on a single occasion.
- Drug deaths – Number of deaths due to drug injury of any intent per 100,000 population
- obesity – percentage of the population estimated to be obese, with a BMI ≥30; percentage of adults who are obese, with a BMI ≥ 30.
- Physical inactivity – percent of adults who indicated that they have not participated in any physical activities outside of work during the past month; percentage of adults who report doing no physical activity or exercise such as running, calisthenics, golf, gardening, or walking other than their regular job in the last 30 days.

Community & environment

- Violent crime: Number of murders, rapes, robberies, and aggravated assaults per 100,000 population
- Children in poverty – percentage of persons younger than 18 who live in households at or below the poverty threshold.
- Infectious disease – Combined average z-score using the incidence of chlamydia, pertussis, and salmonella per 100,000 population.
  - chlamydia – number of new cases of chlamydia per 100,000 population
  - pertussis – number of new cases of pertussis per 100,000 population.
  - salmonella – number of new cases of salmonella per 100,000 population.
- Occupational fatalities – number of fatal occupational injuries in construction, manufacturing, trade, transportation, utilities, professional, and business services per 100,000 workers.
- Air pollution – micrograms of fine particles per cubic meter

[3] "All determinants – weighted sum of the standards deviations each core determinant is from the national average"; "All outcomes – weighted sum of the number of standard deviations each core outcome is from the national average"; overall – weighted sum of the number of standard deviations each core measure is from the national average.

Policy

- Lack of Health Insurance 18 – percentage of the population that does not have health insurance privately, through their employer, or the government.
- Public Health Funding – state dollars dedicated to public health and federal dollars directed to states by the CDC and HRSA.
- Immunizations, adolescents – percentage of adolescents 13-17 years who have received 1 dose of Tdap since the age of 10 years, 1 dose of meningococcal conjugate vaccine, and 3 doses of HPV for females.
- Immunizations, children – 3 measures. A. percentage of children ages 19-35 months who have received a series of immunizations consisting of 4 or more doses of DTP, 3 or more doses of poliovirus vaccine, one or more doses of any measles-containing vaccine, 3 or more doses of HiB, and three or more doses of HepB vaccine. B. average percentage of children ages 19-35 months who have received these individual vaccinations: 4 or more doses of DTP, 3 or more doses of poliovirus vaccine, one or more doses of any measles-containing vaccine, and three or more doses of HepB vaccine. C. percentage of children ages 19-35 months receiving recommended doses of DTap, polio, MMR, Hib, hepatitis B, varicella, and PCV vaccines.

Clinical Care

- Low birthweight – percentage of infants weighing less than 5 lbs, 6 ounces at birth.
- Primary care physicians – number of primary care physicians including general practice, family practice, OB-BGYN, pediatrics, and internal medicine per 100,000 population.
- Dentists – number of practicing dentists per 100,000 population (American Dental Association)
- Preventable hospitalizations – discharge rate among the Medicare population for diagnoses that are amenable to non-hospital based care.

Outcomes

- Cancer deaths – number of deaths due to all causes of cancer per 100,000/population.
- Cardiovascular deaths- number of deaths due to cardiovascular disease, including heart disease and stroke, per 100,000 population.
- Diabetes – Percentage of adults who responded yes to the question “have you ever been told by a doctor that you have diabetes?” Does not include pre-diabetes or diabetes during pregnancy.
- Disparity in health status – Difference in the percentage of adults age 25 and older with vs. without a high school education who report their health is very good or excellent
- Infant mortality – number of infant deaths prior to age 1 per 1000 live births.
- Poor mental health days – number of days in the previous 30 days when a person indicates their activities are limited due to mental health difficulties; number of days in the past 30 days that adults reported their mental health was not good.
- Poor physical health days – number of days in the previous 30 days when a person indicates their activities are limited due to physical health difficulties; number of days in the past 30 days adults report their physical health was not good.
- Premature death – number of years of potential life lost prior to age 75 per 100,000 population.

Selection criteria

N/A

Source: www.americashealthrankings.org/ and www.americashealthrankings.org/reports/annual

Gallup Healthways Well-Being Index

Level of use (across different reports): national, state, regions within states (e.g., North-Port-Sarasota-Bradenton, Florida, has the nation's highest well-being, followed by Urban Honolulu, Hawaii; Raleigh, North Carolina; Oxnard-Thousand Oaks-Ventura, California)

Domains and measures

"The updated Gallup-Healthways Well-Being Index includes five elements of well-being, each with its own score on a 0-10 scale:

- Purpose: Liking what you do each day and being motivated to achieve your goals
- Social: Having supportive relationships and love in your life
- Financial: Managing your economic life to reduce stress and increase security
- Community: Liking where you live, feeling safe and having pride in your community
- Physical: Having good health and enough energy to get things done daily"

Gallup-Healthways Well-Being Index 2008-2013

"Data collected prior to Jan. 1, 2014, through the original Gallup-Healthways Well-Being Index are based on six domains rather than the five elements in the updated index:

- Life Evaluation: Present life situation and anticipated life situation
- Emotional Health: Daily feelings and mental state
- Work Environment: Job satisfaction and workplace interactions
- Physical Health: Physical ability to live a full life
- Healthy Behavior: Engaging in behaviors that affect physical health
- Basic Access: Feeling safe, satisfied, and optimistic within a community"

Selection criteria

(i.e. "measurement goals and criteria for managing population well-being")

Goals of Measurement	Criteria
Comprehensively Capture Well-being	Correlation to previously validated well-being measures. Representation from each known well-being construct (i.e., elements, subdimensions).
Valid and Reliable Psychometric Measurement	Chronbach α. Structural fit indices.
Predictive of Outcomes	Correlation to outcomes: productivity and health care utilization.
Diagnostic and Actionable for Intervention and Feedback	Representation of constructs used to trigger intervention programs and inform member feedback.
Ability to Compare Across Levels of Measurement	Comparable scoring systems across levels.

Sources: Sears, L. E., Agrawal, S., Sidney, J. A., Castle, P. H., Rula, E. Y., Coberley, C. R., … Harter, J. K. (2014). The Well-Being 5: Development and Validation of a Diagnostic Instrument to Improve Population Well-being. Population Health Management, 17(6), 357–365. doi:10.1089/pop.2013.0119 (http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4273178/); also http://www.well-beingindex.com/

AARP Livability Index

Level of use: community (city or county), state

Domains and measures

7 categories: housing, neighborhood, transportation, environment, health, engagement, opportunity

60 indicators

Housing – affordability and access		
	Housing accessibility	basic passage (% of units have basic passage Median US neighborhood: 2.6%)
	Housing options	availability of multi-family housing (% unites are multi-family; median US neighborhood: 18.8%)
	Housing affordability	housing costs $x per month (median us neighborhood: $999)
		housing cost burden (% of income spent on housing; median US neighborhood: 18.4%)
		availability of subsidized housing (# units per 10,000 people; median US neighborhood: 124)
Neighborhood – access to life, work, and play		
	Proximity to destinations	access to grocery stores and farmers' market (number stores and markets; median US neighborhood n/a)
		access to destinations (number parks; median US neighborhood n/a)
		access to libraries (number libraries; median US neighborhood n/a)
		access to jobs by transit (number jobs; median US neighborhood n/a)
		access to jobs by auto (number jobs; median US neighborhood: 55,312)
	Mixed-use neighborhoods	Diversity of destinations (Index from 0 to 1; Median US neighborhood 0.81)
	Compact neighborhoods	Activity density (jobs and people per sq mi; median US neighborhood: 3,567)
	Personal safety	Crime rate (crimes per 10,000 people; median US neighborhood 304)
	Neighborhood quality	Vacancy rate (% units vacant; median US neighborhood: 8.8%)
Transportation – safe and convenient options		

Convenient transportation options	Frequency of local transit service (buses and trains per hour; median US neighborhood n/a)
	Walk trips (trips per household per day; median US neighborhood 0.73)
	Congestion (hours per person per year; median US neighborhood 17.4)
	Household transportation costs ($ per year; median US neighborhood $10,791)
	Speed limits (miles per hour; median US neighborhood: 28)
	Crash rates (number fatal crash rates/100,000/year; median US neighborhood: 7.6)
	ADA-accessible stations and vehicles (% of; median US neighborhood: 81.7%)
Environment – clean air and water	
Water quality	Drinking water quality (% people exposed to violations; median US neighborhood 0.50%)
Air quality	Regional air quality (unhealthy air quality days per year; median US neighborhood 8.0)
	Near-roadway pollution (% people exposed; median US neighborhood n/a)
	Local industrial pollution (index from 0 to 311,000; median US neighborhood n/a)
Health – prevention, access, and quality	
Healthy behaviors	Tobacco use (% people smoke regularly; median US neighborhood 20.3%)
	Obesity Prevalence (% people are obese; median US neighborhood 27.8%)
	Access to exercise opportunities (% people have access; median US neighborhood 83.2%)
Access to health care	Health care professional shortage areas (index from 0 to 25; median US neighborhood n/a)
	Preventable hospitalization rate (Number preventable hospitalizations per 1,000; median US neighborhood 62.1)
	Patient satisfaction (% patients are satisfied; median US neighborhood 67.3%)
Engagement – civic and social involvement	
	Business, civic, political, religious, and social organizations (per 10,000 people; median US neighborhood 7.3)

	Voting (% people who voted in last presidential election; median US neighborhood 55.6%)
	Social involvement with friends, family, and neighbors (metro area scale from 0 to 2; median US neighborhood 0.98)
	Cultural, arts, and entertainment institutions (per 10,000 people at the county scale; median US neighborhood 0.6)
Opportunity – inclusion and possibilities	
	Gap between rich and poor (county scale from 0 to 1; US neighborhood 0.46)
	Jobs (capped at 1.0 per person; median US neighborhood 0.75)
	High school graduation rate (adjusted 4-year high school cohort; median US neighborhood 81.3%)
	Age diversity of local population (compared to nation from 0 to 1; median US neighborhood 0.87)

"The Livability Index score rates the overall livability of the selected neighborhood, city, county, or state on a scale from 0 to 100. The total livability score is based on the average of all seven category scores, which also range from 0 to 100. We score communities by comparing them to one another, so the average community gets a score of 50, while above-average communities score higher and below-average communities score lower. … We draw from more than 50 unique sources of data to create the Livability Index. At the heart of the Livability Index are 40 metrics and 20 policies."[4]

Selection criteria

"The Index was designed by experts at the PPI [AARP Public Policy Institute], with guidance from a 30-member technical advisory committee with expertise in both policy and data analysis across the range of subject areas evaluated by the Index. The selection of metrics was also informed by a national survey of more than 4,500 Americans 50-plus about the aspects of their communities most important to them."

Sources: https://livabilityindex.aarp.org

[4] From https://livabilityindex.aarp.org/how-are-livability-scores-determined

Housing and Urban Development Healthy Communities Index (2013)

Level of use: community, region

Domains and measures

Environmental Hazards	Toxic Releases from Facilities
	Residential Proximity to Traffic
	School Proximity to Traffic
	Proximity to Superfund and Brownfield Sites
Natural Areas	Tree Cover
	Access to Parks and Open Space
Transportation Services	Commute Mode Share
	Street Smart Walk Score
	Household Transportation Costs
	Transit Accessibility
	Pedestrian Connectivity
Housing Quality	Vacancy Rates
	Age of Housing
	Excessive Housing Cost Burden
	Blood Lead Levels in Children
Social Cohesion	Residential Mobility
	Voter Participation
Educational Opportunities	Preschool Enrollment
	School Readiness Scores
	HS Graduation Rate
	Adult Educational Attainment
	Reading Proficiency
Employment Opportunities	Employment Rate
	Wage-Level Indicator (Self Sufficiency Standard)
	Travel Time to Work
	Long-Term Unemployment
Neighborhood Characteristics	Street Smart Walk Score
	Food Deserts
	Offsite Alcohol Outlets/Availability of Alcohol
	Park Score

Economic Health	Business Retention
	Community Services Spending
	Local Business Vitality
	Access to Mainstream Financial Services
Health Systems & Public Safety	Preventable Hospitalizations
	Chronic School Absence
	Violent Crime
	Motor Vehicle Collisions
	Low Birth Weight

Selection criteria

Started with a framework of ten domains: environmental hazards, natural areas, transportation services, housing, social cohesion, educational opportunities, employment opportunities, neighborhood characteristics, economic health, health systems and public safety.

Rating Scale:

(1) Nexus to health (none, weak, moderate, strong)
(2) Data availability (none, limited, moderate, high)
(3) Actionability (none, low, moderate, high)
(4) Community relevance (none, low, moderate, high)

More details on how criteria were used to discard indicators:

- Scale/resolution (e.g., not available on fine enough scale)
- Availability (e.g., not available for all communities, not available free of charge, not available
- electronically); no recent data available (e.g., data exists, but is outdated); data quality (e.g., indicator is not valid (accurate) or reliable (consistent))
- Limited evidence supporting connection to health
- Limited actionability (e.g., actions to improve the indicator are unknown, not feasible or do not result in measurable changes within a reasonable timeframe)
- Limited relevance (e.g., no track record of use in community planning, may not be relevant to local-level priorities)

Geo-spatial scales for indicators

- City Level: government policies; natural/agricultural/industrial resources, political inclusion, equity
- Neighborhood Level: quality of physical neighborhood features, accessibility and quality of public and private services; social characteristics
- Dwelling/Household Level: physical attributes of buildings; social qualities
- Individual Level: biological qualities, cognitive abilities and qualities, behavioral choices

Source: n/a

National Equity Atlas[5]

Level of use: regional, state (including the District of Columbia), and national

Domains and Measures

Demographics	
	Racial/ethnic composition of the United States
	Population growth rates
	Change in population by race
	Race and ethnicity by nativity
	Percentage of people of color by age group
	Immigrants' contribution to change in population
	Diversity index by region
Economic Vitality	
	Homeownership
	Household income (95th and 20th percentile)
	Earned income growth for full-time wage and salary workers
	Share of workers earning at least $15/hour by race/ethnicity
	Median hourly wage by race/ethnicity
	Income inequality (Gini coefficient)
	Unemployment rate by race/ethnicity
	Growth in jobs and earnings by wage level
	Average annual growth in jobs and GDP
Readiness	
	Current educational attainment and projected state/national-level job education requirements by race/ethnicity
	Disconnected youth (16 to 24 year olds not working or in school; people of color and white)
	Percentage of adults that are overweight and obese by race/ethnicity
	Percent of adults with asthma by race/ethnicity

[5] A collaborative project of PolicyLink and the University of California Program for Environmental and Regional Equity

	Percent of adults with diabetes by race/ethnicity
Connectedness	
	Percent of households without a vehicle by race/ethnicity
	Average travel time to work (minutes) by race/ethnicity
	Housing burden by tenure and race/ethnicity (housing burdened is defined as spending more than 30 percent of household income on housing costs)
	Percent living in high-poverty neighborhoods by race/ethnicity
Economic Benefits	
	GDP gains with racial equity (actual GDP and estimated GDP with racial equity in income)
	Income gains with racial equity (actual and projected)

Selection criteria

"The Atlas uses an indicators framework we've developed for measuring equitable growth in regions. We define an equitable region as one where all residents — regardless of their race/ethnicity or nativity, neighborhood of residence, or other characteristics — are fully able to participate in their region's economic vitality, contribute to their region's readiness for the future, and connect to their region's assets and resources.

"Our framework includes three types of indicators. Demographics describe who lives in the region and how this is changing. Equity indicators are broken out into three categories:

> Economic vitality: Is the economy growing in a way that is inclusive and sustainable? (Current indicators include GDP and job growth, unemployment, wages, inequality, and income growth)
>
> Readiness: Is the region ready for the future, with a skilled, prepared workforce; educated young population; and healthy residents? (Indicators include educational attainment in relation to job skills requirements in 2020, disconnected youth, and overweight/obesity)
>
> Connectedness: Can residents access the essential ingredients to live healthy and productive lives in their own neighborhoods, reach opportunities located throughout the region, and interact with other diverse residents? (Indicators include housing burden, vehicle access, and neighborhood poverty)
>
> Economic benefits of equity indicators quantify the benefits of racial and economic inclusion to the broader economy. (Current indicators include the potential GDP and income gains from closing the racial income gap)."

Healthy People 2020 Leading Health Indicators

Level of use: national, state, some local

Topics and indicators

The Healthy People 2020 initiative includes 42 topic areas, four "foundation health measures" (general health status, health-related quality of life and well-being, determinants of health, and disparities), and over 1,200 objectives. The Leading Health Indicators are a key set of 12 topics and 26 objectives "selected to communicate high-priority health issues and actions that can be taken to address them."[6]

1. Access to Health Services
- 1) Persons with medical insurance (AHS-1.1)
- 2) Persons with a usual primary care provider (AHS-3)

2. Clinical Preventive Services
- 3) Adults who receive a colorectal cancer screening based on the most recent guidelines (C-16)
- 4) Adults with hypertension whose blood pressure is under control (HDS-12)
- 5) Adult diabetic population with an [hemoglobin] A1c value greater than 9 percent (D-5.1)
- 6) Children aged 19 to 35 months who receive the recommended doses of DTaP, polio, MMR, Hib, hepatitis B, varicella, and PCV vaccines (IID-8)

3. Environmental Quality
- 7) Air Quality Index (AQI) exceeding 100 (EH-1)
- 8) Children aged 3 to 11 years exposed to secondhand smoke (TU-11.1)

4. Injury and Violence
- 9) Fatal injuries (IVP-1.1)
- 10) Homicides (IVP-29)

5. Maternal, Infant, and Child Health
- 11) Infant deaths (MICH-1.3)
- 12) Preterm births (MICH-9.1)

6. Mental Health
- 13) Suicides (MHMD-1)

7. Nutrition, Physical Activity, and Obesity
- 15) Adults who meet current Federal physical activity guidelines for aerobic physical activity and muscle strengthening activity (PA-2.4)
- 16) Adults who are obese (NWS-9)
- 17) Children and adolescents who are considered obese (NWS-10.4)
- 18) Total vegetable intake for persons aged 2 years and older (NWS-15.1)

8. Oral Health
- 19) Persons aged 2 years and older who used the oral health care system in past 12 months (OH-7)

9. Reproductive and Sexual Health
- 20) Sexually active females aged 15 to 44 years who received reproductive health services in the past 12 months (FP-7.1)
- 21) Persons living with HIV who know their serostatus (HIV-13)

10. Social Determinants
- 22) Students who graduate with a regular diploma 4 years after starting 9th grade (AH-5.1)

11. Substance Abuse
- 23) Adolescents (12-17 years old) using alcohol or any illicit drugs during the past 30 days (SA-13.1)
- 24) Adults engaging in binge drinking during the past 30 days (SA-14.3)

[6] http://www.healthypeople.gov/2020/Leading-Health-Indicators

14) Adolescents who experience major depressive episodes (MDE) (MHMD-4.1)	**12. Tobacco** 25) Adults who are current cigarette smokers (TU-1.1) 26) Adolescents who smoked cigarettes in the past 30 days (TU-2.2)

Selection criteria

- Central: important as a determinant of health status
- Instinctive: easily recognized as intimate to health status
- Immutable: convey a sense of the obligation to act
- Actionable: conveys a sense of the possibility to act
- Divisible: into key subpopulations
- Translatable: to the national, state, community, and individual levels
- Measurable: at a point in time, over time

Source: http://www.healthypeople.gov/; table of leading health indicators taken from IOM. 2013. *Toward Quality Measures for Population Health and the Leading Health Indicators.* Washington, DC: National Academies Press.

National Prevention Strategy Indicators

Level of use: national, state

Domains and indicators

Goal indicators:

- rate of infant mortality per 1,00 live births
- proportion of Americans who live to age 25/65/85
- proportion of 0 to 24 year old Americans in good or better health
- proportion of 25-64 year old/65-84/85+ year old Americans in good or better health

Leading causes of death:

- Rate of cancer, coronary heart disease, stroke, chronic lower respiratory disease, unintentional injury deaths

Healthy and Safe community environments:

- Number of days the Air Quality Index (AQI) exceeds 100
- Amount of toxic pollutants released into the environment
- Proportion of state public health agencies that can convene, within 60 minutes of notification, a team of trained staff who can make decisions about appropriate response and interaction with partners
- Proportion of children aged 5 to 17 years old with asthma who missed school days in the past 12 months

Clinical and community preventive services:

- Proportion of medical practices that use HER
- Proportion of adults age 18 and older with hypertension whose blood pressure is under control
- Proportion of adults agenda 20 years and older with high low-density lipoprotein (LDL) cholesterol whose LDL is at or below recommended levels
- Proportion of adults aged 50 to 75 years who receive colorectal cancer screening based on the most recent guidelines
- Proportion of children and adults who are vaccinated annually against seasonal influenza

Empowered people:

- Proportion of persons who report their healthcare providers always explained things so they could understand them
- Proportion of adults reporting that they receive the social and emotional support they need

Elimination of health disparities:

- Proportion of adults (from racial/ethnic minority groups) in fair or poor health
- Proportion of individuals who are unable to obtain or delay in obtaining necessary medical care, dental care, or prescription medicines
- Proportion of persons who report their health care provider always listens carefully

Tobacco Free living:

- Proportion of adults who are current smokers (have smoked at least 100 cigarettes during their lifetime and report smoking every day or some days)
- Proportion of adolescents who smoked cigarettes in the past 30 days
- Proportion of youth aged 3 to 11 years exposed to secondhand smoke

Preventing drug abuse and excessive alcohol use:

- Proportion of adults aged 18 years and older who reported that they engaged in binge drinking during the past month
- Proportion of high school seniors who reported binge drinking during the past two weeks'
- Proportion of persons aged 12 years or older who reported nonmedical use of any psychotherapeutic drug in the past year
- Proportion of youth aged 12 to 17 years who have used illicit drugs in the past 30 days.

Healthy eating:

- Proportion of adults and children and adolescents who are obese
- Average daily sodium consumption in the population
- Average number of infections caused by salmonella species transmitted commonly through food
- Proportion of infants who are breastfed exclusively through 6 months

Active living:

- Proportion of adults who meet physical activity guidelines for aerobic physical activity
- Proportion of adolescents who meet physical activity guidelines for aerobic physical activity
- Proportion of the nation's public and private schools that provide access to their physical activity spaces and facilities for all persons outside of normal school hours
- Proportion of commuters who use active transportation (i.e., walk, bicycle, and public transit) to travel to work

Selection criteria

Drawn from existing indicator sets, largely Healthy People 2020.

Source: National Prevention Council. 2011. National Prevention Strategy: America's Plan for Better Health and Wellness. Accessed July 26, 2015
http://www.surgeongeneral.gov/priorities/prevention/strategy/report.pdf

For a recent annual update of progress on the NPS indicators, see
http://www.surgeongeneral.gov/priorities/prevention/2014-npc-status-report.pdf.

IOM's *Capturing Social and Behavioral Domains In Electronic Health Records: Phase II (2014)*:

Level of use: practice setting/local

Domains and measures

Examples of Possible Measures by Candidate Domain

Sociodemographic Domain Measures

- Sexual orientation (identity; behavior)
- Race and ethnicity
- Country of origin/U.S. born or non-U.S. born
- Education
- Employment
- Financial resource strain: Food and housing insecurity

Psychological Domain Measures

- Health literacy
- Stress (general; childhood history/ACEs)
- Negative mood and affect: Depression and anxiety
- Psychological assets: Conscientiousness, patient engagement/activation, optimism, and self-efficacy

Behavioral Domain Measures

- Dietary patterns
- Physical activity
- Tobacco use and exposure
- Alcohol use

Individual-Level Social Relationships and Living Conditions Domain Measures

- Social connections and social isolation
- Exposure to violence (intimate partner)

Neighborhoods and Communities Domain Measures

- Neighborhood and community compositional characteristics (patient address; use address to geocode median household income and racial/ethnic composition [census track])

Selection criteria

(1) Availability and standard representation of a reliable and valid measure(s) of the domain.

(2) Feasibility, meaning whether a burden is placed on the patient and the clinician and the administrative time and cost of interfaces and storage.

(3) Sensitivity, that is, if patient discomfort regarding revealing personal information is high and there are increased legal or privacy risks.

(4) Accessibility of data from another source (information from external sources may be accessible to meet the needs of patient care, population health, and research; if so, the domains would have less priority for inclusion in the EHR).

"The four criteria can be collapsed into two dimensions reflecting the readiness of a measure for use in the EHR and the usefulness of having the information in the patient record for clinical, population management, and research purposes."

Source: http://www.nap.edu/catalog/18951

Social determinants of health indicators from Bay Area Regional Health Inequities Initiative (BARHII)

Level of use: regional/local

Domains and measures

Economic domain

- Income distribution – Gini coefficient
- Unemployment - rate
- Housing cost burden – percentage of households in a county paying more than 30% or 50% of income on housing
- Living wage – wages necessary for minimum standard of living; calculated using the MIT Poverty in America Living wage Calculator (focus on food, transportation, health insurance, and child care, includes dimensions missed by simple measures of unemployment and poverty).
- Food insecurity – ability to afford enough food; based on data in response to give USDA-developed questions in the California Health Interview Survey
- Foregoing health care – data from California Health Interview Survey ("delayed or didn't get medical care")

Service domain

- Violent Crime – violent crime rate

Social Domain

- Educational attainment – percentage with high school education or more
- Voter participation – voter registration and participation rates
- Social capital/social support – potential indicators include "number and density of community and voluntary organizations in a defined geographic area, and by the participation level of community members in these organizations"
- English language learners – percentage of people in households where no one 14 years or older speaks English only or speaks English very well

Physical domain

- Air contamination – peak concentrations of particulate matter
- Access to public transportation – population within ½ mile of major public transportation stop
- Alcohol access – number and density of alcohol outlets
- Food access – food market score (RFEI, food retail environment index developed by the California Center for Public Health Advocacy, as modified by CDC, mRFEI)

Selection Criteria

"These 15 indicators were narrowed from an initial list of several hundred selected by members of the BARHII data committee. The criteria included relevance and availability. Members drew on a review of the literature and years of experience in LHD epidemiology. Each of the 15 indicators has its own chapter that outlines how to locate, analyze, and tailor indicators to local health equity work. Furthermore, examples of how BARHII-member health departments have used these indicators (or related data) in public health practice are included at the end of each chapter" (BARHII, 2015: 16)

Source: Bay Area Regional Health Inequities Initiative. 2015. *Applying Social Determinants of Health Indicators to Advance Health Equity: A Guide for Local Health Department Epidemiologists and Public Health Professionals*. Oakland, CA. (http://barhii.org/resources/sdoh-indicator-guide/)

Community Assessment Project of Santa Cruz County, California

The complete report includes demographic data, and indicators in six subject areas or domains. Data includes community survey data. For each domain, a snapshot is provided (a concise subset of indicators) along with community goal. Domains are:

- *economy* (13 indicators ranging from youth unemployment to affordable housing)
- *education* (14 indicators ranging from SAT scores to child care)
- *health* (30 indicators, ranging from teen births to intentional injuries)
- *public safety* (14 indicators, ranging from gang related cases and arrests to foster care placement)
- *social environment* (13 indicators, ranging from racism and discrimination to voting), and
- *natural environment* (15 indicators, ranging from pesticide use to waste reduction)

The report includes two overarching "snapshots" that serve as higher level or key sets of indicators, and these are described in more detail below:

Domains and indicators for *Snapshot of Santa Cruz County*

Economy

- Unemployment rate
- Affordable housing (median sale price, all home types)
- Foreclosures (number of notices of default)

Education

- Test scores -- California HS Exit Exam (percentage of 10th grade students passing the math portion)

Health

- Health insurance -- children (percent of children ages 0-17 with health insurance)
- Obesity -- children (percent of children 0-11 who are overweight for their age)

Public safety

- Crime (rate per 1,000 residents)
- Juvenile arrests (rate of juvenile felony and misdemeanor arrests per 1,000 youth ages 10-17)

Social environment

- Homelessness (number of homeless individuals counted on one day)
- Food insecurity (number of people Served by the second Harvest Food Bank)

Natural environment

- Concern for natural environment (percent of CAP survey respondents who said water pollution most concerned them about the natural environment)
- Organic farming (number of certified organic producers with more than $5,000 in sales)

Domains and indicators for *Ethnicity Snapshot of Santa Cruz County*

(for each item below, Whites compared to Latinos)

Economy

- Affordable housing (percentage of CAP survey respondents who spent over 30% of household take-home pay on housing costs)
- Unemployment rate (percentage unemployed according to CAP telephone survey)
- Self-sufficiency of income standards (percentage of households below the Self-
- Sufficiency Income Standards)

Education

- High school dropout rates (percentage of county dropouts)
- Higher education (percentage of community college degrees and certificates awarded)

Health

- Health insurance (percentage of CAP survey respondents with health insurance)
- Teen births (number of teen births by ethnicity of mother (19 and under)
- Obesity (percentage of CAP survey respondents who are overweight and obese)

Public safety

- Jail population (percentage of total inmates for Santa Cruz County)
- Juvenile arrests (percentage of juvenile arrests – felony and misdemeanor offenses ages 10-17)
- Child abuse (rate of substantiated cases of child abuse – per 1,000 children 0-17)

Social environment

- Quality of life (% of CAP survey respondents reporting they were "very satisfied" with their quality of life)
- Basic needs (% of CAP survey respondents going without food in the past 12 months)
- Homelessness (% of homeless population by ethnicity)

Natural environment

- Water pollution (% of CAP survey respondents taking steps to reduce water pollution at work or at home)
- Alternative transportation (percentage of CAP survey respondents reporting never using alternative transportation – bus, car pool, bicycle)

Selection criteria

From the CAP 2014 report: "Indicators need to be understandable to the general user and the public, responsive to change, relevant for policy decisions, and updated regularly. Each year the CAP Steering Committee reviews the list of indicators to keep up with changes within our community."

Source: http://www.unitedwaysc.org/community-assessment-project