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National Committee on Vital and Health Statistics

Measuring Health at the Community Level: Data Gaps and Opportunities

A Workshop Summary and Project Overview

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EXECUTIVE SUMMARY

Since 2010, the National Committee on Vital and Health Statistics (NCVHS) has studied the need identified by state and local officials to improve their capacity to measure and improve the health and well-being of their populations.[1] Recognizing the impact of disparities on the increasing lag in U.S. health status, NCVHS has focused its attention on data-driven approaches to improving the health of the nation. Recent evidence illustrates the essential role played by community-level data in driving measurable improvements in population health and well-being.

From 2011-2016, the Committee studied the role of measurement in health improvement by convening a series of four workshops and roundtables, resulting in a number of reports and recommendations to the HHS Secretary based on its findings (see note 6). NCVHS has identified increasing opportunity for partnership between the Federal government and other entities focused on using data to drive multi-sectoral action to improve health at the community level.

In September 2016, national experts and researchers with an interest in multi-sectoral, community-level data took a major step toward aligning strategies for measuring and improving community health at a workshop convened by NCVHS. The centerpiece of the meeting was the *Community Health and Well-being*

1 Established in 1949, the National Committee on Vital and Health Statistics (NCVHS) serves as the advisory committee to the Secretary of Health and Human Services on health data, statistics, privacy, national health information policy, and the Health Insurance Portability and Accountability Act (HIPAA) (42U.S.C.242k[k]). In that capacity, it provides advice and assistance to the Department and serves as a forum for interaction with interested groups on key issues related to population health, standards, privacy and confidentiality, and data access and use. Its members have distinction in such fields as health statistics, electronic interchange of health care information, privacy, confidentiality, and security of electronic information, population-based public health, purchasing or financing health care services, integrated computerized health information systems, health services research, consumer interests in health information, health data standards, epidemiology, and the provision of health services. HIPAA requires NCVHS to report regularly to Congress on the status of HIPAA implementation. NCVHS reports and recommendations are posted on its website, http://ncvhs.hhs.gov/.

Measurement Framework, which NCVHS developed to clarify a potential Federal role for improving the availability of sub-county data by highlighting the domains and sub-domains in which such data are needed. The Framework is designed to facilitate cooperation across stakeholders, including Federal programs designed to target health improvement.

In the latest phase of this initiative, NCVHS determined that more and better sub-county data across multiple domains and sectors are necessary to support local, state, and Federal efforts to improve community health and reduce health care costs. The Committee developed the Measurement Framework, based on a review of multiple successful community examples and existing Federal resources, to provide a structure for defining and identifying data needs across domains including education, economy, public safety, food, health, housing, and transportation. It designed the Framework to be flexible and comprehensive, to promote measurement in multiple sectors and make it possible for local officials to choose locally-relevant measures. At the same time, it can generate a parsimonious set of core measures to guide federal and state policy and resource allocation and enable communities to compare themselves and share best practices. The Measurement Framework will support counties, states, and Federal agencies in assessing and comparing communities as they make policy and resource decisions, and enable communities to be more effective in improving health.

The Framework, which draws from a wide range of evidence, has undergone several stages of development. Based on feedback on the initial version, NCVHS commissioned an environmental scan to better understand the considerable community-level measurement work under way in non-health sectors. The findings of that study provided the evidence base for further development of the Framework. Version 2 was circulated widely, generating more than 100 comments from 30 individuals and organizations. Version 3, which was developed in response to those comments, served as the basis for the September 2016 workshop.[2] (See Appendices 3, 4, and 5.)

The NCVHS Workshop—September 27, 2016

The 90 thought-leaders who attended the workshop came from a wide range of geographic areas and Federal and community organizations. Their work concerns diverse aspects of measuring and supporting community health and well-being across the range of determinants, including health, housing, transportation, food and agriculture, commerce, and justice. In all, these distinguished participants represented the perspectives of at least seven Federal departments, twelve health

[2] The Framework developmental stages and changes are summarized in Appendix 2.

and public health organizations, thirteen foundations, and several academic institutions (Appendix 2). Based on discussions during the meeting, NCVHS clearly heard that sub-county data to measure the determinants of health and well-being are needed to enable effective action and collaboration to improve population health at the community level.

The workshop agenda combined presentations and moderated panel discussions with several working sessions in which all participants could offer input (Appendix 1). The discussions throughout the day highlighted opportunities for greater collaboration among and between governmental and non-governmental organizations to move this measurement effort forward. The participants agreed with the approach and substance laid out in the NCVHS Measurement Framework, and devised a plan to continue to work collaboratively to develop and implement it. They also emphasized the importance of HHS collaboration with other Federal agencies to improve the availability of sub-county data for community-based health improvement efforts. Data and measurement were a major focus of these discussions. Other major themes included the benefits of supporting community-driven health improvement and of ensuring that communities have the data they need to replicate the successes of exemplar communities. The participants also considered ways to carry forward the work on the Measurement Framework.

In sum, the meeting fulfilled the Committee's primary objectives for advancing the field of sub-county measurement and data to improve community health and well-being as well as governmental efficiency. The specific objectives included clarifying the Federal role, fostering public-private alignment and collaboration, ascertaining both Federal and non-Federal support for the Measurement Framework, and identifying mechanisms for moving it forward. Meeting attendees were in agreement that the Measurement Framework is directionally correct, has significant potential as a convening framework, and is ready for further development and testing by non-Federal entities.

Next Steps

Having brought the Framework to this point, during the workshop NCVHS members cited the need for a non-governmental entity to voluntarily coordinate the development process once the inputs from the workshop are added. Also during the meeting, Soma Stout of the Institute for Healthcare Improvement volunteered to facilitate an NGO Convening Group to work with Federal colleagues to advance the Measurement Framework to continue forward with this work. Several attendees volunteered to serve on a working group to design a transition process. The purpose of this private-sector convening body is to achieve public-private collaboration to further develop the Framework by refining

the subdomains as needed—populating it with indicators and metrics, identifying data sources, and testing its usefulness in communities.

Meeting participants agreed on the importance of bringing additional perspectives into the process, beyond those provided by the persons able to attend the workshop. In addition, the attendees agreed on the pressing need for a parallel interagency Federal group to continue, coordinate, and support the Federal side of the work on multi-sectoral measurement at the sub-county level. Moving forward, the Federal and non-Federal work will need to be aligned to maximize the benefits from each sector's contributions to supporting community-level data use. NCVHS will turn over version 4 of the Framework to the NGO Convening Group, which will become the steward and curator of the tool as it is developed, tested, implemented, and modified over time (Appendix 5).

As of this writing, NCVHS is developing recommendations to the Secretary that focus on approaches to advance improvements in the nation's health through data and measurement at the community level. These recommendations will draw from research and observations pointing to the need for greater collaboration between Federal and non-governmental efforts to improve availability and access to essential data for the purpose of better targeting health resources.

Measuring Health at the Community Level: Data Gaps and Opportunities

Introduction

Despite many medical breakthroughs and public health advancements in the 20th Century [1, 2], today Americans live shorter lives, experience more disease and disability across the lifespan, and lag on most measures of population health than the residents of other developed countries, even though the U.S. spends more than double per capita on healthcare than other countries. [3] Recent studies exploring explanations for the comparatively poor U.S. health performance identified profound local place-based disparities in life expectancy as a primary driver. [4, 5, 6]

A growing body of evidence suggests that existing U.S. national, state, and even county health data sources are inadequate for identifying and addressing these local hot-spots of disparities, which disproportionally drive unsustainable increases in healthcare costs. [7, 8] Other developed countries have addressed similar urgent public health issues by investing in local data. For example, government agencies in England, Wales, Greece, and Australian New South Wales utilized local life expectancy estimates and other community-level data for several successful public health applications including identifying, investigating, and tracking progress towards measurable reductions in health disparities [9, 10]; evaluating effectiveness of public health actions [11]; and planning and funding local public health and clinical services [11, 12, 13].

Recognizing the impact of community-level disparities on the increasing lag in U.S. health status, over the last six years the National Committee on Vital and Health Statistics Population Health Subcommittee has directed its attention to data-driven approaches to improve the health of the nation. Recent evidence illustrates the role of community-level data in driving measurable improvements in population health and well-being.[3] This report highlights the presentations and

[3] NCVHS uses a broad and flexible definition of community: *A community is an interdependent group of people who share a set of characteristics and are joined over time by a sense that what happens to one member affects many or all of the others.* While communities come in many forms, NCVHS generally focuses on geographic communities, whose members are connected through the place where they live and around which data gathering (e.g., by county) have been traditionally organized. It is important to note that geographic communities such as cities and counties are composed of many sub-communities with varied levels of inclusion and opportunity and sometimes widely divergent health outcomes.

findings from the latest in a series of workshops sponsored by the NCVHS Population Health Subcommittee.

National experts on multi-sectoral data and community well-being efforts gathered in Washington, DC on September 27, 2016 at the invitation NCVHS to focus on strategies for measuring and improving community health and well-being. The more than 90 thought-leaders in attendance represented a broad spectrum of community-focused governmental and non-governmental data-focused initiatives.

> We are actually starting to measure well-being at the community level. One key benefit is that all sectors, including community members themselves, can see how they play a role in improving the health and well-being of the community. This shift is needed to catalyze necessary multi-sector collaborations to improve health.
>
> Brita Roy

The purpose of the workshop was to gather input for NCVHS recommendations to the Department of Health and Human Services (HHS) in four areas:

- Enhancing public-private collaboration to increase availability of sub-county data;[4]
- Improving HHS data generation to provide sub-county data;
- Aligning Federal small area data generation initiatives; and
- Reinforcing multi-sectoral approaches to measuring community health and well-being.

The workshop provided an opportunity for reviewing examples, visioning, and planning among leaders in this field. Meeting participants identified opportunities and gaps in availability of sub-county data and considered potential Federal roles to fill data gaps and strengthen communities' ability to improve health locally. They also explored opportunities to further align their work and create stronger links among multi-sectoral metric-centric efforts to improve health and well-being.

The *Measurement Framework for Community Health and Well-being* served as the focus of the meeting, which NCVHS developed to support Federal and private sector alignment and collaboration. While several multi-dimensional frameworks for measuring community health and well-being exist or are under development, the NCVHS framework is uniquely designed to clarify a Federal role in improving sub-county data by highlighting the specific domains and sub-domains in which such data are needed. The sub-county data outlined in the Framework would also help align Federal programs often working in the same communities and improve the efficiency and effectiveness of their work. Meeting attendees endorsed the NCVHS convening Framework and agreed on a transition plan through which

[4] We define *sub-county* as the smallest possible geographic unit that permits meaningful and effective planning and project development. Depending on local characteristics and other factors, the meaningful unit may be the neighborhood, a small town, a group of contiguous communities, or even a group of contiguous counties.

they can continue to work collaboratively in a broad-based public-private partnership to develop and implement the Framework. By validating the Framework and devising a transition plan, the meeting fulfilled the Committee's objective of catalyzing collaborative efforts to continue this work.

The workshop also provided a chance to step back and take note of both the progress toward understanding community health and well-being and the barriers that stand in the way. Paradoxically, both the progress and the barriers are considerable. On the positive side of the ledger, an appreciation for the broad spectrum of determinants of health and well-being is growing. Collaborations to improve health and well-being are forming at every geographic level. Conceptual work is under way on precisely what communities need to know to bring about improvement in health and well-being, and on ways to catalog and integrate this complex information. This conceptual work is informed by many exemplar communities that collect and use data to guide their efforts. The Federal government has encouraged open data, data sharing, and strategic data integration, and helped galvanize attention to health disparities and the need to move upstream to sustained health improvement. The Public Health 3.0 initiative now provides a meaningful frame for local public health activities on a national scale, as other Federal agencies advance their own integrative activities. Thus bridges are being built from all sides.

> We have a chance to influence Federal directions around how the richness of Federal agencies can help support local community initiatives by providing data, and tools to use those data, and helping communities understand how the data are an input into their decisions about priorities.
>
> Bruce Cohen, Workshop Co-Chair

On the negative side of the ledger, the efforts to improve Americans' lives create an urgent need for data that are not currently available. Indeed, the National Academy of Medicine was commissioned to inform HHS' efforts to identify community measures for adjusting health care payments; and its final report states that most of the needed measures are not currently available or at least not with sufficient geographic granularity. These data are essential for assessing and improving local health and well-being at the geographic levels at which action can be most effective. Many local projects falter on the paucity of sub-county data with which to guide local efforts. These data limitations are compounded by the fact that communities have varied, and sometimes quite limited, capacities to use data; and to a large extent they have to go it alone. So even as the scope of necessary data expands, and with it the challenges of organizing the data, the availability and usability of the data at a meaningful level of granularity remain severely limited.

All of these opportunities and challenges were on the table for the September 2016 NCVHS workshop.

NCVHS Focus on Community Data Needs

There are increasing calls for the Federal government to direct resources to help communities break through the barriers and take advantage of the growing assets and opportunities for improving health. As a Federal Advisory Committee, NCVHS identified sufficient evidence to encourage HHS in this direction, in recognition of the fact that local communities are the strategic locus for achieving population health and well-being. NCVHS has studied the data needs of local communities since 2011 and issued a series of reports and recommendations to the Secretary on the subject.[5] It has convened stakeholders from governmental and non-governmental organizations periodically to gain perspectives on the role of the Federal government in improving the accessibility and usability of local data and supporting community capacities to find and use data to direct health improvement work. The Committee has watched and documented the growing sophistication of community-driven efforts, the emergence of intermediary organizations that provide support and information for such initiatives, and the evolution of powerful technology. However, relatively few communities have these capacities, while most, and particularly the worst-off, do not. NCVHS meetings on this topic have provided opportunities to cultivate synergies among the many efforts under way in this arena. Now more than ever, there are opportunities for fruitful partnerships between the Federal government and others working in this space.

> I think it's great that you are looking at very small areas. County is great, but it crosses over too many places. And when people can identify their own area, they get much more involved.
>
> Noreen Beatley

The Current NCVHS Project: Using Sub-County Data to Promote Multi-Sector Approaches

In the most recent stage of its ongoing project in this area, NCVHS focused on strengthening sub-county data so that communities can improve population health and well-being. As organizations and communities have recognized the significance of a broad spectrum of social determinants of health and well-being, many efforts have emerged to define the key characteristics within and beyond, but influential to, health. In 2015, NCVHS,

[5] NCVHS letters, recommendations, and reports on community data: 1) NCVHS Report and recommendations – The Community as a Learning System for Health: Using Local Data to Improve Local Health (December 13, 2011); 2) NCVHS Report - Supporting Community Data Engagement – An NCVHS Roundtable (October 2014); 3) NCVHS Report – Toolkit for Communities Using Health Data: How to collect, use, protect, and share data responsibly (May 2015); 4) NCVHS Letter to the Secretary – Recommendations on supporting community data engagement by increasing alignment and coordination, technical assistance, and data stewardship education (May 28, 2015); 5) Report: Advancing Community-Level Core Measurement: A Progress Report and Workshop Summary (February 2016).

prompted by growing evidence that an overarching framework for sub-county data was needed, initiated development of a community-level Measurement Framework. The idea behind the Framework, then and now, is to provide a structure for framing a comprehensive yet manageable approach to measure community health and well-being across a range of important determinants. NCVHS has worked to develop a flexible, comprehensive tool that will promote multi-sectoral engagement and enable community leaders to choose locally-relevant and accessible indicators at the sub-county level.

In November 2015, NCVHS convened a meeting to gather input on its first version of the Framework from a range of stakeholders, primarily in the community-based health improvement field. A major finding from that meeting was the need to learn more about the extensive work conducted in non-health sectors regarding the measurement of community health and well-being.

As a result, in 2016, NCVHS commissioned an environmental scan to provide essential information regarding multi-sector approaches to measurement and identification of existing data sources. The scan, described below, served as the evidence base for development of an expanded Measurement Framework (V2), which NCVHS then circulated widely. It received more than 100 comments from 30 individuals and organizations, representing the perspectives of non-profits, state and local government, health organizations and providers, academic institutions, and Federal government. NCVHS then used that input to develop V3, the version it shared and discussed with workshop participants.

The Committee's next step was to convene the September 2016 workshop to gather further input on the Framework, assess its utility, and then catalyze collaborative efforts to turn over the work for implementation outside the Federal government.

> The NCVHS draft Framework presented me with a unique opportunity to explore the Framework's utility as a tool for helping [DeKalb Count, GA] community leaders focus their attention on health problems that need action.
>
> Dave Ross
> *(See Appendix 4 for the story.)*

The September 27 Workshop

The NCVHS Subcommittee on Population Health outlined four objectives for its 2016 workshop:

1) Put forth a multi-sector measurement framework reflective of the numerous initiatives under way to serve as the basis for a public-private collaboration.

2) Identify opportunities and gaps in sub-county level data metrics and the potential Federal role in developing a public-private partnership to expand small area-level data development.

3) Explore opportunities to align, leverage, and build multi-sectoral sub-county level metric-centric efforts to improve health and well-being.

4) Catalyze collaborative efforts to continue this work.

The Committee invited individuals involved in many aspects of measuring and supporting community health across the range of determinants. Their organizations include seven Federal departments, twelve health and public health organizations, thirteen foundations, and a number of academic institutions (Appendix 2).

The workshop agenda included four sets of presentations and moderated panel discussions, as well as several opportunities for productive working sessions to draw upon participants' knowledge (Appendix 1). All are briefly summarized below.[6] The presentations featured the NCVHS Measurement Framework and presentations on several leading multi-sectoral measure-centered initiatives. Through their discussions, the participants articulated the broad goals for enhancing health and well-being in American communities and devised ways to continue the work on the Measurement Framework.

> The taxonomy is terrific. It seems to be a very nice way for communities to assess the key issues. I also like the systematic way you have gone about the consultative process.
>
> J. Michael McGinnis (National Academy of Medicine)

Community Health and Well-being Measurement Framework, V3

- Bruce Cohen and Bill Stead, Co-Chairs, NCVHS Subcommittee on Population Health
- Gib Parrish

Drs. Cohen and Stead, who led this project, described the purpose and development of the NCVHS Measurement Framework. To illustrate its potential utility, they told of the reaction of DeKalb County, GA, leaders to an early draft (Appendix 6). They explained that the Framework provides a structure for thinking about how to measure community health and well-being across numerous determinants. As such, it can facilitate community-level data-collection, measurement, and decision-making and provide a means to use multiple domains to design community interventions and track their impacts. The Measurement Framework also enables assessments through the lenses of equity and life-course considerations. NCVHS designed it to have domain categories that are parallel in scope and to fit with the frameworks in use by existing neighborhood indicator projects. Its domains largely mirror the Federal agency structure, to assist in aligning Federal data

[6] Presenters' slides are posted at http://www.ncvhs.hhs.gov/meeting-calendar/agenda-of-the-september-27-2016-ncvhs-subcommittee-on-population-health-workshop/

efforts across secretariats. Drs. Cohen and Stead stressed that far from being seen as a replacement for other framework efforts, the NCVHS Measurement Framework is meant to serve as a convening framework to support alignment, Federal involvement, and collaboration.

As noted, the Committee commissioned an environmental scan to enrich the initial version of the Framework with information on the extensive activity in both health and non-health sectors. **Dr. Parrish,** who conducted the scan and provided a detailed written report on it,[7] explained that the scan identified existing measurement frameworks, core domains, indicators, and metrics for community health and well-being. He described his methodology in conducting the scan and shared his key findings. The report on the environmental scan provides examples of indicators available at the sub-county-level, with related data sources, as well as a meta-synthesis of the contents of the sampled existing frameworks. The workshop participants' commentary on the Framework and ideas for improving, curating, and using it began during this session and wove through the rest of the workshop. While they suggested a number of new indicators and other small modifications, above all they validated the Framework as sound, "directionally correct," and potentially useful to the field. Their ideas for developing it further and continuing the work after the workshop are outlined below. (See Appendices 3, 4, and 5 for more on the evolution of the Framework and the version that NCVHS developed in response to the suggestions from workshop participants.)

Current Reality and Desired Future

- Peter Eckart, Illinois Public Health Institute, Data Across Sectors for Health (DASH)
- Brita Roy, Yale University School of Medicine, 100 Million Healthier Lives
- Leah Hendey, Urban Institute, National Neighborhood Indicators Partnership
- Kevin Barnett, Public Health Institute

In this session, the panelists described several multi-sector, metric-centered improvement efforts being conducted on a national scale. They also cited examples of local initiatives that are leveraging multi-sectoral data, and stressed the key role of partnerships and shared learning in these endeavors at both local and national levels.

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[7] NCVHS. Environmental Scan of Existing Domains and Indicators to Inform Development of a New Measurement Framework for Assessing the Health and Vitality of Communities. June 2016. http://www.ncvhs.hhs.gov/wp-content/uploads/2016/06/NCVHS-Indicators-Envirn-Scan_2016-06-01-FINAL.pdf

Peter Eckart is Co-director of the Data across Sectors for Health (DASH) project at the Illinois Public Health Institute. He works closely with Alison Rein and the Community Health Peer Learning Program. The projects, which between them have 25 grantees, are developing a learning collaborative to document what works and what doesn't in empowering local action and to disseminate their findings to the field. He stressed the benefits of integrating complementary work, sharing learning, and joining in a national conversation about these topics. The two organizations and others are forming a "network of networks" (ALL IN: Data for Community Health) to leverage and extend shared learning. DASH has developed a readiness assessment tool in consultation with community members, singling out factors related to readiness to collaborate and to share data. As an example of data-sharing across sectors to inform local action, Dr. Eckart cited a collaborative Dallas project that is using a focus on food insecurity as an upstream approach to diabetes and hypertension. The organizers are creating a data base that integrates data from food banks and multiple food pantries, constituting what he called a "de facto case management system for human services." Because of the pivotal role of food in relation to health, the organizers see this as a gateway opportunity to reach people who enter the service system through food-related interventions.

> This is about building the civic capacity in communities to use and understand information and improve their work. We do not want our partners just focusing on housing, or crime, but on all the different areas. People experience their neighborhoods in a holistic manner, and solutions can only be found across sectors.
>
> Leah Hendey

Leah Hendey of the Urban Institute described the National Neighborhood Indicators Partnerships (NNIP) as "translators" that build information systems across domains to help community members and organizations participate in solutions. The primary focus of NNIP is the direct practical use of data to bring about change in distressed neighborhoods. The Urban Institute advocates a culture of open data and data use; and to that end Dr. Hendey stressed the value of building curiosity about data and the ways in which its use can make community projects more effective. As an example, she cited a University of Pittsburg effort that convenes data user groups to talk about an issue (such as environmental justice) and identify data needs, possible sources, and potential uses. The Urban Institute stresses data democratization in areas where this has been missing. Some of its work connects "people data" and "place data"—for example, looking at address histories in distressed properties as factors leading to lead poisoning or kindergarten readiness. She pointed out that those collecting administrative data may not realize how their data might be useful for other purposes such as this. The culture of data use, she noted, is built by developing relationships and making needed adjustments to the data so they can have multiple uses.

Brita Roy, an internist who studies positive health factors, is part of the metrics team for 100 Million Healthier Lives, a project supported by the Institute for

Healthcare Improvement. To help achieve the goal of 100 million healthier lives in the U.S. by 2020, the metrics team identified a set of measures that adapts the World Health Organization's definition of health, with its physical, mental, social, and spiritual dimensions of well-being. Through expert consensus, they derived a parsimonious, seven-indicator measure of well-being to help communities identify the proximal drivers they hope to change and then to select an intervention and measure its short- and long-term impacts. Using healthy food availability in schools as an example, she noted that communities can measure not just what kids buy but what they eat, what their families purchase for home use, and what gets thrown away. She added that a multifaceted and unorthodox approach to data-finding such as their initiative champions can lead to some "unlikely partnerships" among people who care about the same issue. For example, Hennepin County, MN, links County data on education, food and housing assistance, and other factors that affect Medicaid patients and their health. The data linkages across sectors have enabled the health system and the County to work together to address determinants of health for these local residents and to directly measure outcomes and costs. Through partnerships such as these, she added, all sectors can see the role they can play in improving well-being.

> How can we use data in a way that we're making progress towards beginning to fundamentally change the equation? How do we get to some of the bigger ideas, the bigger outcomes, that we want?
>
> Kevin Barnett

Kevin Barnett of the Public Health Institute in Oakland has long used a social justice lens to study the charitable obligations of nonprofit hospitals and the implementation of community benefit standards. He commented on the growing opportunity to leverage the resources of hospitals and health systems to build an infrastructure for measuring and improving community health. Hospitals are being called upon to change the conditions that make people sick or well, moving them to seek and use indicators of social determinants of health to identify what they can help change and then monitor the results. New mapping tools enable hospitals to understand key characteristics such as socioeconomic factors in the geographic areas where they are located. He called particular attention to the intersection between community development and health improvement, and with it the need to leverage resources to build the infrastructure for improvement. An ecological approach like the one championed in this workshop, he noted, can create a business case for broad-based initiatives and point to new partners in previously untapped sectors.

Federal Roles

- J. Alice Thompson, Center for Medicare and Medicaid Innovation (CMMI)
- Wayne Giles, Division of Population Health, CDC
- Jason Broehm, Department of Transportation
- Elizabeth Sobel Blum, Federal Reserve Bank of Dallas

The four invited presenters from diverse agencies exhibit a range of Federal approaches to strengthening local efforts to improve community well-being. Their respective projects model creative partnerships and the use of wide-ranging data, some at a sub-county level.

> Our clinical providers are huge actors in the community in terms of moving population health. If we start holding them accountable, we can incentivize them to reach out beyond their walls and make the connections needed to change health.
>
> J. Alice Thompson

J. Alice Thompson works with the Prevention and Population Health Group at the Center for Medicare and Medicaid Innovation (CMMI). With the goal of leveraging measurement to drive population health, the Group develops and tests novel population health metrics and works to integrate them into quality and value-based payment programs across the Centers for Medicare and Medicaid Services (CMS). It aims to focus on outcome, rather than process, measures and to move from the individual to the community and population level. It also aims to provide utility not just for actuaries and payers but also for others working for population health. CMMI works closely with the Centers for Disease Control (CDC) in these activities. Ms. Thompson cited the work on the development of a smoking prevalence measure, proposed as a potential test case in which hospitals could be held accountable for reducing county smoking levels as a way to incentivize hospitals to "reach out beyond their walls." CMS is considering using the county-level smoking measure, among others, for its Merit-based Incentive Payment System and Medicare Shared Savings Program. In the Measure and Instrument Development and Support project, a CMS contractor is developing and testing two high-priority core measures for their utility in CMS value-based payment programs. The Innovation Center is also thinking through how CMS can help facilitate multi-sectoral collaboration related to health. Its ongoing population health metrics activities include exploring strategies to advance population health measures within CMMI model tests and initiatives, and coordinating activities across CMS and HHS to ensure measure harmonization.

Wayne Giles directs the Division of Population Health at CDC, which is partnering with the CDC Foundation and the Robert Wood Johnson Foundation on the 500 Cities Project. This project, launched in 2015, targets 500 cities that represent one-third of the U.S. population. In 2017, the project will release map books and data on 27 chronic disease measures for these large American cities at the census-tract level, based on small area estimation. The measures include 5 unhealthy behaviors, 13 health outcomes, and 9 prevention practices, all of which

have a substantial impact on public health. The project will produce an interactive website with the capacity to compare cities and neighborhoods within cities. The released data can be used to help local leaders and decision-makers target interventions to improve health in the neighborhoods facing the greatest health challenges. Dr. Giles pointed to the growing recognition of the need for sub-state-level information. In response, starting in 2016, the Behavioral Risk Factor Surveillance System (BRFSS) will provide prevalence estimates for all counties in the U.S. using new statistical small area estimation methods. The measures from the 500 Cities Project will complement existing sets of surveillance indicators that report state, metropolitan area, and county-level data.

> We need to have a shared understanding and appreciation for what each other does. We're working in the same communities, and know that there are inextricable links between health, income, and education. Instead of brushing elbows, we should be linking arms, working together to create healthier opportunities for all. Because none of us can do it alone.
>
> Elizabeth Sobel Blum

Jason Broehm of the Department of Transportation (DOT) described a transportation-and-health tool developed by the U.S. Department of Transportation and CDC to provide easy access to data that can be used to examine the health impacts of transportation systems. The tool provides data on a set of transportation and public health indicators for each U.S. state and metropolitan area. Together, they show how the transportation environment affects safety, active transportation, and air quality as well as connectivity to destinations. Users can compare their state or metropolitan area to others and explore pertinent links between transportation and health. This enables them to identify strategies to improve public health through transportation planning and policy. He also described the evolving work by DOT and CDC on analyzing the built environment for physical activity, including mapping sidewalks and bike paths. DOT supports local and metropolitan governments in collecting data and making them available for national analysis.

Elizabeth Sobel Blum explained that the mission of the Federal Reserve's community development function is to promote fair and impartial access to credit and community and economic development—the social determinants of health. The Fed's community development function conducts research, writes publications, designs and co-hosts events, and facilitates collaborations. It provides information to banks, and organizations interested in partnering with them, on how to engage in community and economic development activities in ways that may help the banks fulfill their Community Reinvestment Act (CRA) obligations. The healthy communities movement—which intentionally brings together the community development, economic development, public health, and health care sectors—is growing. She urged community leaders to reach out to their local Federal Reserve and include it in their conversations and collaborations whose purpose is to promote healthy communities.

Following these invited presentations, other Federal officials working in relevant activities were also asked to describe their work.

Claire Wang of the HHS Office of the Assistant Secretary for Health briefed the group on the Public Health 3.0 (PH 3.0) initiative, which has the stated goal of empowering local public health leaders to be chief health strategists in their communities. As noted, from the outset NCVHS aligned its work with PH 3.0, which developed the first version of the Measurement Framework. The PH 3.0 initiative is motivated in part by awareness that communities with similar upstream determinants can have quite different outcomes (for example, in disparities in life expectancy), reflecting the difference a community can make in improving local health. PH 3.0 emphasizes cross-sectoral environmental, policy, and systems-level actions that directly affect the social determinants of health and advance health equity. It challenges business leaders, community leaders, state lawmakers, and Federal policymakers to incorporate health into all areas of policy and governance. In spring 2016, the Assistant Secretary for Health held five listening sessions in communities across the United States. Dr. Wang shared the sessions' findings, which are well aligned with the major themes of this NCVHS workshop. She concluded by suggesting the formation of a Federal interagency work group on enabling communities to have access to data on the social determinants of health.

Charlie Homer, of the HHS Office of the Assistant Secretary for Planning and Evaluation, briefly described the community-driven work on communities of poverty that HHS has been carrying out in conjunction with the White House with support from the Urban Institute. The organizers asked disadvantaged communities to come forward with specific priorities on how to improve local conditions, leading to new models of working with grass-roots leaders.

Jeannie Chaffin of the HHS Administration for Children and Families (ACF) observed that the Obama Administration has "pushed people to work across sectors." One place-based initiative of ACF is a 10-region demonstration project for parents and children. Data integration is one of the challenges it has encountered. She urged her fellow workshop participants not to forget the human services as they build collaboratives and gather data.

Advances and Trends in Data Technology

- Bob Phillips, American Board of Family Medicine*
- Roxanne Medina Fulcher, IP3/Community Commons*
- Mike Reich, Seaborne Consulting

This session on technology showcased resources that are helping to make sub-county data available, easy to understand, and usable. The presentations

highlight the possibilities for community well-being efforts that are enabled by technology as it evolves alongside multi-sector data and the organizational environment.

Bob Phillips of the American Board of Family Medicine, an NCVHS member, stressed the importance of bringing clinical care into the partnerships for community health, and equally of making socioeconomic, geographic, and other patient health determinant data available to their clinicians. He cited two Institute of Medicine reports that call for integrated approaches of this kind.[8] As examples, he described two platforms that make multi-sectoral local data available for local use: 1) the Social Vulnerability Index of the Agency for Toxic Substances and Disease Registry (ATSDR), which helps local officials identify communities that may need extra support in preparing for hazards or recovering from disaster; and 2) the UDS mapper, a decision-support tool funded by the HHS Health Resources and Services Administration and developed by the Robert Graham Center. He pointed out that the geographic displays in platforms such as these can both show and protect data because they can display key characteristics of a region without revealing sensitive information. Finally, he shared his vision for future developments in this area: a renewed population health information system; a core, standardized set of indicators that can be used by local leaders to assess the health of their communities; and a consolidated platform for sharing and displaying local population health data.

> Can I start to think on a community level of who I can partner with that can help me with a community-level intervention? Can we start to lead clinicians to that, using their clinical data and the rich population data that come out of our agencies or our communities?
>
> Bob Phillips

Roxanne Medina Fulcher directs the Institute for People, Place and Possibility (IP3), which plays a major role in Community Commons. She said that in their five years of providing support and information for community-based initiatives, they have seen exponential growth of multi-sector collaboratives, the proliferation of data access tools and systems, and greater recognition of the need to effectively use data to drive and measure change. The Commons is building flexible technology to enable interoperability and connectivity for multi-sector collaboratives. She introduced Mike Reich, who has been working with IP3 to develop new data capabilities and platforms.

Mike Reich outlined the findings of Seabourne Consulting from a yearlong analysis of community data needs. He stressed the importance of modularity and a flexible toolbox to serve the diverse stakeholders and perspectives that make up today's environment. He then demonstrated a suite of tools and technologies

[8] 1) For the Public's Health: The Role of Measurement in Action and Accountability. National Academy of Medicine, 2011. 2) Primary Care and Public Health: Exploring Integration to Improve Population Health. National Academy of Medicine, 2012

his firm is building that will help Community Commons users to drive change and share learning. He noted that such technology must make data actionable, and be flexible and open.

Major Discussion Themes

Four major themes threaded through the day's discussions: data and measurement needs, with a particular focus on the NCVHS Measurement Framework; the overarching goal of community health and well-being, with equity as one effective driver; potential roles for the Federal government to improve data accessibility; and ways to carry the work forward from the meeting.

> I think a lot of what we're talking about here is, how do you cross many different sectors and disciplines? I would challenge everybody in this room to continue to think about that work. Where does that work fit, and where does that work live—not just the data, but the practice of it?
>
> Jeannie Chaffin

Data and measurement were a major focus of the workshop discussions, primarily in the form of comments and suggestions about the Community Health and Well-being Measurement Framework. In addition to validating the basic structure (domains and sub-domains) of the Framework, meeting participants had suggestions for additional indicators for NCVHS to consider as it developed the next version.

Importantly, the participants enunciated a two-part goal for the Measurement Framework:

1. That it be flexible enough to meet distinct local needs, *and*
2. That it provide a parsimonious set of core measures to guide federal and state policy and resource allocation and enable communities to compare themselves and share best practices.

This dual vision emerged early in the meeting as a suggestion, and by the end had crystallized into a consensus-based recommendation to NCVHS. As conceived, the Framework can provide a broad and flexible menu of sub-county-level metrics from which communities can select driven by local needs and priorities. The metrics that prove helpful to many communities could then be "promoted into the core" for a parsimonious set that would permit comparison and shared learning and guide policy and resource allocation more broadly, including at the national level.

All participants agreed on the importance of bringing additional perspectives, including community input, into any further Framework development processes. They also recommended building periodic review and revision into the Measurement Framework once it is developed, so it continues to be a dynamic and relevant tool.

Although the workshop focused primarily on sub-county-level data, the participants agreed that given the significance of rural disparities, other strategies

may be required to provide viable and actionable data in rural areas. Speaking for his small discussion group, a participant urged those responsible for small-area estimation "not to forget those people, because if they don't have data, it just exacerbates disparities" in rural areas.

The principles of data democratization and the goal of building local learning cultures undergirded the day's discussions. This framing was combined with a strong emphasis on clarifying the **spectrum of social change** that the right data can help to achieve. As they shared their thinking about technology, participants again urged a focus on the questions that need to be answered and the purpose and goals of community-oriented endeavors. It was suggested that technology can be expected to evolve to meet emerging potentialities and needs.

> Both technology and data can be oceans in which we get lost if we don't have a clear, clarifying purpose. Let's work together, not separately, and toward real change for real people in real communities.
>
> Soma Stout

The major thrust of the discussions was agreement that the desire to achieve broad and sustainable change and bring about health and well-being for all residents is what drives collaborative partnership and action in communities. These goals, often framed in terms of community development and revitalization, are achieved through many targeted changes across a range of determinants. Therefore to succeed, collaborative efforts need access to actionable data on the determinants as well as analytic tools, models of best practices, and many forms of support.

Grounded in this broad context, the Co-Chairs, Drs. Cohen and Stead, steered the focus back to **the appropriate roles and actions for Federal government**, in order to inform NCVHS recommendations to the Secretary. Their query stimulated creative discussion among the participants about how HHS and other departments can move more decisively in the directions blazed by the Federal programs featured in this workshop. The participants noted the opportunities to leverage integrative Federal strategies that go beyond health data, like those featured here, and they called for more comprehensive collaboration among Federal departments and agencies for this purpose. It was pointed out that some individuals and entities within government, much like local communities, will need their own forms of capacity-building to be able to work effectively at the local level.

There were a number of suggestions about **how the work on this cross-cutting endeavor might proceed.** Ideas for possible Federal roles included asking the Office of Management and Budget to "bless" or coordinate the Framework, creating a new Federal hub for sub-county data, and linking it to the National Prevention Strategy. Whatever the mechanism, a new Federal work group created for this purpose (as described below) could be charged with working in a public-private collaboration with the non-governmental group whose formation was initiated at this workshop.

Key Workshop Outcomes: Mechanisms for Moving Forward

In short, the workshop fulfilled the National Committee's objectives concerning the utility of the Measurement Framework, defining gaps in availability of sub-county data, a potential Federal role, fostering alignment and collaboration, and mechanisms to continue this work as the Committee completes its advisory role in this area. Meeting participants were in agreement that the NCVHS Measurement Framework for Community Health and Well-being is directionally correct, has significant potential, and should be further developed and tested for real-world use in communities.

> The Federal Government has limited bandwidth; and rightly, the priority has been developing data and data support for national policy development. I think now we would like to figure out ways to turn the ship to focus not only on national policy development but also on how the Federal data enterprise can support community-level initiatives as well.
>
> Bill Stead, Workshop Co-Chair

Having brought the Framework to this point, NCVHS members put forth the need for another entity to coordinate the development process (once the inputs from this meeting are added), as further development is outside the Committee's purview. Soma Stout of the Institute for Healthcare Improvement (IHI) responded by offering to facilitate an NGO convening group to work with Federal colleagues to advance the Measurement Framework and catalyze efforts to continue the work.[9] Several workshop participants volunteered to serve on a working group to design a process for the transition. The purpose of the private sector convening body is to achieve public-private collaboration to further develop the Framework, populating it with indicators and metrics and creating a mechanism for learning through practice. All agreed on the importance of bringing more people and perspectives into the process, beyond those who were able to participate in the workshop.

Meeting participants also agreed on the need for a parallel interagency Federal group to continue, coordinate, and support the Federal side of the work on multi-sector measurement at the sub-county level. This includes pursuing small-area estimation methods as well as expanding connections and reducing barriers across government to enable greater access to data for decision-making. An associated goal discussed was for adoption of the Measurement Framework across Federal departments. It also was noted that an ecological approach will require work with Congress to remove the barriers embedded in siloed funding of

[9] Soma Stout, M.D., M.S., is Executive External Lead for Health Improvement at IHI and Executive Lead for IHI's 100 Million Healthier Lives Leadership Team.

programs and organizational structures. Finally, moving forward, the Federal and non-Federal work must be aligned to maximize the benefits from each sector's contributions to supporting community-level data use.

Next Steps for NCVHS

Following the Workshop, NCVHS modified the Measurement Framework to incorporate suggestions from participants. It has since turned over the updated Framework (Version 4; see Appendix 5) to the NGO Convening Group, which will become the steward and curator of the tool as described above.

In addition to this report, NCVHS will develop recommendations for consideration both by HHS and the non-federal sector, based on the work that has culminated up to this point. In both cases, the essential finding is the need to advance the Community Health and Well-being Framework to support strategic, evidence-based approaches to population health measurement and improvement.

At the workshop, the Committee clearly heard a well-defined need articulated for creation of a Federal inter-agency and inter-departmental work group to facilitate coordination within HHS, across Federal departments, and with non-governmental bodies active in this area. Such a group would be the Federal counterpart to the NGO Convening Group, creating what workshop participants envisioned as a "twin-engine plane" to propel the Measurement Framework effort forward linking together all relevant HHS efforts, such as Healthy People, CDC community initiatives, and other community-level efforts.

> We're dealing with considerable complexity; trying to solve multiple problems, achieve multiple aspirations. If we can create a coherent foundation to build from—which I believe we've begun to do today—then I think we will see a snowball of desired actions, activities, and outcomes.
>
> Monte Roulier, Facilitator

The Committee also heard that **greater coordination** of existing community-level data development is needed, both within HHS and across Federal agencies. For the non-Federal leaders and actors who will carry on this work, including the NGO Convening Group, greater community involvement in Framework development and more collaboration on providing resources and developing analytic tools for community data use would further serve the needs identified by communities. Last, the importance of collaboration between Federal and non-Federal entities on small area data generation and access was clearly identified.

The Committee will follow these unfolding activities with great interest, and support them in whatever ways are available to it.

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APPENDIX 1: Workshop Agenda and Speaker List

8:30 am: Welcome—Bruce Cohen & Bill Stead, NCVHS Co-leads, and Monte Roulier, Facilitator

- Workshop Purpose – The Opportunity
- How we got to this point
- Agenda and expectations for the day

8:50 am: Community Health & Well-being Measurement Framework, V3
—Bill Stead & Bruce Cohen; Gib Parrish

- Overview and history
- Feedback from public vetting process – what have we learned?
- Moving forward

9:30 am: Working Session: Community Health & Well-being Measurement Framework (all participants)

10:30 am: Current Reality & Desired Future (Moderated Panel Discussion)
Peter Eckart, Illinois Public Health Institute
Brita Roy, Yale University School of Medicine
Leah Hendey, Urban Institute
Kevin Barnett, Public Health Institute

- What are themes and lessons from multi-sector, metric-centered improvement efforts?
- What is the range of uses?
- Where are we getting traction? Getting stuck?
- What are the most common needs and aspirations?

11:15 am: Working Session – Current Reality & Desired Future (All)

1:00 pm: Federal Roles—Moderated Panel Discussion
Jeff Meisel, Census Bureau
Wayne Giles, Centers for Disease Control & Prevention
Elizabeth Sobel Blum, Federal Reserve Bank of Dallas
J. Alice Thompson, Centers for Medicare & Medicaid Services
Jason Broehm, U.S. Department of Transportation

- What are current experiences working to support community collaboratives?
- What can we learn from our bright spots?
- What are the constraints for data availability and how might they be overcome?

2:30 pm: Advances in Data Technology – Making Data Available and Easier to Understand

(Presentation/Demonstration and Dialogue)

Bob Phillips, American Board of Family Medicine and NCVHS Member

Roxanne Medina Fulcher, IP3

Mike Reich, Seabourne Consulting

- Trends & changes in data technology
- Brief demos of possibilities

3:15 pm: Collaborative Possibilities— Large and Small Group Dialogue

- Solution generation
- Partnership possibilities & scenarios

4:30 pm: Summary & Next Steps—Bruce Cohen & Bill Stead; Monte Roulier, Facilitator

SPEAKERS

Kevin Barnett, Dr.P.H., MCP, Senior Investigator, Public Health Institute

Jason Broehm, Transportation Analyst, Office of Safety, Energy and Environment, Office of the Secretary, U.S. Department of Transportation (DOT)

Bruce B. Cohen, Ph.D., Co-Chair, NCVHS Subcommittee on Population Health

Peter Eckart, Director of Health and Information Technology, Illinois Public Health Institute

Leah Hendey, Senior Research Associate at the Urban Institute, Washington D.C.

Roxanne Medina-Fulcher, JD, Executive Director, Institute for People, Place and Possibility (IP3)

R. Gibson Parrish, II, M.D. , Consultant in population health information systems

Robert Phillips, M.D., M.S.P.H., Vice President for Research and Policy, American Board of Family Medicine, Washington, D.C.

Mike Reich, Founder and CEO, Seabourne, Inc.

Monte Roulier, President, Community Initiatives

Brita Roy, MD, MPH, MHS, Assistant Professor of Medicine and the Director of Population Health at Yale University School of Medicine, New Haven, CT

Elizabeth Sobel Blum, MA, MBA, Senior Community Development Advisor, Federal Reserve Bank of Dallas, Dallas TX

William W Stead, MD, Chief Strategy Officer, McKesson Foundation Professor of Biomedical Informatics, Professor of Medicine, Vanderbilt University Medical Center, Nashville, TN; Co-Chair, NCVHS Subcommittee on Population Health

J. Alice Thompson, M.A., Social Science Researcher, Center for Medicare & Medicaid Innovation (CMMI), Centers for Medicare and Medicaid, Baltimore, MD.

APPENDIX 2. Organizational Affiliations of Workshop Participants

Federal agencies and departments

- HHS: AHRQ, CDC (NCHS, NCDPPHP, OD, others), CMS, HRSA, OASH (ACF, ASPE, OMH, ONC)
- Other Federal departments: Agriculture, Commerce, Defense, EPA, Justice, Labor, Transportation, Federal Reserve Bank (Dallas)

Health non-profit organizations

- Academy Health, American Public Health Association, Association of State and Territorial Health Officials, Council of State and Territorial Epidemiologists, Health Leads, Illinois Public Health Institute, Institute for Healthcare Improvement, National Academy for State Health Policy, National Association of County & City Health Officials, National Association of Health Data Organizations, Public Health Institute, Task Force for Global Health
- National Board of Family Medicine, American Academy of Family Physicians, National Academy of Medicine, American College of Preventive Medicine
- Camden Coalition of Healthcare Providers, Trinity Health

Other non-profit organizations

- Build Healthy Places Network, Community Commons, NAACP, Healthy Communities Institute, Healthy Housing Solutions, NeighborWorks America, Thriving Cities, Urban Institute, Vera Institute of Justice

Foundations

- Aetna Foundation, de Beaumont Foundation, Kaiser Permanente, Robert Wood Johnson Foundation

Academic institutions

- University of California at Los Angeles, Georgetown University, George Washington University, Vanderbilt University, University of Chicago, University of Missouri, Yale University School of Medicine

APPENDIX 3. Frequently Asked Questions about the Framework

NCVHS Community Health and Well-Being Measurement Framework FAQ's
V 1.0 (9/27/16)

Developing the Framework is a dynamic, iterative process. We hope these FAQs will be helpful in understanding the intent and current status of the project. We will add to them as the project moves forward.

Why is NCVHS developing and promoting a single, general organizational tool for community-level data? What could be accomplished if one existed that can't be accomplished in its absence?

The goal of this project that distinguishes it from other current efforts is its focus on the Federal perspective. Namely,

- Promoting multi-sector sub-county data collection and support for making these data widely available.
- Developing domains consistent with Federal executive agency missions in order to better align Federal community data collection efforts.
- Laying the groundwork to connect Federal data enterprises at the sub-county level with ongoing non-Federal public and private initiatives.

What is the framework designed to do?

- Provide a structure for thinking about how to measure community health and well-being across all determinants.
- Offer communities a flexible tool designed to promote multi-sectoral engagement with the ability to choose indicators that are locally relevant and accessible.
- Facilitate community-level data-collection, measurement, and decision-making.
- Improve data collection by identifying gaps, opportunities, and unifying approaches.
- Align small-area estimation and data generation initiatives and methodologies.
- Enable assessments through the lenses of equity and life-course considerations.

What is it NOT designed to do?

- Replace other framework efforts
- Provide a comprehensive or prescribed list of indicators.
- Stand on its own. This framework is not the only strategy that NCVHS will pursue to achieve our overarching goal of supporting a broad Federal focus on indicators of community health and well-being.

Some of the subdomains and suggested indicators should be located elsewhere in the Framework. Why are they placed where they are?

- The domains are not meant to be mutually exclusive. Indicators can fit into different domains, depending upon the community's perspective. Alternatively, the same indicator can be used in multiple domains.

Where do policy and community investment fit in the framework?

- These ideas are embodied within the governance sub-domain of the community vitality domain. Alternatively, policy and funding can be considered in the infrastructure sub-domain of many of the included domains.

Where do indicators for community resiliency fit?

- The FEMA community resiliency core capabilities look very similar to the set of domains and subdomains of the NCVHS Measurement Framework, with the addition of domains specific to risk reduction and preparedness.

I don't see the indicators that are important to me and my community. For example, where are LGBTQ indicators?

- Indicators are presented only as examples. The main focus here is on establishing the essential domains and subdomains.

How do the life course, equity and social determinants perspective fit into this framework?

- There are many lenses through which to view indicators of community health. The framework is a flexible structure to guide the organization of a menu of metrics.

How could communities use this framework?

- The framework provides a broad perspective on how communities can combine and use indicators from multiple domains to create interventions for change.
- Over time, communities will also be able to review temporal changes.

Who is collecting these data at the community level?

- We anticipate that communities will create multi-sector organizations to carry out measurement activities. Much of the data will be taken from existing sources, in parallel with efforts to make small area estimates more available through federal action.

How is this effort aligned with HP2030, IOM Vital Signs, Measures that Matter, County Health Rankings, THRIVE, Culture of Health and other similar projects?

- This framework has been vetted by many of these organizations so that it aligns with current efforts.
- Before creating this framework, NCVHS conducted an environmental scan of both health and non-health indicator projects and community health and well-being frameworks, in order to build on the knowledge and strength of previous efforts.

Comparisons between communities is what guides action. Without a prescribed set of indicators and metrics associated with each indicator, communities cannot tell how they stand in relation to other communities.

- The purpose of this framework specifically excludes ranking and comparisons. Individual communities are expert in the issues of greatest importance to them, thus metric efforts should be tailored by communities to address their own needs.

The act of measuring rarely drives action without being used in supportive circumstances, such as by an already motivated planning group. Why is this framework being developed without support for how to use the data?

- As depicted on the NCVHS Roadmap, development of a framework of domains and sub-domains is a first step in a process that will continue as a public private collaboration. Subsequent steps include organization of a menu of indicators, identification of sub-county level data gaps, discovery of additional data, creation of enhanced technical support for local data collection and small area estimation projects, and capture of community examples of use.

APPENDIX 4. Applying the Community Health Measurement Framework

—A letter from Dave Ross, June, 2016[10]—

For the past year and half the Task Force for Global Health has been in conversation with several of the Atlanta metro area county governments about their options for developing a health promotion agenda. The NCVHS draft framework presented me with a unique opportunity to explore the Framework's utility as a tool for helping community leaders focus their attention on health problems that need action. I offer the following overview of the project that is beginning to emerge in Atlanta. I offer this example to explain why I think the Framework can make a significant and important contribution to advancing population health.

My story begins with a discussion I began in 2015 with the Dekalb County Chief Operating Officer and the Chair of the Dekalb County Board of Commissioners. Dekalb County, GA, is the home of the CDC, Emory University, the Carter Center, CSTE, the National Association of Chronic Disease Directors and The Task Force for Global Health. We are a county rich in health expertise yet also a county where local leaders have almost no readily available data to help them improve and protect the health of their citizens.

The County's Chief Operating Officer oversees daily management of government operations while the Chair is an elected official responsible for establishing overall direction and for guiding the county's commissioners. They rely on their public health department to advocate for health improvement and to provide necessary population health protection. The great recession of the past few years led to significant reductions in county government staff, including the health department. Consequently, when they think about health improvement initiatives they confront a staffing and a funding challenge. The recession has resulted in a county that has stalled in its understanding of health disparities, opportunities for prevention interventions and stalled in having an active connection between the health department and the county's political and management leaders.

They are seeking a logical and efficient way to establish a county-wide health improvement agenda. They are fully aware that social, behavioral, economic, educational and other factors play an important role in determining individual life course as well as population health status. They also understand that the County is not monolithic; it is a highly diverse patchwork of economic subgroups, ethnic enclaves, and neighborhoods. They are aware that their county faces health issues that are not simply resolved by a visit to the doctor, like a high prevalence of overweight children, increasing deaths due to gun violence, and asthma caused by bad air. They know that the burden of these problems is not uniformly distributed among the various subpopulations and communities that make up the county.

Despite this awareness, they have little evidence that motivates an action agenda. The health department has been reduced to offering basic mandated services. Absent data that paint a clear and compelling picture of the county's needs and a tool that shows sub-county level data around social and behavioral determinants, they remain paralyzed to act.

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[10] Dr. Ross, an NCVHS member, directs the Task Force for Global Health and the Public Health Informatics Institute, based in Decatur, GA.

In the course of our discussions I showed them the draft framework under consideration by NCVHS. They recognized the logic of the domains and the inherent validity of the subdomains and example indicators. They instantly understood that having sub-county data on these subdomains and indicators would open a view of the county they govern that has heretofore been invisible to them. They quickly provided examples of sub-populations they know about, such as a section of low income Hispanic and Asian communities that abut a high income, high education neighborhood. Presently, they only have access to state data or at best county aggregate data regarding only a few health metrics. They know that they need sub-county data to make visible underlying inequities in health and/or opportunities for health promotion.

I asked them a simple question – if the NCVHS Framework existed as a simple to use computer tool and the tool was able to access sub-county level data for their county and possibly for surrounding counties, would they use it. Their answer tells the story. Without reservation the answer was yes, and they add an emphatic "when can we have it?"

Based on these interactions and with the Framework guiding us, we are mobilizing county government officials, the health departments of three counties in metro Atlanta, health care provider organizations, public safety officials, business sector leaders and the boards of education to form a health planning task force aimed at understanding where health needs exist and formulating proposals for action. Problems these leaders know exist in general yet lack the facts to act in specific ways or in specific populations include early child violence prevention, land use planning to promote walking and bike friendly environments, food deserts and substance abuse.

The Framework has provided a straightforward, easily understood means for seeking the data that will highlight problems and indicate possible directions for interventions. Most importantly, the Framework has given them confidence that this tool will lead them towards a county-wide health advocacy agenda, which they presently lack.

APPENDIX 5. NCVHS Measurement Framework, V4

NCVHS Measurement Framework for Community Health and Well-Being, V4 (December 14, 2016)

The mission of the Department of Health and Human Services (HHS) is to enhance the health and well-being of Americans. In recent years, the National Committee on Vital and Health Statistics (NCVHS) has studied the community health improvement movement and identified a need for a more strategic federal role to support communities. The Committee's work will culminate in recommendations to HHS regarding potential approaches for improving availability of and access to sub-county data and for increasing the capacity of communities to use data as a key driver for health improvement efforts.

The purpose of this Framework is to:

- Strengthen multi-sectoral health and well-being improvement efforts at the local level**.**
- Help HHS, other federal agencies and private-sector partners identify and close gaps in the accessibility of data at a sub-county level.
- Offer communities a blueprint of the key issue areas -- domains and subdomains -- to stimulate and inform dialogue across sectors on barriers, opportunities, and approaches for improvement.
- Promote public-private collaboration that builds on the successes of numerous metrics efforts already in development and/or in use

This Framework is designed to:

- Offer communities a flexible tool designed to promote multi-sectoral engagement with the ability to choose indicators that are locally relevant and accessible.
- Focus on (upstream and downstream) determinants of health through the lenses of both equity and life-course perspectives.
- Provide each sector the opportunity to see how they are achieving outcomes critical to their performance *and* achieving collective impact on the health of their population and well-being of their community.
- Complement existing framework efforts by seeking opportunities to inform and be informed by other efforts with similar aims, and avoiding defining a single set of metrics/ to be used by all communities.

The intent for this Framework is to accommodate two complementary objectives:

1. A parsimonious multi-sectoral core set of indicators that will:
   - Guide federal and state policy and resource allocation, and
   - Allow communities to benchmark themselves against peers and identify best practices.
2. A flexible set of multi-sectoral indicators to strengthen health and well-being efforts at the local level, from which communities can choose to use.

Proposed Measurement Framework for Community Health and Well-Being, V4: Domains and Subdomains

This framework provides a parsimonious structure for thinking about how to measure community health and well-being across determinants from life course and equity perspectives. The framework includes the domains and subdomains. It does not include specific indicators or metrics. The same indicator may be included in multiple domains depending on a community's perspective.

Please refer to the Appendix for examples of indicator sets and metrics by subdomain to illustrate the vision for how this structure could be used.

Domain	***Subdomain***
Community Vitality	
	Social capital
	Governance
	Civic engagement
	Social inclusiveness
Demographics	
	Total population
	Demographics per HHS Data Standards (age, sex, race/ethnicity, primary language, disability)
	Other demographics
Economy	
	Income and wealth
	Employment
Education	
	Infrastructure & capacity
	Participation & achievement
Environment	
	Natural environment
	Built environment
	Neighborhood characteristics
Food and Agriculture	
	Food availability
	Nutrition
Health	
	Health care infrastructure
	Health behaviors
	Health conditions & diseases
	Health outcomes

Housing	
	Infrastructure & capacity
	Quality
	Use/affordability
Public Safety	
	Infrastructure
	Perceptions of public safety
	Crime
	Injuries
Transportation	
	Infrastructure & capacity
	Quality
	Use & affordability

Framework Appendix 1.

Definitions of Terms Used

Community Health: The presence of conditions within a community that support the comfort, health, and happiness of its residents.

Sub-county: The smallest possible geographic unit that permits meaningful and effective planning and project development at that unique level. Depending on local characteristics and other factors, the meaningful unit may be the neighborhood, or a small town, or a group of contiguous communities or even counties.

Small area estimation: The use of statistical techniques to provide an estimate for a small sub-population (the "small area") where few or no persons have been directly surveyed. Estimation is accomplished by employing data collected outside of the small area, data collected on the same outcome, and related administrative data. All relevant data are then processed using a statistical model that, in turn, is used to make each small area estimate.

Domains: Broad categories or "spheres" of activities, conditions, and information that constitute or characterize human societies (e.g., nations, populations, and communities).

Sub-domains: More focused sub-categories within domains that include issues of concern for community health and well-being.

Indicators: Specific, narrowly defined activities and conditions whose state or level are measurable.

Metrics: Quantitative measures of specific, clearly defined activities, and conditions. The specification of a metric should include a quantitative definition, units for expressing the metric (e.g., number, percent, rate per 100,000 persons), population or other entity measured, and method of measurement or source of data.

Framework Appendix 2
Side by Side comparison of Progression of Framework effort

Framework v1 November 2015	Framework v2 June 2016	Framework v3 September 2016	Framework v4 November 2016
Outcomes • Life expectancy • Well-being Health Behaviors • Obesity and relevant behaviors • Tobacco • Substance abuse (alcohol/drug) Clinical Care • Access to care • Quality of care Physical Environment • Air quality Social and Economic • Education • Poverty • Housing • Safety	Health • Health outcomes • Health conditions & diseases • Health behaviors • Health care & infrastructure Environment • Natural environment • Neighborhood characteristics Education • Educational participation & attainment • Educational infrastructure & capacity Economy • Income and wealth • Employment Public Safety • Crime • Infrastructure • Perceptions of public safety • Injuries Social Cohesion and Civic Vitality • Social cohesion • Civic engagement Housing • Infrastructure/capacity • Availability/affordability • Quality Transportation • Infrastructure • Use • Quality Demographics • Age • Sex	Health • Health care & infrastructure • Health behaviors • Health conditions & diseases • Health outcomes Environment • Natural environment • Neighborhood characteristics Education • Infrastructure & capacity • Participation & achievement Economy • Income and wealth • Employment Food and Agriculture • Food availability • Nutrition Public Safety • Infrastructure • Perceptions of public safety • Crime • Injuries Community Vitality • Social capital • Governance • Civic engagement • Social inclusiveness Housing • Infrastructure & capacity • Quality • Use/affordability Transportation • Infrastructure & capacity • Quality • Use	Community Vitality • Social capital • Governance • Civic engagement • Social inclusiveness Demographics • Total population • Recommended demographics • Other demographics Economy • Income and wealth • Employment Education • Infrastructure & capacity • Participation & achievement Environment • Natural environment • Built environment • Neighborhood characteristics Food and Agriculture • Food availability • Nutrition Health • Health care infrastructure • Health behaviors • Health conditions & diseases • Health outcomes Housing • Infrastructure & capacity • Quality • Use/affordability Public Safety • Infrastructure • Perceptions of public safety • Crime

	• Race/ethnicity • Primary language • Disability	Demographics • Total population • ACA demographics • Other demographics	• Injuries Transportation • Infrastructure & capacity • Quality • Use & affordability

Framework Appendix 3
NCVHS Effort to Measure Community Health and Well-being: Chronology of Work, 2011-2016

As a Federal Advisory Committee, NCVHS has made it a priority in recent years to encourage a multidimensional view of health as well as focusing on the fact that local communities are the strategic locus for achieving population health and well-being.

Timeframe	NCVHS Project	Report or Product
2011	**Convened a workshop, "Using Data to Improve Health: The Community as a Learning System for Health"** Fourteen communities at the leading edge of using local data highlighted the power of data for impacting population health outcomes. Findings included the need for: • access to local data and analytic resources • local partnerships to target local priorities • trust & governance – people want to know in advance how data about them and their community will be used	Report: The Community as a Learning System for Health: Using Local Data to Improve Local Health (December 2011)
2014	**Convened a roundtable, "Supporting Community Data Engagement"** Community leaders, data connector organizations and data suppliers identified needs and gaps in local data access and use, and suggested areas in which HHS could better support local efforts. Discussion themes: • The drive within communities for health equity needs support through improved access to sub-county data to identify hotspots. • The emergence of intermediaries and resources, which have ability to lead coordination and alignment, and their potential role.	Report: Supporting Community Data Engagement —An NCVHS Roundtable (October, 2014) Letter to the Secretary: Recommendations on supporting community data engagement by increasing alignment and coordination, technical assistance, and data stewardship education (May, 2015).
2015	**Convened a workshop, "Advancing Community-Level Core Measurement"**	Report: Advancing Community-Level Core Measurement: A Progress

	Identified a measurement framework of a balanced and parsimonious set of domains by which communities could assess, measure and improve local health and well-being. Version 1 of the Measurement Framework, created by the Office of the Assistant Secretary for Health, was presented and deemed a good start but needing a better and more varied balance of domains.	Report and Workshop Summary (February, 2016)
2016	**Environmental Scan** NCVHS sponsored an environmental scan of a large sample of health and non-health centric frameworks of well-being and community health. The primary purpose was to identify existing measurement frameworks, core domains, indicators, and indicator data sets in health and non-health sectors	Report: Environmental Scan of Existing Domains and Indicators to Inform Development of a New Measurement Framework for Assessing the Health and Vitality of Communities (June, 2016)
2016	**Measurement Framework version 2** Drawing from the environmental scan, NCHVS created the Measurement Framework version 2, which was vetted by Federal, academic, non-profit, and community and state organizations over the summer of 2016. Version 3 was created as a result of the input and brought to the next workshop.	
2016	**Convened a workshop, "Using Sub-county Data to Promote Multi-sector Approaches for Community Health and Well-being: Identifying Gaps and Opportunities."** The purpose was to advance three areas: • Enhance public-private collaboration to increase the availability of sub-county data • Improve HHS data collection to focus on sub-county data • Better align Federal small area data estimation and sub-county data	Summary document in progress

	generation initiatives	
2016	**Measurement Framework version 4** Version 4 of the Measurement Framework created drawing on input from the 2016 workshop.	Current document

Framework Appendix 4.
Sample of Framework filled out with a limited set of example indicators and metrics

In the table below, a limited number of example indicators and metrics have been added to the framework. This table includes both metrics that have been measured at the sub-county level by a community indicator project as well as metrics that would be useful but have yet to be made available at that geographic level. The examples are only included to show how this Framework could be used and are not intended to be comprehensive or represent highest priority for all communities.

Domain	***Subdomain***	***Example Indicators***	***Example metrics that are measurable at sub-county level***	***Example metrics that are currently unavailable at sub-county level***
Community Vitality	Social capital	Residents who trust their neighbors	-Boston/% of adults who trust their neighbors	
		Neighborhood connections (resiliency)	- Cleveland/Density of neighborhood acquaintanceships	
	Governance	Stakeholder engagement for developing regulations		-OECD/average score on stakeholder engagement in the development of primary laws and subordinate regulations
		Public trust in government		-% of adults who trusts the local government to make good decisions
		Open data		% of government dataset that are API available
	Civic engagement	Registered voters and percent who vote	- Baltimore/ % persons 18+ years age registered to vote/City Board of Elections 2012 - Baltimore/ % registered voters who voted in last general election/City Board of Elections 2012	
		Public meeting attendance		- SF/% of Population attending public meetings in past year/US Census CPS 2008-2010
	Social inclusiveness	Residential mobility	- SF/% persons 1 Year and older living in the same house as one year ago/ACS 2005-2009	

Domain	*Subdomain*	*Example Indicators*	*Example metrics that are measurable at sub-county level*	*Example metrics that are currently unavailable at sub-county level*
		Perceived racial inclusiveness		-Reactions to race/BRFSSS state data
Demographics	Total	Total Population		
	Distributions	Distribution by:		
		Age	% by age (0-9, 10-17, 18-24, 25-44, 45-64, 65+)	
		Sex	% female/male	
		Race/ethnicity	% non-Hispanic white/non-Hispanic black/other non-Hispanic/Hispanic/	
		Primary language	% Non-English speaking	
		Disability	% disabled based on 6 qx	
		Gender identity		% persons identified as transgender
Economy	Income and wealth	Persons living in poverty	- New Orleans/ % People living in poverty/ACS 2010-2014	
		Total community income		Tax base of community-individual & business combined
		Income inequality		Gini Index of household income inequality
		Net worth		Asset information is not collected in a way usable at the sub-county level
	Employment	Unemployment rate	- Baltimore/% persons 16-64 years of age formally employed or self-employed and earning a formal income/ACS 2009-2013	
		Job training and adult wait lists	- Columbus/% of unemployment/Ohio Dept. of Job and Family Services	- Boston/Wait list for Adult Basic Education & English as 2nd Language/MA Dept of Elementary and Secondary Education

Domain	*Subdomain*	*Example Indicators*	*Example metrics that are measurable at sub-county level*	*Example metrics that are currently unavailable at sub-county level*
		Job Accessibility	-Cleveland/# of jobs within average commute times by skill level and quality	
Education	Infrastructure & capacity	Funding for early education		- Boston/Funding for MA Dept of Early Education & Care 2012
		Child care	-Detroit/child care locations	
		Teachers per students in public schools	- Boston/Ratio of students to teachers in regular education programs in public schools/Boston Public Schools 2011-2012	
	Participation & achievement	Math attainment	-% 8th graders who are proficient in math/National Assessment of Education Progress (NAEP)	
		High school graduation rate	- Charlotte/% 12th graders successfully completing high school in 4 years/NC Dept. of Public Instruction	
Environment	Natural environment	Air and water quality	- Baltimore/Median daily water consumption in cubic meters/City Dept Public Works	- Boston/# of days with poor air quality/State Dept. Environmental Protection
			-Benton-Franklin/Turbidity Water Quality Index	% children tested with elevated blood lead levels
	Built environment	Walkability score	- Baltimore/Score (0-100) for walking distance to amenities in nine different categories/walkscore.com 2013	
		Impervious surfaces	- SF/% of ground covered with impervious surfaces/USGS 2006 National Land Cover Database	

Domain	*Subdomain*	*Example Indicators*	*Example metrics that are measurable at sub-county level*	*Example metrics that are currently unavailable at sub-county level*
		Traffic proximity & volume by average income & racial composition of community	-EJSCREEN/Count of vehicles (AADT, avg. annual daily traffic) at major roads within 500 meters, divided by distance in meters/DOT traffic data	
	Neighborhood characteristics	Amenities	-Detroit/child care locations	
		Broadband cost and speed		% of residents who have access to three or more wireline Internet service providers, and two or more providers that offer maximum download speeds of 50 megabits per second
Food and Agriculture	Food Availability	Food store availability	SF/Food Market score	
		Food deserts		County Food Environment Index/USDA
		Value of production	-Benton-Franklin/Total market value of crops	
		Food safety	-Alameda Co./ Restaurant inspection results	
	Nutrition	Adequate fresh food intake		% adults who eat 5 fruits and vegetables per day/state BRFSS
		Food insecurity		% of households in which food intake is reduced/normal eating patterns are disrupted because the household lacks money and other resources for food/CPS
Health	Health care infrastructure	Health insurance coverage		% of persons with health care coverage/community survey
		Preventable hospitalizations		# asthma and diabetes hospitalizations/ population/hospital records

Domain	*Subdomain*	*Example Indicators*	*Example metrics that are measurable at sub-county level*	*Example metrics that are currently unavailable at sub-county level*
		Hospital care	Amount of hospital charity care/Benton-Franklin Trends	
		Investment in prevention		% of public health funds allocated to prevention vs. treatment
		Public health capacity	PHAB accredited local health department	Average # days of waiting time for appointments at STD clinics
	Health behaviors	Substance abuse		% high school students who currently smoke cigarettes/state YRBS
		Physical activity	% of commuters who bike at least some of the time/ACS	% and # hours public school tracks available for community exercise
		Nutrition		% adults who eat 5 fruits and vegetables per day/state BRFSS
	Health conditions & diseases	Depression	-Benton-Franklin Co. WA/Rate suicides and suicide attempts by youth per 100,00	% high school students who have seriously contemplated suicide/state YRBS # of ED admissions for suicide attempts/population
		Obesity	% children who are obese/school records	Boston/% adults who are obese/State BRFSS
	Health outcomes	Life expectancy	- Baltimore/life expectancy at birth in years/City Health Dept. 2013	
		Self-reported health		% reporting fair or poor health/community survey
		Self-reported well-being	-100M Lifes/Common Measures for Adult Well-being	
		Functional status	Health Risk Assessment questions	

Domain	*Subdomain*	*Example Indicators*	*Example metrics that are measurable at sub-county level*	*Example metrics that are currently unavailable at sub-county level*
Housing	Infrastructure/capacity	Trends in public funding for housing		-SF/Proportion of housing production to housing need by income category/SF Bay Area Housing Needs Plan (2007-2014)
		Overcrowding	- Baltimore/median # persons living in household/Census 2010	
	Quality	Housing health & safety violation	- Baltimore/ % non-vacant residential properties that received at least one housing code violation/City Dept Housing 2013	
		Median age of house		- Charlotte/median age of housing in years/Census 2010 & ACS 2014
	Use/affordability	Affordable rental housing stock	- New Orleans/% Renter occupied paying 30% or more of income on housing/ACS 2010-2014	
		Median home price	- Denver/Median residential appraised valuation/County Assessor	
		Housing insecurity	% households paying >50% of their income on housing/ACS	
Public Safety	Infrastructure	Funding for police departments		- Boston/Data not available on website
	Perceptions of public safety	Resident public perception of safety	- SF/ Proportion of residents who feel safe walking alone in their neighborhood during the day and night/City Services Auditor-2011 City Survey	- Boston/Data on trusting neighbors not available on website
		Lethal force use by police		# of events of police officers using a firearm per 10,000 residents

Domain	*Subdomain*	*Example Indicators*	*Example metrics that are measurable at sub-county level*	*Example metrics that are currently unavailable at sub-county level*
	Crime	Violent crimes	- Cleveland/rate of violent crimes reported to police per 1000 residents/ City Police Dept.	
		Number of abused or neglected children		- Charlotte/Child abuse or neglect victims per 1000 children/UNC Institute for Families 2011
		Intimate partner violence	- Cleveland/Calls to 911 for domestic disputes /911 calls	
		Gun violence	-Benton-Franklin /Gun crimes per 10,000 residents	
	Injuries	Traffic Accidents	- Baltimore/ # 911 calls for accidents involving motor vehicles per 1,000 residents/ City Police Dept 2013	
		Cyclists in Traffic Accidents		- Charlotte/cyclists in traffic accidents per 100M vehicle miles traveled/UNC Highway Safety Research Center
Transportation	Infrastructure/ capacity	Transportation funding by mode		- Boston/Federal, state, and city transportation funding by type of infrastructure/MA Bay Transportation Authority 1991-2012
		Bike lanes and paths	- Baltimore/Linear miles of designated bike lanes within roadway system/Dept Transportation	
		Accessibility	-NNIP/Location of transit stops	
	Quality	Public transit score	- SF/ relative measure of the number of transit routes within one mile, weighted by frequency and distance/SF public transit operators & MTC Bay Area Transit Geodatabase 2008	

Domain	*Subdomain*	*Example Indicators*	*Example metrics that are measurable at sub-county level*	*Example metrics that are currently unavailable at sub-county level*
		Travel time to work	- New Orleans/% workers 16+ years of age by average travel time to work/ACS 2010-2014	
	Use/affordability	Traffic density	- SF/ average daily miles of vehicle travel per square kilometer/SF County Transportation Authority 2010	
		Commuters by commuting means	- New Orleans/% workers 16+ years of age by type of transportation/ACS 2010-2014	

Framework Appendix 5

Potential Data Sources available for use in the Framework for Community Well-being including domains and example metrics

Federal

American Community Survey/Census
- Demographics (age, sex, race, Hispanic origin, birth state or country, English speaking ability, disability)
- Education (highest education level)
- Health (health insurance coverage, disability)
- Housing (household composition, building type, length of residence, ownership, rent, mortgage, value of building)
- Economics (Supplemental Nutrition Assistance Program (SNAP) recipient, rent, mortgage, weeks worked in past year, # hours worked per week, type of employer, type of work, sources & amount of income in past year)
- Social Cohesion and Civic Vitality (Internet access & type of service)
- Transportation (transportation to work, commute time)

County Business Patterns/Census
- Economics (# jobs, firms by type and size)
- Health behavior (grocery stores/population, liquor stores/population)
- Environment (built) (grocery stores/population, liquor stores/population)

AirData/EPA
- Environment (Location & amount of pollutants emitted, Amount of air pollutants at different monitoring locations)

Water discharge permits/EPA
- Environment (Location of wastewater discharge sources)

Toxics Release Inventory/EPA
- Environment (Amount of toxic chemical releases, type of chemical released)

Nonprofit organizations/National Center for Charitable Statistics of the Urban Institute or IRS
- Social Cohesion and Civic Vitality (# nonprofit organizations by type)

State

UI claimant file/State employment services agencies
- Economics (% change in total employment)

Vital records/State vital statistics agencies or local birth and death registrar
- Health (% pregnancies with adequate prenatal care, Teen births, death rates by specific causes, life expectancy, years of potential life lost before age 75)

Liquor licenses/State Liquor control agency
- Health (# and type of outlets)

State Health Planning Office

Health (licensed hospital beds per 100,000 population and hospital bed occupancy rates)

Child care licenses/Sate agency responsible for child care licensing OR local child care resource & referral network
Education (# child care slots by type, % increase in child care slots)

Automobile registrations and licenses/State motor vehicle agencies
Transportation (# cares per capita, % population with valid driver's licenses)

State or local

Municipal police department records/Local police departments
Public Safety (# crimes per population, % crimes committed by residents vs nonresidents

911 calls/Local police departments or regional agency
Public Safety (# calls for domestic violence, % change in calls over time)

Local

Juvenile Court Filings/Juvenile courts
Public Safety (% juvenile filings that are for violent offenses, juvenile crime rate)

Coroners' reports/Local coroner
Health (# suicides involving drugs, % homicides involving firearms)
Public safety (% homicides involving firearms)

School systems/Boards of education
Education (# Students enrolled in public school, % children absent more than 20% of days, % children passing proficiency exams)
Health (% children entering school appropriately immunized)

Head start records/Boards of education
Education (% eligible children attending Head Start)

Voter records/Local boards of elections
Social Cohesion and Civic Vitality (% eligible voters who are registered)

Real property records maintained for taxing purposes/Local tax assessor
Housing (% properties that are residential)
Economics (% properties tax delinquent, Median housing assessed value)

Records of deed transfers/Local recorder of deeds or property transfers
Economics (Median sales price, # sheriff's sales)

Planning & engineering agencies/City and regional planning agencies
Environment (Square miles designated as parks or nature preserves, Miles of bike trails, % street miles with sidewalks)