

# VERSION 2.0 WORK IN PROGRESS: Evidence Related to Public Health Data September 2019



The Public Health Accreditation Board is a 501(c)3 nonprofit organization dedicated to improving and protecting the health of the public by advancing and ultimately transforming the quality and performance of state, local, tribal, and territorial public health departments.



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This document represents findings from a scan of the literature related to public health data-related activities by health departments. It is not meant to be an exhaustive search. If there are other resources on this topic of which you think PHAB should be aware, please contact Jessica Kronstadt at [jkronstadt@phaboard.org](mailto:jkronstadt@phaboard.org).

## Data and Public Health Agencies

According to Dr. Anne Schuchat, Principal Deputy Director of the CDC, "Data are truly the engine of public health. Without appropriate data, we don't know how to chart the course ahead, how to know if we are headed in the right direction, or when and where we may have made a wrong turn."<sup>1</sup>

While surveillance is a core component in health departments' data work, Dixon et al. have noted that in addition to surveillance, public health informatics is engaged in a number of other activities including:

1. "implementation of electronic health record systems and health information exchange to enable successful achievement of 'meaningful use' criteria, such as electronic reporting of notifiable diseases;
2. measurement of a wider array of health indicators, including social determinants through 'big data' analysis of multiple community data sources; and
3. development, implementation, and assessment of patient-centered technologies aimed at supporting health and well-being in the changing landscape of health care delivery."<sup>2</sup>

The effective use of data is also central to the concept of Public Health 3.0. Wang and DeSalvo say that supporting Public Health 3.0 "will require cross-sectoral collaboration, integration of data systems, leveraging of advanced analytic tools, and establishment of measures that inform continuous advancements in individual and community health." They establish the following principles for data/informatics systems:

- timely and geographically granular;
- action-oriented;
- spanning multiple sectors;
- mindful of social determinants of health and equity; and
- nonproprietary and interoperable.<sup>3</sup>

The term “informatics-savvy health department” is a term designed to encapsulate the data work of public health agencies. As part of the informatics-savvy self-assessment, the following domains have been identified:

- project management;
- information system profile;
- standards adoption and implementation;
- information exchange;
- data management and quality assurance;
- IT system plans and budget; and
- and shared services.<sup>4</sup>

Laventure et al. specify the following as “arguably the most important element of an informatics-savvy health department: having an overall documented informatics vision, strategy, and governance to ensure that your information systems support the overall mission of the public health agency and that you have designated roles and responsibilities to accountably implement that vision and mission.”<sup>4</sup>

### **Use in CHAs, CHIPs, and Accountability**

#### *CHAs & CHIPs*

Health departments use data to paint a picture of the communities they serve in their community health assessments (CHAs). According to the 2016 NACCHO Profile, 80% or more of local health departments report using the following types of data in their CHAs:

- socioeconomic characteristics;
- social and mental health;
- community perceptions of health; and
- environmental health indicators.<sup>5</sup>

The NACCHO Profile data also revealed that about 60% of local HDs use data to describe health disparities in their jurisdiction, though the percentage is much higher among larger HDs.<sup>5</sup>

An examination of the community health improvement plans (CHIPs) of accredited health departments noted that when it comes to the indicators that communities are using to track their progress, they cover a wide range of topics. However, they are less likely to include measures related to mental health, environmental quality, and social determinants than they are to focus on items such as nutrition/obesity/physical activity, and access to care.<sup>6</sup>

#### *Population Health Outcomes & Accountability*

Tracking population-level data is a key component of accountability. In their 2011 report, the IOM stated: “The committee believes that measuring health outcomes and their determinants at both the individual level and the community level and in multiple sectors is an essential ingredient, with policy and resources, in motivating change, mobilizing action, measuring progress, and improving performance.”<sup>7(pp 11)</sup> Put another way, “Measurement has been at the heart of every major strategic health and health care improvement initiative, ranging from childhood immunization and high blood pressure control, to reducing tobacco use and heart attack deaths, improving the safety and effectiveness of medical and surgical services, and advancing air and water quality.”<sup>8(pp 36)</sup>

It may also be useful to couple population health outcome data with performance measures, which would allow communities to track and evaluate strategies designed to improve population health.<sup>9</sup> There are challenges with identifying the most valuable data to include in the CHA/CHIP process. For example, it may be difficult to access data on a sub-county level.<sup>10</sup> While there are several current efforts to identify consensus measures, there is still a wide range of measures in use, particularly indicators of social determinants of health.<sup>11</sup>

The IOM report outlined several common criteria to assess indicators, including: “methodologic soundness (validity, reliability, and whether collected over a long period), feasibility (available or collectible), meaningfulness (is the measure linked to an evidence-based intervention, and is it relevant and actionable) and importance (is it an important outcome, and is the outcome linked to evidence-based interventions?).”<sup>7</sup>(pp 48) Others have highlighted factors such as: ability to catalyze collaboration and action among other sectors, being asset driven; culturally and linguistically appropriate and sensitive;<sup>12</sup> understandability;<sup>8</sup> and the magnitude of the health disparity/degree to which health equity would be achieved.<sup>13</sup>

### **Strategies and Challenges with Data Collection, Sharing, and Analysis**

When collecting data, it is advised that entities pay particular attention to selection of appropriate methods, documentation of the collection process, data backup and security, and testing of new data collection methods. In addition, agencies should be mindful of the “data collection environment” to see if there are barriers that may limit the participation of populations experiencing inequities.<sup>14</sup> It is also important to balance the desire to have comprehensive datasets with concerns about privacy and confidentiality, which highlights the importance of having strong data governance in place.<sup>15</sup>

Several studies acknowledge the importance of sharing data across community partners<sup>16, 17</sup> and the need to gather local perspectives to provide context to using big data sources.<sup>18</sup> On the state level, in the 2016 ASTHO Profile, almost two-thirds of state health agencies reported sharing data with their local health departments, and smaller percentages reported sharing with other agencies (53%), clinical providers (49%) and other states (32%).<sup>19</sup>

In 2011 the IOM noted a growing need for modelling to help understand the complex causal pathways that affect population health and the potential for strategies to improve the health of communities.<sup>7</sup> When analyzing data, it is important to be mindful of several common challenges, including ones related to attribution, data sources, statistical accuracy, risk adjustment, setting benchmarks, potential for gaming, and validity.<sup>8</sup>

In their 2019 report, the Council of State and Territorial Epidemiologists (CSTE) describes several key challenges facing the nation's public health surveillance system, including manual methods of data exchange; siloed systems; and absence of EHR integration with public health.<sup>1</sup> They articulate five key principles for transforming the national surveillance system:

1. Enterprise approach to data systems modernization;
2. Interoperable data systems;
3. Security to protect patient data;
4. Workforce that is prepared for the information age; and
5. Partnership & innovation with the public and private sectors<sup>1</sup>

## Emerging trends

The literature includes various examples of innovative use of data for public health purposes, including:

- Using GIS to do location-allocation modelling to determine how to optimize the availability of naloxone;<sup>20</sup>
- Engaging in data philanthropy, or the use of corporate data for public good, such as a Kenyan cell service provider helping develop a map to show spread of malaria;<sup>21</sup>
- Monitoring population mobility related to H1N1 and Ebola and helping with emergency response following Boston marathon and Haiti earthquake;<sup>22</sup> and
- Monitoring twitter feeds to conduct influenza surveillance.<sup>15</sup>

EHRs provide another useful source of data for conducting communicable disease surveillance, identifying gaps in quality care (including failure to follow guidelines), and contributing to health impact assessments.<sup>23</sup> To the extent that EHRs are capturing patient-level social determinant of health data, they can also help create "community health records" for neighborhoods and regions.<sup>24</sup>

There is also a trend towards open data, which allows data to be available in non-proprietary formats, which are searchable and can be accessed without data use agreements.<sup>25</sup>

## Workforce

Employees working in informatics and IT comprise a small portion of the governmental public health workforce. For example, among state health agency central offices, only 1.1% of employees identify themselves as public health informatics specialists and 3.4% as working in IT/information systems. The percentages are smaller among local health departments.<sup>26</sup>

An analysis of PH WINS data suggests that although public health informatics specialists generally report they have skills necessary for their jobs, other health department employees who are involved in gathering and using data might have skill gaps. In particular, the study identified gaps in skills such as "identifying appropriate sources of data and information to assess the health of a community" and "collecting valid data for use in decision making."<sup>26</sup> Others have also noted the importance of training to assure high-quality data collection.<sup>14</sup>

<sup>1</sup> Council of State and Territorial Epidemiologists. Driving public health in the fast lane: the urgent need for a 21<sup>st</sup> century data superhighway. <http://resources.cste.org/data-superhighway/mobile/index.html>. Published September 25, 2019. Accessed October 7, 2019.

<sup>2</sup> Dixon BE, McFarlane TD, Dearth S, Grannis SJ, Gibson PJ. Characterizing informatics roles and needs of public health workers: results from the Public Health Workforce Interests and Needs Survey. *J Public Health Manag Pract*. 2015;21(suppl 6):S130-S140.

<sup>3</sup> Wang YC, DeSalvo K. Timely, granular, and actionable: informatics in the Public Health 3.0 era. *Am J Public Health*. 2018;108(7):930-934.

<sup>4</sup> LaVenture M, Brand B, Baker EL. Developing an informatics-savvy health department: from discrete projects to a coordinating program. part I: assessment and governance. *J Public Health Manag Pract*. 2017;23(3):325-327.

<sup>5</sup> National Association of County & City Health Officials. National profile of local health departments. [http://nacchoprofilestudy.org/wp-content/uploads/2017/10/ProfileReport\\_Aug2017\\_final.pdf](http://nacchoprofilestudy.org/wp-content/uploads/2017/10/ProfileReport_Aug2017_final.pdf). Published August 2017.

<sup>6</sup> Kronstadt J, Chime C, Bhattacharya B, Pettenati N. Accredited health department partnerships to improve health: an analysis of community health assessments and improvement plans. *J Public Health Manag Pract*. 2018;24(suppl 3):S35-S43.

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- <sup>13</sup> National Academies of Sciences, Engineering, and Medicine. *Criteria for Selecting the Leading Health Indicators for Healthy People 2030*. Washington, DC: The National Academies Press; 2019.
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# VERSION 2.0 WORK IN PROGRESS: Public Health Data – What Have We Learned from Accredited Health Departments? September 2019



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This document summarizes what PHAB has learned about how health departments (HDs) participating in accreditation are addressing public health data-related activities. In particular, it focuses on the reasons that HDs struggled with measures that relate to public health data. It also includes findings from Section II of accredited HDs' Annual Reports.

Below is a summary of the distribution of assessments for related measures. These data are for 179 HDs assessed under Version 1.0 and 135 HDs assessed under Version 1.5.<sup>1</sup> Measures were selected because they are relevant to collecting, analyzing, and using data.

Measure	%Fully Demonstrated	%Largely Demonstrated	%Slightly Demonstrated	%Not Demonstrated	N
1.1.2 (ver 1.0)	43.6%	49.2%	7.3%	0.0%	179
1.1.2 (ver 1.5)	14.1%	62.2%	23.7%	0.0%	135
1.2.1	51.6%	42.4%	6.1%	0.0%	314
1.2.2	54.5%	37.9%	7.6%	0.0%	314
1.2.3 (ver 1.0)	76.0%	19.6%	4.5%	0.0%	179
1.2.3 (ver 1.5)	43.7%	47.4%	8.1%	0.7%	135
1.2.4	70.7%	20.7%	8.3%	0.3%	314
1.3.1 (ver 1.0)	64.8%	23.5%	11.7%	0.0%	179
1.3.1 (ver 1.5)	31.1%	50.4%	18.5%	0.0%	135
1.3.2	75.5%	14.6%	7.3%	2.5%	314
1.4.1	79.3%	13.7%	4.8%	2.2%	314
1.4.2	76.1%	13.7%	6.7%	3.5%	314
1.4.3	52.6%	44.7%	2.6%	0.0%	38
2.1.1	70.3%	21.8%	6.9%	1.0%	303
2.1.2 (ver 1.0)	60.9%	29.1%	8.9%	1.1%	179
2.1.2 (ver 1.5)	48.4%	27.4%	21.0%	3.2%	124
2.1.3	89.8%	4.3%	3.3%	2.6%	303
2.1.4	67.0%	27.1%	5.9%	0.0%	303
2.1.5	73.9%	22.4%	3.6%	0.0%	303
2.1.6 S	81.6%	10.5%	7.9%	0.0%	38
2.2.1	70.3%	21.5%	6.9%	1.3%	303
2.2.2	59.1%	24.8%	13.9%	2.3%	303
2.2.3	56.8%	36.3%	6.9%	0.0%	303
5.2.2 (ver 1.0)	51.4%	37.4%	11.2%	0.0%	179
5.2.2 (ver 1.5)	34.8%	48.9%	15.6%	0.7%	135
6.3.4 (ver 1.0)	50.8%	27.9%	19.0%	2.2%	179
6.3.4 (ver 1.5)	33.3%	40.7%	24.4%	1.5%	135
7.1.1 (ver 1.0)	69.8%	20.7%	7.8%	1.7%	179
7.1.1 (ver 1.5)	32.6%	42.2%	24.4%	0.7%	135
7.1.2	68.2%	17.5%	11.8%	2.5%	314
7.1.3 (ver 1.0)	53.1%	27.9%	19.0%	0.0%	179
7.1.3 (ver 1.5)	35.6%	37.0%	25.2%	2.2%	135
9.1.2 (ver 1.0)	83.2%	8.9%	6.7%	1.1%	179
9.1.2 (ver 1.5)	63.0%	20.0%	12.6%	4.4%	135
9.1.3 (ver 1.0)	45.3%	27.9%	22.3%	4.5%	179
9.1.3 (ver 1.5)	37.0%	40.7%	20.7%	1.5%	135
11.1.6 (ver 1.0)	90.5%	8.4%	1.1%	0.0%	179
11.1.6 (ver 1.5)	59.3%	38.5%	2.2%	0.0%	135

<sup>1</sup> Data for measures in Domain 2 were pulled for an earlier report on Environmental Health available here: <https://phaboard.org/wp-content/uploads/2.0Environmental-healthLearned.pdf> and reflect a slightly smaller number of HDs.

Data are presented separately for health departments assessed under Version 1.0 and Version 1.5 of the Standards & Measures if there was a substantive change in the requirements. If the two versions are substantively the same, the aggregate data are presented. The numbering of some of the measures changed between Version 1.0 and Version 1.5. (For example, Measures 9.1.2 and 9.1.3 in Version 1.0 were combined into Measure 9.1.3 in Version 1.5.)

To better understand HDs' performance on these Measures, PHAB conducted an analysis of the conformity comments of HDs that were assessed as Slightly or Not Demonstrated (SD/ND) in at least 5% of the Site Visit Reports. The results of those analyses are shown below. For each Measure, the most common reasons for the assessment are listed, including the number of HDs for which that reason was indicated. One HD could have multiple reasons listed. The reasons are linked to specific required documentation (RD) listed in the PHAB Standards and Measures. For reference, please see:

[https://www.phaboard.org/wp-content/uploads/2019/01/PHABSM\\_WEB\\_LR1.pdf](https://www.phaboard.org/wp-content/uploads/2019/01/PHABSM_WEB_LR1.pdf).

### **Measure 1.1.2: Community Health Assessment**

Of the 45 HDs assessed as SD/ND, the most common challenges were documentation that failed to demonstrate:

- RD2: Evidence of community input (37 HDs)
- RD2: Evidence of sharing preliminary findings (29 HDs)
- RD1: Discussion of inequities/disparities (ver.1.5 only) (23 HDs)
- RD1: Discussion of factors that contribute to specific populations' health challenges (22 HDs)
- RD1: Description of community assets or resources to address health issues (18 HDs)

### **Measure 1.2.1: 24/7 surveillance system or set of program surveillance systems**

Of the 19 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation that demonstrated:

- RD2: Specification of which surveillance data are considered confidential (9 HDs)
- RD1: Written processes and/or protocols used to collect surveillance data (6 HDs)
- RD2: Written procedures for ensuring confidentiality of data (6 HDs)
- RD4: Evidence of testing the 24/7 contact system (6 HDs)
- RD4: Evidence of testing a variety of mechanisms (e.g., phone line, email) (6 HDs)

### **Measure 1.2.2: Communication with surveillance sites**

Of the 24 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation that demonstrated:

- RD3: Received surveillance data itemized by reporting site (9 HDs)
- RD2: Attendance at reporting requirement training by surveillance site members (6 HDs)
- RD2: Relevance to surveillance reporting sites (i.e., provided documentation of training for other types of stakeholders) (6 HDs)
- RD3: Receipt of surveillance data (i.e., provided documentation about other types of data) (6 HDs)

### **Measure 1.2.3: Primary Data**

Of the 20 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation that demonstrated:

- RD3 (ver. 1.5, RD2 ver. 1.0): Inclusion of data sets collected by standardized instruments (7 HDs)
- RD1: Data collected by the HD (5 HDs)
- RD2 (ver. 1.5): Inclusion of data about a high risk population (5 HDs)

**Measure 1.2.4: Data provided to the state health department and Tribal health departments in the jurisdiction the local health department is authorized to serve**

Of the 28 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation that demonstrated:

- Inclusion of secondary data (7 HDs)
- Data from areas within PHAB's scope of authority (6 HDs)
- Evidence of sharing data with Tribal health departments (6 HDs)
- Evidence of sharing data with the state health department (6 HDs)

For state HDs, the measure requires documentation of data provided to Tribal and local health departments located in the state. (Of the 3 state HDs assessed as SD/ND, there was no discernible trend in challenges.)

**Measure 1.3.1: Data analyzed and public health conclusions drawn**

Of the 46 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation that demonstrated:

- RD1: Analysis and conclusions that have comparison data (22 HDs)
- RD2: Review and discussion of the data analysis with others (18 HDs)
- RD1: Description of the analytic process used that is evidence-based with appropriate citation (ver. 1.5 only) (14 HDs)
- RD1: Demonstration of analysis by the health department (14 HDs)

**Measure 1.3.2: Public health data provided to various audiences on a variety of public health issues**

Of the 31 HDs assessed as SD/ND, the most common challenge was documentation that failed to demonstrate:

- Analysis or an analytic report of data related to a public health issue (23 HDs)

**Measure 1.4.1: Data used to recommend and inform public health policy, processes, programs, and/or interventions**

Of the 22 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation that demonstrated:

- Connection between data provided and policies (11 HDs)
- Inclusion of any data (7 HDs)
- Inclusion of data within PHAB's scope of authority (6 HDs)

**Measure 1.4.2 S/T/L: Statewide/Tribal/community summaries or fact sheets of data to support public health improvement planning processes at the State/Tribal or local level**

Of the 32 HDs assessed as SD/ND, the most common challenges with documentation included:

- Data provided was CHA data, which is ineligible for this measure (16 HDs)
- RD1: Data were not provided by HD (i.e., came from another source) (13 HDs)
- RD1: Documentation submitted was not a data summary/profile (10 HDs)

**Measure 2.1.1: Protocols for investigation process**

Of the 25 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation of the following:

- RD1b: Inclusion of a timeline (11 HDs)
- RD1a: Assignment of responsibilities (10 HDs)
- Within the timeframe of 24 months (9 HDs)
- RD1b: Case investigation steps (8 HDs)
- RD1b: Reporting requirements (8 HDs)



**Measure 2.1.2: Capacity to conduct an investigation of infectious disease**

Of the 48 HDs assessed as SD/ND, the most common challenges were:

- Documentation did not align investigation reports with procedures (28 HDs)
- Lack of demonstration of HD's capacity to respond to outbreak (23 HDs)
- Documentation did not represent an audit or peer review of investigation reports (15 HDs)

For state HDs, the measure requires documentation of the capacity to conduct and/or support investigations of multiple diseases simultaneously. (Of the 5 state HDs that were assessed as SD/ND, 2 were cited for concerns related to simultaneous investigations.)

**Measure 2.1.3: Capacity to conduct investigations of non-infectious health problems, environmental, and/or occupational public health hazards**

Of the 18 HDs assessed as SD/ND, the most common challenge was deficient documentation of the following:

- Completed investigation of a non-infectious health problem or hazard (9 HDs)

**Measure 2.1.4: Collaborative work through established governmental and community partnerships on investigations of reportable diseases, disease outbreaks, and environmental public health issues**

Of the 17 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation of the following:

- RD1: Documentation of contracts/MOAs/MOUs/etc. that established partnerships for the investigation of outbreaks of disease, health care associated infections, or environmental public health concerns (7 HDs)
- Within appropriate timeframes (6 HDs)
- RD1: Appropriate partners within the HD's jurisdiction (5 HDs)
- RD1: Related to disease outbreak or environmental health investigations (5 HDs)
- RD2: Description of partner roles and responsibilities (5 HDs)

**Measure 2.1.6 S: Consultation, technical assistance, and/or information provided to Tribal and local HDs in the state regarding the management of disease outbreaks and environmental public health hazards.**

This is a state-only measure with only 3 HDs assessed as ND/SD. No clear patterns emerged.

**Measure 2.2.1: Protocols for containment/mitigation of public health problems and environmental public health hazards**

Of the 25 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation of the following:

- Protocols that address prophylaxis/biologics (14 HDs)
- Protocols that address clinical management (12 HDs)
- Protocols that address disease-specific mitigation and containment (11 HDs)
- Protocols that address the process for exercising legal authority for disease control (11 HDs)
- Protocols that address contact management (11 HDs)

**Performance on Measure 2.2.2: A process for determining when the All Hazards EOP will be implemented**

Of the 49 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation of the following:

- Providing protocols that addressed All Hazards Emergency Operations Plan activation in the following circumstances:
  - RD1: Infectious disease outbreaks (25 HDs)
  - RD2: Environmental public health issues (24 HDs)

- RD3: Cluster evaluations (22 HDs)
- Providing any protocols that addressed the following circumstances
  - RD2: Environmental public health issues (21 HDs)
  - RD3: Cluster evaluations (20 HDs)
  - RD1: Infectious disease outbreaks (15 HDs)

### **Measure 2.2.3: Complete After Action Reports (AARs)**

Of the 20 HDs assessed as SD/ND, the most common challenges were deficiencies in documentation of the following:

- RD1: Documentation of a protocol describing the processes used to determine when events rise to the significance of requiring an AAR (11 HDs)
- RD2: List of events comprehensive of outbreaks and environmental public health risks (8 HDs)
- RD2: List of events including indication of which required an AAR (8 HDs)

### **Measure 5.2.2: Community health improvement plan adopted as a result of community health improvement planning**

Of the 42 HDs assessed as SD/ND, the most common challenges were documentation that failed to demonstrate:

- RD1d: Consideration of national, state, or local priorities (28 HDs)
- RD1b: Consideration of policy changes needed to achieve health objectives (25 HDs)
- RD1a: Inclusion of measurable outcomes or indicators of health improvement (22 HDs)
- RD1c: Specific responsibilities of partners (20 HDs)
- RD1a: Inclusion of time-framed strategies to achieve health outcomes (16 HDs)

### **Measure 6.3.4: Patterns or trends identified in compliance from enforcement activities and complaints**

Of the 73 HDs assessed as SD/ND, the most common challenges were:

- In RD1, which requires reports that summarize complaints, enforcement activities, or compliance and include patterns, trends, and compliance:
  - Documentation of trends (50 HDs)
  - Summary of enforcement activities or compliance (34 HDs)
- In RD2, which requires debriefings or evaluations of enforcement for process improvements:
  - Inclusion of evaluation/debrief (26 HDs)
  - Documentation of process improvements (19 HDs)

### **Measure 7.1.1: Process to assess the availability of health care services**

Of the 51 HDs assessed as SD/ND, the most common challenges with documentation included:

- RD2: Data provided were not about access to care (18 HDs)
- RD2: Data provided were not for the purpose of assessment/planning (18 HDs)
- RD1: Collaborative process did not address access to care (17 HDs)
- RD3 (ver 1.5 only): Collaborative group was not the same group described in RD1 (16 HDs)
- RD2: Partners listed did not match those described in RD1 (15 HDs)
- RD2: No demonstration of data sharing (14 HDs)

### **Measure 7.1.2: Identification of populations who experience barriers to health care services identified**

Of the 45 HDs assessed as SD/ND, the most common challenges with documentation included:

- RD1: Failure to include a process for identification of un-served or under-served populations (24 HDs)
- RD2: Failure to identify populations who are un-served or under-served in report (12 HDs)
- RD2: Report provided was not about barriers to access (9 HDs)
- RD2: Report did not clearly describe how populations were identified (9 HDs)

### **Measure 7.1.3: Identification of gaps in access to health care services and barriers to the receipt of health care services identified**

Of the 71 HDs assessed as SD/ND, the most common challenges were documentation that failed to demonstrate:

- RD2b: Assessment of the availability of health care services (44 HDs)
- RD2d: Results of data gathered periodically concerning access (35 HDs)
- RD2a: Assessment of capacity and distribution of health care providers (31 HDs)
- RD2c: Identification of causes of gaps in services and barriers to receipt of care (27 HDs)
- RD2: Analysis of data and conclusions drawn to develop strategies to address gaps in access (26 HDs)

### **Measure 9.1.2 (ver 1.5 only): Performance management policy/system**

Of the 23 HDs assessed as SD/ND, the most common challenges were documentation of a performance management system that failed to demonstrate:

- Progress reporting & communication of analysis results (11 HDs)
- Process for data analysis (11 HDs)
- Performance measurement including data systems and collection (9 HDs)

### **Measure 9.1.3: Implemented performance management system; *In version 1.0, this was divided between two measures.***

Of the 92 HDs assessed as SD/ND, the most common challenges were documentation of a performance management system that failed to demonstrate:

- Analysis of progress toward achieving goals (42 HDs)
- Identification of results and next steps (33 HDs)
- 2 legitimate examples (31 HDs)
- Evidence of monitoring the performance of goals and objectives (28 HDs)
- Inclusion of measurable, time-bound goals (27 HDs)

### **Annual Reports**

Annual Reports (AR) were also reviewed to identify activities that HDs selected to report on in the “Emerging Issues” section. Of the ARs from 2017 and 2018, approximately 2/3 of the health departments indicated they had worked in the area of informatics. Several ARs included descriptions those activities. Below are examples of the types of activities they described:

- Developing community health profiles
- Using GIS (e.g., to develop an opioid data story map)
- Conducting predictive analytics (e.g., analyzing data from multiple sectors—including social services, criminal justice, mental health—to identify individuals who might benefit from resources)
- Building infrastructure (e.g., conducting assessments of informatics systems)
- Launching/improving electronic registry

# VERSION 2.0 WORK IN PROGRESS: Data/Surveillance/Informatics Think Tank Summary September 2019



The Public Health Accreditation Board is a 501(c)3 nonprofit organization dedicated to **improving and protecting the health of the public by advancing and transforming the quality and performance of governmental public health agencies in the U.S. and abroad.**



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On September 10 & 11, 2019, PHAB convened experts across the country to review the current health department accreditation standards and measures and to discuss the current state of public health practice as related to data, surveillance, and informatics. The think tank discussion generated valuable insight on pertinent changes in the data/surveillance/informatics field since the PHAB Standards & Measures, Version 1.5 were published in 2013. PHAB heard from Dr. Chesley Richards, Deputy Director for Public Health Science and Surveillance, CDC, on the Public Health Data Modernization Initiative (PHDMI); Janet Hamilton, Senior Director of Science and Policy, CSTE, on the Elemental Health Campaign; and Vivian Singletary, Director of the Public Health Informatics Institute at the Task Force for Global Health, on the general state of health agency data analytics, surveillance systems, and public health informatics, in the broadest and most comprehensive context. The feedback PHAB received will inform support for health departments' work in this area and revisions to the accreditation standards and measures. This summary will highlight key areas from the proposed recommendations.

The participants acknowledged how rapidly the tools and capabilities in the field of public health informatics are changing. Key overarching points from the think tank discussion were:

- Data security and privacy (or data security to ensure privacy of health information) is paramount, health departments should take all appropriate measures to safeguard data when it is collected, stored, shared or exchanged, or analyzed. These concepts also apply to the management of open data;
- Many government curated datasets “belong” to the community, the health department can play a lead role in championing the governance, open access, and interpretation of how to use and/or analyze these community datasets;
- Attention to data sharing internal to the health department and external within the health system and with community partners for future work in the social determinants of health is vital; and,

- Data creates information, which creates knowledge. To function effectively, health departments are required to use data to make sound decisions with and for the community and to inform the public through use of data visualization tools. For Version 2.0, PHAB should consider using the word information instead of data to connote the intent and the origin for local, state and national investment in the modernization of the public health information infrastructure. This of the data being used to make decisions.
- For modernization of the public health information infrastructure to occur, investments should be made by federal, state and local entities in a coordinated manner.

These points were used across domains and with several measures to capture the roles and responsibilities of health departments. Another set of potential requirements were noted as follows:

- The health department should demonstrate the capacity to conduct a requirements analysis when designing or redesigning a public health information system. Think tank participants expressed the opinion that all-electronic data sharing will be the norm in the future, so updated or modern data systems will need to be in place for that sharing to occur, whether real-time or static. Participants also discussed recommending that health departments conduct an informatics-savvy health department assessment on a regular basis.
- The health department should demonstrate that agency staff are knowledgeable in the creation of information system requirements and business process analyses. Access to expertise to accomplish these requirements will vary in health departments. In some cases, contractual assistance may be needed to provide expertise.
- Health departments should demonstrate or secure capacity to use appropriate standards (i.e., HL7, FHIR, etc.) to promote interoperability (seamless exchange of data) between their systems.
- Academic centers can be valuable resources for health departments in accessing the necessary training and capacity to meet these evolving needs, particularly in under-resourced and rural communities.

### **Recommendations for Proposed Changes to the Standards and Measures Related to Data/Surveillance/Informatics:**

- A. Summaries and fact sheets of data used to support public health community improvement planning processes (Measure 1.4.2) should include an analysis component. A recommendation is to ask health departments to provide an example of how they helped community partners and/or the media analyze and contextualize the data provided by the health departments.
- B. Health departments should have a policy in place to cooperate with other response agencies' emergency operations plan(s) (Measure 2.2.2). One recommendation is to modify the standards and measures to consider the planning process and practices more so than plan documentation.
- C. Reconsider the terminology in Measure 6.3.4. to emphasize "patterns" over trends analysis. "Trends" may not sufficiently illuminate the reasons for change over time.. Because of the unique nature of trends, as enforcement improves, complaints tend to increase. While "trends" refers to comparisons over different time periods, "patterns" also include comparisons based on geography or type of facility, for example.

- D. Domain 7 lacks a standard approach to assessing health care service capacity and access to health services. It was recommended that PHAB hold a broader conversation surrounding Domain 7 to determine what should be required and how the standards and measures can be revised to achieve that.
- E. Measure 11.1.6 is about information management infrastructure for data storage, protection and management along with data analysis and reporting. Regarding required documentation 4 and 5, it was suggested for health departments to indicate that an information/data governance process is in place when developing information systems. Information governance is about how data will be used and who makes that decision, which includes positions that are in charge of such a process; data governance policies and/or regulations; data governance committees; and other similar strategies. It was recommended that PHAB add a component about systems governance, automation of reporting, and leveraging national standards on data exchange to the measure. It was also suggested that health department officials and leadership staff have training on data leadership.

#### **Other Recommendations Unrelated to Specific Standards and Measures:**

- A. To aid in accomplishing goals and gaining support, engaging top leadership is vital. Accreditation standards could include requirements regarding a health department leadership team that includes at least one individual with a background in data leadership and infrastructure in any measure where it seems appropriate. This is in addition to the data scientists that are part of the health department leadership team.
- B. Keeping in mind that health departments vary in organizational capacity, information systems/tools need to be designed to work with existing staff at their level of expertise, especially in the case where limited funds exist for hiring additional staff. This recommendation goes beyond PHAB's scope of work but is key to successful health department performance in the future.
- C. PHAB should acknowledge in future standards and measures the importance of health departments' understanding, access to and use of advanced data visualization tools and dashboards. Data visualization tools could be helpful in benchmarking progress as well as encouraging health departments to communicate with public and/or private sectors and policymakers and funders.
- D. PHAB needs to continue to be flexible about how and where data are collected and presented for Community Health Assessments (CHAs). For example, some health departments are moving to a more continuous CHA process, rather than producing a stand-alone report every three to five years. And data from non-traditional community sources and other sectors is important to consider.
- E. Qualitative data has its advantages and can also be used to supplement quantitative data, especially related to authentic community engagement to support health equity. Small health departments need access to training and support in order to operationalize qualitative data collection and analysis.
- F. Syndromic surveillance is a best practice for monitoring trends in public health diseases and conditions, although it was acknowledged that this capacity may vary within health departments.
- G. Health departments should provide an example of how following the data led to an unanticipated result and ultimately how it impacted how decisions were made. An

example might be related to qualitative data collected from a dialogue with under-resourced communities related to gaps in service and resources.

- H. There may be some requirements that are appropriate for the state health department Standards & Measures and not the local health department requirements. For example, some aspects around automation, standards, governance, and exchange may be more challenging for local health departments than for states. It may also be appropriate to have a requirement around how state health departments make data available to local health departments and supports their use, as well as how state health departments incorporate local input in advance of developing information systems and requirements as appropriate, such as state-managed information systems that local health departments rely upon (e.g., immunization registries, WIC systems).
- I. Information use, information systems and informatics should be incorporated throughout the standards and measures where appropriate.

### Recommendations Regarding Terminology and Definitions

Current Terms in PHAB Glossary	Existing Definition	Proposed Definition/ Recommendation/Notes
Public Health Informatics	<p>Public health informatics is the systematic application of information and computer science and technology to public health practice, research, and learning. Public health informatics</p> <ul style="list-style-type: none"> <li>• Analyzes structure, relationships and behavior of systems that store, process and use information</li> <li>• Integrates information from diverse sources and into work processes where it can generate value</li> <li>• Develops methods for effective acquisition and presentation of information</li> <li>• Manages change among people, processes and technology to enable effective use of information systems</li> </ul> <p>(<a href="http://www.cdc.gov/learning/archive/informatics.html">http://www.cdc.gov/learning/archive/informatics.html</a>)</p>	<p>Public health informatics is the effective use of information and information technology to improve public health practice and outcomes.</p> <p>(<a href="https://www.phii.org/defining-public-health-informatics">https://www.phii.org/defining-public-health-informatics</a>)</p>
Information System	<p>An information system is a combination of hardware, software, infrastructure, and trained personnel organized to facilitate planning,</p>	<p>An information system is composed of computer hardware; computer</p>

	control, coordination, and decision-making in an organization. ( <a href="http://www.businessdictionary.com/definition/information-system.html">www.businessdictionary.com/definition/information-system.html</a> )	software; telecommunications; databases and data warehouses; human resources and procedures, including standards for the governance of the system. <a href="https://www.britannica.com/list/5-components-of-information-systems">https://www.britannica.com/list/5-components-of-information-systems</a>
<b>New Terms</b>		
Informatics-Savvy Health Department	None	An informatics-savvy health department has three core elements: an overall vision and strategy for how it uses information and information technology as strategic assets; a workforce that is skilled in using information; and well-designed and effectively used information systems. <a href="https://www.phii.org/informatics-savvy-toolkit-homepage/informatics-savvy-toolkit-homepage/informatics-savvy-toolkit">https://www.phii.org/informatics-savvy-toolkit-homepage/informatics-savvy-toolkit-homepage/informatics-savvy-toolkit</a>
Information System Partnerships	None	Information system partnerships have a shared vision for information sharing and use, a commitment to provide usable information for all partners, coordination on policy and other actions based on joint analysis and decision-making of the information, Adapted from <a href="https://www.ncbi.nlm.nih.gov/pubmed/10107083">https://www.ncbi.nlm.nih.gov/pubmed/10107083</a>



Data Sharing	None	<p>The Network for Public Health Law has some resources around data sharing including state examples:</p> <p><a href="https://www.networkforphl.org/resources/topics_resources/health_information_and_data_sharing/">https://www.networkforphl.org/resources/topics_resources/health_information_and_data_sharing/</a></p> <p><a href="https://www.networkforphl.org/asset/2lv6l9/Summary-of-State-Laws-that-Facilitate-Data-Sharing-Among-State-Agencies-11-7-19.pdf">https://www.networkforphl.org/asset/2lv6l9/Summary-of-State-Laws-that-Facilitate-Data-Sharing-Among-State-Agencies-11-7-19.pdf</a></p> <p>This is a clinical/research definition for data sharing:</p> <p><a href="https://www.ncbi.nlm.nih.gov/books/NBK253383/">https://www.ncbi.nlm.nih.gov/books/NBK253383/</a></p> <p>Gaps in public health data sharing:</p> <p><a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3925408/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3925408/</a></p> <p><a href="https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-14-1144">https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-14-1144</a></p> <p>ASTHO resources</p> <p><a href="http://www.astho.org/Programs/Preparedness/Public-Health-Emergency-Law/Public-Health-and-Information-Sharing-Toolkit/Collection-Use-Sharing-and-Protection-Issue-Brief/">http://www.astho.org/Programs/Preparedness/Public-Health-Emergency-Law/Public-Health-and-Information-Sharing-Toolkit/Collection-Use-Sharing-and-Protection-Issue-Brief/</a></p>
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		<p>Blog on predictive analytics and the legal/policy implications of data sharing  <a href="http://www.astho.org/StatePublicHealth/Using-Predictive-Analytics-for-Population-Health-Management-and-Public-Health-Emergencies/07-19-18/">http://www.astho.org/StatePublicHealth/Using-Predictive-Analytics-for-Population-Health-Management-and-Public-Health-Emergencies/07-19-18/</a></p>
Data Standards	None	<p>HL7 is one of the most commonly used data standards. It provides a framework that helps govern how electronic health information is retrieved, shared, exchanged and integrated. The standards define how patient information is structured, packaged and communicated between disparate parties and also sets the data types, structure, and language needed for seamless integration between electronic health systems.</p> <p><a href="https://www.hl7.org/implementation/standards/">https://www.hl7.org/implementation/standards/</a></p> <p><a href="https://www.hl7.org/implementation/standards/product_section.cfm?section=12">https://www.hl7.org/implementation/standards/product_section.cfm?section=12</a></p>
Information Governance	None	<p>An organization-wide framework for managing information throughout its lifecycle and supporting the organization’s strategy, operations, regulatory, legal</p>

		<p>risk and environmental requirements. Information Governance for Public Health. Public Health Informatics Institute. February 2019. (adapted from the American Health Information Association, 2014).</p>
Data Governance		<p>A discipline that provides clear-cut policies; procedures; standards; roles; responsibilities; and accountabilities to ensure that data is well-managed as an enterprise resource (Data Governance Professionals, accessed 2019 <a href="https://dgpo.org/">https://dgpo.org/</a>).</p>
Information systems workforce	None	<p>Informaticians are professionals who ensure that data are readily shareable by designing and implementing integrated systems for sharing health data that are crucial to public health practice and high-level decision making. Their work supports other public health professionals by improving decision making and increasing the field's ability to improve population health outcomes. <a href="http://www.frameworksinstitute.org/public-health-informatics.html">http://www.frameworksinstitute.org/public-health-informatics.html</a> (2015).</p> <p>An Epidemiologist is defined as “an investigator who studies the occurrence of disease or other health</p>

		<p>related conditions or events in defined populations.  <a href="https://cdn.ymaws.com/www.cste.org/resource/resmgr/Workforce/Epi_definition.pdf">https://cdn.ymaws.com/www.cste.org/resource/resmgr/Workforce/Epi_definition.pdf</a></p> <p>Both are considered key positions in the information systems workforce.</p>
<p>Inter-operability</p>	<p>None</p>	<p>According to section 4003 of the 21st Century Cures Act, the term 'interoperability,' with respect to health information technology, means such health information technology that— "(A) enables the secure exchange of electronic health information with, and use of electronic health information from, other health information technology without special effort on the part of the user; "(B) allows for complete access, exchange, and use of all electronically accessible health information for authorized use under applicable State or Federal law; and "(C) does not constitute information blocking as defined in section 3022(a)." <a href="https://www.healthit.gov/topic/interoperability">https://www.healthit.gov/topic/interoperability</a></p> <p><b>Industry/HIMSS definition</b>          Interoperability is the ability of different</p>

		<p>information systems, devices and applications ('systems') to access, exchange, integrate and cooperatively use data in a coordinated manner, within and across organizational, regional and national boundaries, to provide timely and seamless portability of information and optimize the health of individuals and populations globally.</p> <p><a href="https://www.himss.org/library/interoperability-standards/what-is-interoperability">https://www.himss.org/library/interoperability-standards/what-is-interoperability</a></p> <p>Ensure we are using the latest definition</p> <p><a href="https://www.modernhealthcare.com/technology/himss-proposes-new-interoperability-definition">https://www.modernhealthcare.com/technology/himss-proposes-new-interoperability-definition</a></p>
Data Visualization	None	<p>Data visualization is the process of displaying data/information in graphical charts, figures and bars.</p> <p><a href="https://www.techopedia.com/definition/30180/data-visualization">https://www.techopedia.com/definition/30180/data-visualization</a></p>

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