Introduction

Demographic and economic changes in the United States will significantly burden the primary care workforce in the coming years. Researchers predict that the United States may face a substantial shortage of primary care physicians by 2025, due in part to an aging population, an increased burden of chronic illness, and insurance coverage expansion from the Affordable Care Act (ACA). The public health workforce can play a major role in relieving this burden. Literature on the current public health workforce emphasizes the need to develop proficient, sustainable, and diverse public health personnel through evidence-based training, career and leadership growth, and strategic efforts to progress population health outcomes. There is a need for increased investment in lifelong learning and training for strong, sustainable, and balanced growth in order to develop a workforce that meets the needs of the current environment.

One way to both improve the quality of care for Americans and lower health costs is to better coordinate and integrate public health and the primary care sector. As the 2012 Institute of Medicine report, “Primary Care and Public Health: Exploring Integration to Improve Population Health” noted, these components of the health system share a common goal of health improvement, have similar funding streams and resources, and share many partnerships. Additionally, the ACA provides new opportunities for collaboration and integration, including grants and incentives for workforce recruitment, retention, and training, funding for new care delivery models, and a focus on preventive care. With better coordination, the public health and primary care workforces can achieve lasting, substantial improvements in individual and population health in the United States.

To achieve this coordination and fully leverage the opportunities of the ACA, state health agencies must use needs assessments to understand the current capacity and knowledge of the public health workforce and identify gaps in training and technical assistance to better meet the demands of the changing healthcare climate. This report documents the results of an environmental scan of best practices for developing and deploying such needs assessments. The scan includes current research and needs assessments conducted since the ACA was implemented and interviews from organizations in the field.

Definitions

**Needs Assessment**: A tool used to determine the challenges and problem areas within a public health entity that may be important to its members and could potentially be addressed by collaboration. The needs assessment gathers the information required to bring about change beneficial to the health of the populations being served.

**Public Health Workforce**: Individuals who provide essential public health services in any, including those working in governmental public health agencies, nongovernmental and community-based organizations, and private or for-profit organizations. The workforce is a collective group of individuals from various backgrounds and professional experiences who unite around the common goal of improving and supporting healthy communities.

**Primary Care**: The delivery of integrated, accessible healthcare services by clinicians who address the majority of an individual’s healthcare needs, develop sustained partnerships with patients, and practice in the context of family and community.
Environmental Scan

The environmental scan has four aims:

1. To understand existing workforce development needs assessments in public health, primary care, and corporate industries.
2. To identify challenges and gaps in existing workforce development needs assessments.
3. To identify challenges and opportunities for assessing collaboration between primary care and public health workforces through a needs assessment.
4. To identify best practices for developing and deploying a comprehensive needs assessment to further workforce development.

This report will discuss best practices from previous needs assessments in state health departments, primary care offices, and corporate entities. The recommendations at the end of the report can be applied by any organization or agency.

METHODOLOGY

Literature Review
ASTHO’s primary care team conducted an extensive review of the current literature on the methods of conducting a needs assessment of the public health workforce. We used PubMed, Mendeley, and Google Scholar databases to research public health and primary care workforce initiatives and needs assessments taking place since the ACA’s passage in 2010. Our search terms included “public health workforce,” “workforce research,” “workforce competencies,” “public health assessment,” and “assessment models.” We analyzed the literature for workforce assessment tools that the National Public Health Performance Standards (NPHPS), the Public Health Accreditation Board (PHAB), and Council on Linkages Between Academia and Public Health Practice (Council on Linkages) currently use to assess needs, identify competency gaps, and see if any workforce assessments were asking questions about primary care and public health workforce integration efforts.

Case Studies
A key component of the environmental scan was to identify current assessment examples from public health, primary care, and corporate business practices. Given the time constraint of this environmental scan, we chose to review six state health departments and five primary care offices that provided varying approaches for conducting a workforce needs assessment.

State Health Departments:
We reviewed the websites and publically available resources for the following health departments: Ohio Department of Health, Public Health Division of the Oregon Health Authority, West Virginia Bureau for Public Health, Illinois Department of Public Health, North Carolina Institute for Public Health, North Carolina Institute for Public Health, and Oklahoma Department of Health. All of these states had assessed their workforces since the passage of the ACA with the exception of North Carolina Institute for Public Health, which did so in 2005 but was included because of its robust methodology. The chosen states have either received PHAB accreditation (five states) or had publicly available workforce assessments (one state).

Primary Care Offices:
We reviewed the websites and publically available resources of the following primary care offices: Colorado Primary Care Office, Maryland Primary Care Office, Kentucky Primary Care Office, Hawaii Primary Care Office, and Minnesota Primary Care Office.
Environmental Scan

Corporate Businesses:
We reviewed the training and retention practices for Costco, Wal-Mart, and IBM and evaluated their needs assessments based on target audience, development method, administration method, limitations, and recommendations.

(The findings of these workforce assessments are presented in Table 1.)

RESULTS

The literature review revealed several frameworks that provide guidance for developing a needs assessment to adequately assess the public health workforce.

One such framework is NPHPS, a collaborative effort of CDC, APHA, ASTHO, NACCHO, National Association of Local Boards of Health, National Network of Public Health Institutes, and the Public Health Foundation. NPHPS provide guidelines for assessing public health entities’ workforce capacity and performance. Using the NPHPS framework, agencies can create a needs assessment that will identify areas for system improvement and ways to strengthen state and local partnerships. NPHPS offers assessment materials based on the ten Essential Public Health Systems that state and local public health systems and public health governing entities can use to identify stakeholders in the public health system, engage in partnerships for assessing health concerns and program development, and promote growth among agencies and communities.

Another helpful resource is the Council on Linkages’ Core Competencies. This tool illustrates public health professionals’ required skills and offers a foundation for identifying professional development needs and training plans. The Council of Linkages also offers Competency Assessments for public health professionals in three tiers: front line and entry level staff, program management and supervisory staff, and senior management and executive staff.

Lastly, PHAB, a nonprofit organization committed to advancing the constant quality improvement practices of tribal, state, local, and territorial public health departments, developed a Standards and Measures document that serves as the official requirements for national public health department accreditation. Domain 8 of the PHAB Standards and Measures discusses requirements for maintaining a competent public health workforce. According to PHAB, creating a comprehensive workforce plan includes aligning the workforce development initiatives with the health agency’s overarching core values and goals and developing strategies for acquiring, training, and retaining staff.

Table 1 below shows the results of our case studies and interviews broken down by methods and outcomes. (Sample state needs assessments are provided at the end of this document.)
### TABLE 1

<table>
<thead>
<tr>
<th>Entity</th>
<th>Target Audience</th>
<th>Development Method</th>
<th>Administration Method</th>
<th>Sample Questions</th>
<th>Survey Limitations</th>
<th>Survey Successes</th>
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</thead>
<tbody>
<tr>
<td>Colorado Primary Care Office</td>
<td>Public and private organizations and educational institutions focused on primary care workforce, advocacy, education, and training.</td>
<td>• Used existing public health data sets. &lt;br&gt;• Selected indicators that are associated with primary care utilization. &lt;br&gt;• Identified hot spots with indicators above state mean for morbidity and mortality.</td>
<td>Convened, interviewed, and assessed partners during workforce planning.</td>
<td>• “Which data sets, when assessed at a regional level, are indicative of primary care access and utilization concerns within a community?”&lt;br&gt;• “Is the primary care infrastructure in that region sufficient to address existing need? (Delivery capacity)”&lt;br&gt;• Is the primary care workforce in that region sufficient to address existing need? (Workforce capacity)”</td>
<td>Unable to identify consistent links between the shortage of primary care physicians and the health indicators.</td>
<td>• A broad range of stakeholders participated.&lt;br&gt;• Addressed issues of supply and demand.&lt;br&gt;• Used quantifiable measures regarding existing needs for primary care services in rural and underserved communities.</td>
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<tr>
<td>Hawaii Primary Care Office</td>
<td>Hawaii primary care workforce.</td>
<td>Data sources used:&lt;br&gt;• U.S. Bureau of Census, Vital Statistics.&lt;br&gt;• Behavioral Risk Factor Surveillance System Survey.&lt;br&gt;• HI Health Information Corporation.</td>
<td>• Used subgroups when looking at overall population level health&lt;br&gt;• Highlighted geographic differences at three levels: primary care service area, county, and state.</td>
<td>• Analysis of relationships between health indicators, particularly with variation due to distribution of poverty and other indicators of socio-economic determinants of health&lt;br&gt;• Examination of access and availability of services&lt;br&gt;• Analysis of utilization of primary care services and development of effective culturally appropriate interventions through collaborations with community partners</td>
<td>The small numbers problem – number of events, such as births, were very small as a result of the smaller at-risk population.</td>
<td>• Bringing together stakeholders from the public and private sectors to identify primary care needs and recommend appropriate allocation of resources to ensure the best primary care services&lt;br&gt;• Using quantitative measures of health and socio-economic risk faced by a population to evaluate the level of need for primary care services</td>
</tr>
<tr>
<td>Illinois</td>
<td>More than 200 targeted individuals and organizations</td>
<td>• Illinois workgroup developed the survey to better understand the workforce’s ongoing initiatives and challenges of the workforce.</td>
<td>Electronic survey.</td>
<td>• “In which of the following areas does your organization have experience and/or expertise?”&lt;br&gt;• “Rate the challenges of your organization or the groups you represent face.”&lt;br&gt;• “Is your organization engaged in planning or implementing activities to address barriers to healthcare workforce development?”</td>
<td>Only targeted stakeholders.&lt;br&gt;• Low response rate.</td>
<td>• Reached a large audience.&lt;br&gt;• Presented quantifiable measures.&lt;br&gt;• Addressed a variety of challenges (Personnel shortages, financial challenges, healthcare reform implementation, cultural competency/diversity),</td>
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</table>
| Kentucky Primary Care Office\(^{10}\) | Kentucky’s existing healthcare workforce. | • 10 week study to assess current access to and availability of Kentucky’s existing healthcare workforce, including:  
  • Identification of shortage areas where an increase in the healthcare workforce is required to meet current and future needs of Kentuckians.  
  • Identification and assessment of legislative and administrative policy changes that may be needed to increase the supply of healthcare providers to improve population health.  
  • Developing recommendations and strategies for recruiting and maintaining an adequate. | • Tier system;  
  Tier 1 – Physicians  
  Tier 2 – Dentists, APRNs, PAs, RNs, LPNs, NAs  
  Tier 3 – Optometrists, psychologists, LCSWs, LPCs, MFTs, ADCs.  
  • Various clinician groups determined to be essential to the assessment with licensing data and benchmarks to determine potential workforce shortages at the county/state levels. | • Missing or incorrect data in the databases used for the assessment.  
  • Duplicate data entries, especially in licensure data.  
  • Used graduation years to estimate physician age yields retirement risk by age grouping.  
  • Enabling mid-level practitioners to effectively address unmet healthcare supply can fill the primary care gap.  
  • Analyzed distribution of mid-level workforce in rural areas. | legislative, regulative, or administrative barriers, coordination and logistical challenges) |
| --- | --- | --- | --- | --- | --- |
| Maryland Primary Care Office\(^{11}\) | Primary care providers | Designed to report on health status and healthcare access in the state. | Carried out using data from U.S. Census Bureau, Maryland Vital Statistics Administration, Maryland Behavioral Risk Factor Surveillance System, Maryland Assessment for Community Health, and other sources | • Health indicators.  
  • Examination of health status and healthcare access to determine health professional shortage areas.  
  • Data shortages present since some sources could not provide the full health indicator data.  
  • Limited resources of the PCO. | Focused on areas in the state that need greater healthcare resources to improve health outcomes.  
  • Able to determine priority area for attention from the PCO. |
| Minnesota Primary Care Workforce | Attendees ranged from consumers to CEOs, community health workers to city planning | Primary Care Workforce Steering Committee held regional meetings and constituent meetings to address the current supply and demand of primary care physicians, advanced nurse practitioners, and physician | Conducted regional meetings to gain input from across Minnesota. | • “What changes/developments in primary care (positive or negative) do we know will occur for certain in the next ten years?”  
  • Implementation methodology was time-consuming and required many personnel. | Assessment discussed future implications of workforce by highlighting the rate of aging among rural communities, |
<table>
<thead>
<tr>
<th>State</th>
<th>Target Population</th>
<th>Methodology</th>
<th>Survey Highlights</th>
<th>Population Growth and Diversity, and Health Outcomes and Disparities Present</th>
</tr>
</thead>
</table>
| North Carolina | Local public health workers in NC                                                  | North Carolina Center for Public Health Preparedness designed the Public Health Workforce Training Needs Assessment survey to collect information for public health workers, each local health department, and the state public health workforce. The survey allows public health workforce to self-assess their level of need for training on all core public health competencies. | • The statewide online survey was given to four groups:  
  - Tier 1 – public health regional surveillance teams.  
  - Tier 2 – epidemiology teams.  
  - Tier 3 – participating local health departments.  
  - Tier 4 – fully integrated online learning management system version of survey given to all remaining public health workers in the state.  
  
• Survey contained a list of job activities based on the core competencies organized by the 10 essential services.  
• Individuals self-assessed the importance of each activity in their job on a 1-4 scale.  
• Implementation methods were costly regarding personnel time, including creating and disseminating follow-up reminders, creating a data entry database, and hand-entering data for pilot testing.  
• Time needed to complete survey (40-30 minutes).  
• Pilot tested survey with three local health departments.  
• Addressed barrier of survey length: the online survey was designed so individuals could complete separate sections over time instead of all at once. | ○ Population growth and diversity, and health outcomes and disparities present  
○ Data resources for needs assessment included state agencies, associations, licensure boards, and educational workforce needs. |
| Ohio          | Employees who are mid-level manager or above.                                     | Council of Linkages Tier 2 Competencies used as a fundamental structure for assessment. | • Computer-based survey that included three self-assessment measures: importance to job, personal ability, and interest in training.  
  
• “What type(s) of administrative skills/communication skills/computer software training would benefit you?”  
• “What type(s) of employee relations training would benefit you?”  
• Time-intensive survey.  
• Industrial terminology (terms such as “informatics” or “systems thinking”) was not understood by all responders.  
• Respondents noted some questions were vague or confusing.  
• Found that a skip mechanism for particular core competencies that do not apply to the respondent should be used.  
• Refined the questions/items of survey needed to achieve validity. | ○ Population growth and diversity, and health outcomes and disparities present  
○ Data resources for needs assessment included state agencies, associations, licensure boards, and educational workforce needs. |
| Oklahoma      | Oklahoma State Department                                                         | Survey was developed to assess basic skills, career preparation, occupational   | • “What factors influence your participation in training?”  
  
• Questions surveyed limited to finding gaps in training.  
• Competencies were defined for the four job groups: Basic, | ○ Population growth and diversity, and health outcomes and disparities present  
○ Data resources for needs assessment included state agencies, associations, licensure boards, and educational workforce needs. |
<table>
<thead>
<tr>
<th>State</th>
<th>Job Type</th>
<th>Method</th>
<th>Time</th>
<th>Questions</th>
<th>Challenges</th>
<th>Notes</th>
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</table>
| Oregon16   | Senior leadership.        | 14-question interview instrument developed by Northwest Center for Public Health Practice. | 30-minute interview. | • “What are the current workforce development skills strengths and weaknesses for improvement within your department/section/division?”  
• “What do you think would be the most convincing evidence that the workforce in your department/section/division is keeping up with current demands?”  
• “What key tools and activities would you like your workforce to have access to in order to build the competencies that are needed?” | • No quantitative measures can be derived from assessment.  
• Cannot obtain data that could be used for comparison. |
| West Virginia17 | Tier ½/3 public health professionals. | Council on Linkages’ Core Competencies were used to design the assessment at three levels: Tier 1 (entry level), Tier 2 (supervisors and managers), and Tier 3 (senior managers and executives)  
• Included two self-assessment measures: skill level and relevance to job. | 20-30-minute online survey. | • Demographic questions.  
• Competency questions within each of the eight domains: analytic/assessment skills, policy development and program planning skills, communication skills, cultural competency skills, community dimensions of practice skills, public health science skills, financial planning and management skills, and leadership and systems thinking skills | • Time-consuming survey.  
• Pilot testing the assessment.  
• Assessment included employees at each level of organization. | Informants of the assessment included senior leadership of both the state and local health departments, |
DISCUSSION

An examination of the competency-based needs assessments evaluated in this report shows that a robust needs assessment can be developed by using already existing public health data sets and incorporating the frameworks and guidelines suggested by NPHPS, PHAB, and the Council of Linkages. While there was some variation in methodology used, usage of existing data and suggested guidelines was common.

Method and Data Sources

Five of the six state health department assessments used an electronic-based survey, and one (Oregon) was conducted via interview. All five primary care offices used existing databases (the U.S. Bureau of Census, Vital Statistics, and Behavioral Risk Factor Surveillance System) to analyze gaps in their workforce.

Half of the states we examined incorporated the Council on Linkages’ three-tiered system for assessing employees in different career levels. The surveys included self-assessment measurements to evaluate how employees view the relevance of each competency to their job, personal ability and skill level, interest in training, and overall need for training/education on the core public health competencies. The interview assessment consisted of questions about current workforce strengths and weaknesses and what tools would enhance learning and build upon the core competencies.

Best Practices and Limitations

The states included in the analysis particularly valued workforce education and development in their assessment approaches. Factors that limited the survey’s ability to adequately assess the workforce included: having too narrow of an audience (not including all levels of staff), assessment lengths (too long and time consuming), confusing terminology (e.g., “informatics” and “systems thinking”), a lack of quantifiable measures, low response rates, high cost, and data shortages (including missing numbers in databases). Some of the survey best practices included: surveying a range of stakeholders, addressing supply and demand concerns, using quantifiable measures to identify health and socioeconomic issues, addressing issues of personnel shortages, determining financial challenges, and administering the assessment through pilot testing and computer-based surveys.

Addressing the Impact of the ACA

Another common theme in the assessments is the lack of evaluation for current and future demands on the workforce due to the ACA. It is important to evaluate training and continuing education to ensure that public health professionals are able to meet the ACA’s requirements. Illinois was one of the only states to address the impact of health reform by asking respondents to identify immediate and short-term opportunities and strategies for healthcare workforce development in the state. Strategies identified in the survey included increasing education and training, optimizing the scope of practice for health professionals, and proposing necessary legislation.

Lastly, while public health and primary care professionals have historically worked separately, the ACA provides new opportunities for the two groups to collaborate and innovate thanks to its emphasis on preventive healthcare and cost-effective practices and its possibilities for new care-delivery models and team-based approaches. However, the environmental scan revealed that most of the needs assessments
are not gathering the information necessary to leverage these opportunities, and few inquire about public health and primary care integration efforts at all.

**RECOMMENDATIONS**

Based on our findings from the case studies and corporate practices, we have provided the following recommendations for conducting a competency-based training needs assessment that can be used with any set of competencies.

**Recommendations for Fielding an Assessment:**

1) **Assessment Methods Are Important**
   It is important to communicate the length of the assessment to participants at the beginning of the process so that they are aware of what is expected of them. Additionally, computer-based electronic surveys are the best way to reach the majority of the workforce because they allow respondents to complete them at their convenience.

2) **Aim for High Response Rates**
   Conduct the survey in phases over a two- to three-month period, with each survey taking only 10-15 minutes to complete. You will increase your response rate if respondents don’t have to complete a long survey in one sitting. This approach can also help narrow the subject matter experts and weed out those who do not need to be included after implementation of phase 1. For the latter phases, it is best to conduct a structure interview either in a group setting or one on one. The initial surveys can help identify who to contact for an interview.

3) **Pilot Test Your Assessment**
   Conducting a pilot test is an important first step to maximize your employee participation and survey response. A pilot test will confirm if the assessment is ready for full-scale implementation by giving an opportunity to gauge the target audience’s reaction and make any necessary alterations regarding allocated time or any other unforeseen challenges.

4) **Gauge Input from All Staff Levels**
   To conduct a strong assessment and identify any gaps in knowledge about public health practices, it is important to get input from staff at different career levels. Use a tier system to capture input from all staff. The Council on Linkages’ Core Competencies are designed for public health professionals at all levels. Use these competencies to form the foundation for discipline-specific competencies to identify state and local professional development needs and develop training plans for the public health workforce.

5) **Collect Quantitative Data**
   It is helpful to collect quantitative data whenever possible because of its reliability and ability to detect priority needs. Quantifiable data collection provides numeric estimates, verifiable data, and data which are comparable between different communities.

**Recommendations for Assessment Content:**

1) **Assess Gaps between Established Workforce and New Workforce**
   It is important to evaluate knowledge gaps between established employees and new employees. You can measure this by evaluating differences in employees’ use of new skills, technology, and workplace
Environmental Scan

approaches. You may also assess mentoring and on-the-job training opportunities that provide the opportunity for the knowledge- and experience-sharing.

2) Evaluate Workforce Supply and Demand
It is crucial to assess workforce supply and demand in order to analyze workforce capacity. One way to do this is to look at the graduation rates for in-demand professions. The problem with meeting workforce demand is that forecasted growth rates are based on historic trends and do not take policy changes into consideration.

3) Measure Impact of the ACA
It is important to assess how the environment in the public health agency is changing due to healthcare reform. Sample questions to measure this in a needs assessment include: Has the agency recruited and trained primary care, public health, nursing, and other health professionals? Has it increased the number of healthcare professionals within medically underserved areas? Has it implemented innovative models of care delivery and reimbursement that recognize the value of primary care services and improve care coordination for patients?

4) Evaluate Communication Barriers
It is important to address whether public health professionals and primary care practitioners are aware of and understand each other’s roles. Public health and primary care often use different terminology to explain similar things, and may not have a full understanding of the other’s workforce.

5) Evaluate Workforce Capacity
It is helpful to evaluate workforce capacity in order to identify workforce needs. The workforce capacity can be evaluated by looking at the professions separately (i.e. public health workers, nurses, community health workers, and physicians, etc.) and examining current employment numbers. (Is the workforce more present in health departments or hospitals?) Measuring the number of retiring practitioners and number of recent graduate staff can also assist in identifying workforce needs.

6) Assess Competency
In order to adequately assess where the workforce is now and should be in the future, it is important to determine which of the Core Competencies are more relevant to the agency. (“Are ___ skills more, less, or equally relevant to the entire health department than ___ skills?”)

Conclusion
The results of the environmental scan revealed many best practices and some methodology limitations for conducting a competency-based needs assessment. The current assessments provide a substantial platform to build upon as we respond to the changing healthcare environment. Based on our findings, it is important to implement a needs assessment that captures workforce capacity, diversity, effectiveness, competency, training needs, and demand.

Our literature review revealed many existing frameworks that can be utilized to design and inform a needs assessment, including the guidelines offered by Domain 8 of the PHAB Standards and Measures document, the NPHPS frameworks, and the Council of Linkages’ Core Competencies. However, case study review revealed a paucity of assessments being conducted to reflect the changes brought on by the ACA, and lack any assessment of primary care and public health workforce collaboration. The
Environmental Scan

interviews, along with information from corporations, provided a foundation for developing the aforementioned recommendations for addressing the shortcomings. By integrating the above recommendations and using the existing frameworks, you can develop a comprehensive assessment to identify gaps in the current workforce. Once we are adequately able to assess the workforce, we can strive to build its capacity to improve health for all.

NEEDS ASSESSMENT EXAMPLES

Colorado Primary Care Office: Colorado Health Workforce Development Strategy

Hawaii Primary Care Office: State of Hawaii Primary Care Needs Assessment Data Book 2012


Kentucky Primary Care Office: The Commonwealth of Kentucky Healthcare Workforce Capacity Report

Maryland Primary Care Office: 2010 Primary Care Needs Assessment

Minnesota Primary Care Office: Minnesota’s Primary Care Provider Shortage – Strategies to Grow the Primary Care Workforce


Ohio: Ohio Department of Health Workforce Development Plan

Oklahoma: Oklahoma State Department of Health Workforce Development Strategic Plan 2011-2016

Oregon: Oregon Public Health Workforce Training Needs Assessment

West Virginia: West Virginia Bureau for Public Health 2012 Workforce Assessment Survey Final Report

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12 Governor’s Workforce Development Council (GWDC). “Minnesota’s Primary Care Provider Shortage – Strategies to Grow the Primary Care Workforce.” Available at http://www.gwdc.org/docs/publications/Primary_Care_Report.pdf. Accessed 8-11-2014.


