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A REPORT ON THE STATE DIVISION OF PUBLIC HEALTH WORKFORCE IN NORTH CAROLINA, 2013

THE NORTH CAROLINA
Institute *for* Public Health

INTRODUCTION

To target training needs for the governmental public health workforce in North Carolina, the Southeast Public Health Training Center of the North Carolina Institute for Public Health (NCIPH) at the UNC Gillings School of Global Public Health conducted a survey on workforce competencies. The survey is based on the national Core Competencies for Public Health Professionals developed by the Council on Linkages Between Academia and Public Health Practice. These competencies were designed for public health professionals at three different levels:

- Tier 1 (entry level)
- Tier 2 (supervisors and managers)
- Tier 3 (senior managers and CEOs)

The competencies represent a set of skills desirable for the broad practice of public health, reflecting the characteristics that staff of public health organizations may want to possess as they work to protect and promote health in the community.

During spring 2013, all employees in the North Carolina Division of Public Health (NC DPH) were provided the opportunity to participate in the anonymous survey. Survey questions included a public health competency assessment as well as basic demographics and professional development.

This report is a summary of the NC DPH employees who participated in this survey. For reporting purposes, all NC DPH Sections representing less than 5% of total respondents were collapsed into the "Other" category. This report is designed to serve as a starting point to assess workforce development efforts and training needs for NC DPH employees.

NC DPH WORKFORCE CHARACTERISTICS

Age and Gender

A total of 1,190 NC DPH employees completed the survey (50.9%). Of those who completed the survey, 379 (31.6%) were at least 55 years old and 969 (80.6%) were female.

Age of NC Division of Public Health Employees

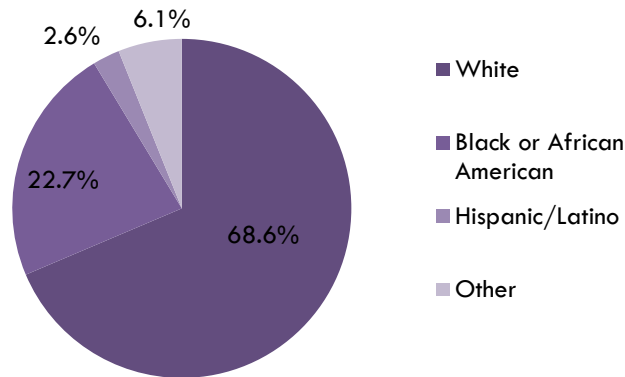**Gender of NC Division of Public Health Employees**
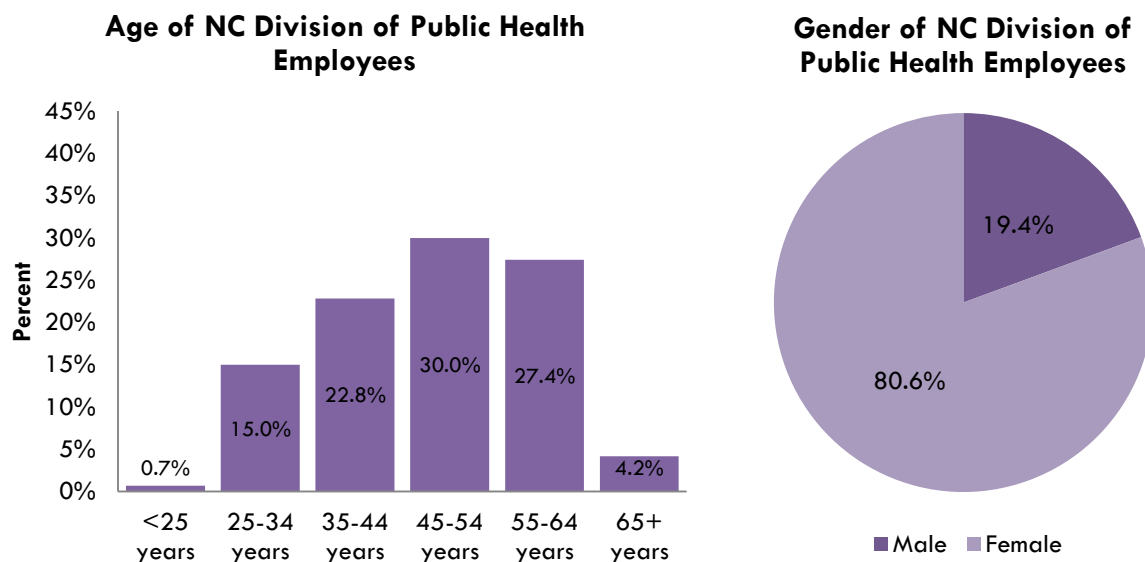
Note: A total of 7 surveys had missing age and 8 surveys had missing gender.

Race/Ethnicity

A total of 824 (68.6%) NC DPH respondents were White, 273 (22.7%) Black, and 31 (2.6%) Hispanic.

Race/Ethnicity of NC Division of Public Health Employees

- 6.1%
- 2.6%
- 22.7%
- 68.6%

Legend:
- White
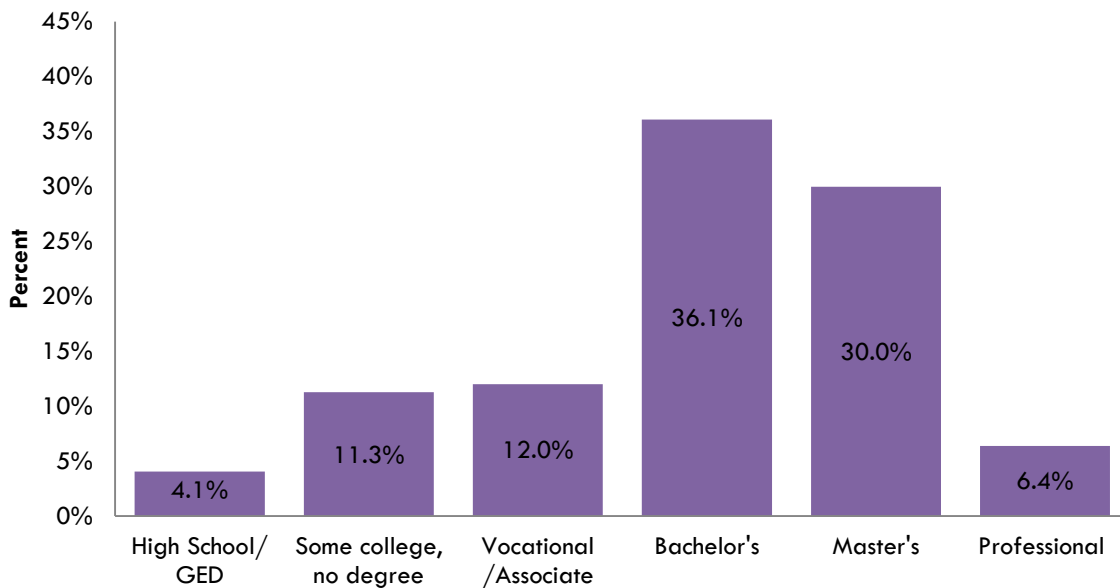- Black or African American
- Hispanic/Latino
- Other

Note: The "Other" category includes Asians, Pacific Islanders, Native Hawaiians, Multi-racial respondents, and those who were unsure or did not know. A total of 7 surveys had missing race/ethnicity.

Highest Educational Attainment

Bachelor's degree (36.1%) followed by Master's degree (30.0%) were most frequently reported as the highest educational level attained for NC DPH respondents.

Highest Educational Attainment of NC Division of Public Health Employees

| Category	Percent
High School/GED	4.1%
Some college, no degree	11.3%
Vocational/Associate	12.0%
Bachelor's	36.1%
Master's	30.0%
Professional	6.4%

Note: Respondents were asked to select one response identifying their highest educational attainment. They may have had multiple degrees. Professional degree includes MD, DVM, JD, PhD and other doctoral degrees. Six respondents (0.5%) identified a nursing degree as the highest level of educational attainment, but the specific level of the degree was not indicated.

Years in Public Health Service and Division Section

Approximately 28.3% of NC DPH respondents have been in their current position for at least 10 years; 54.2% have been in public health for at least 10 years.
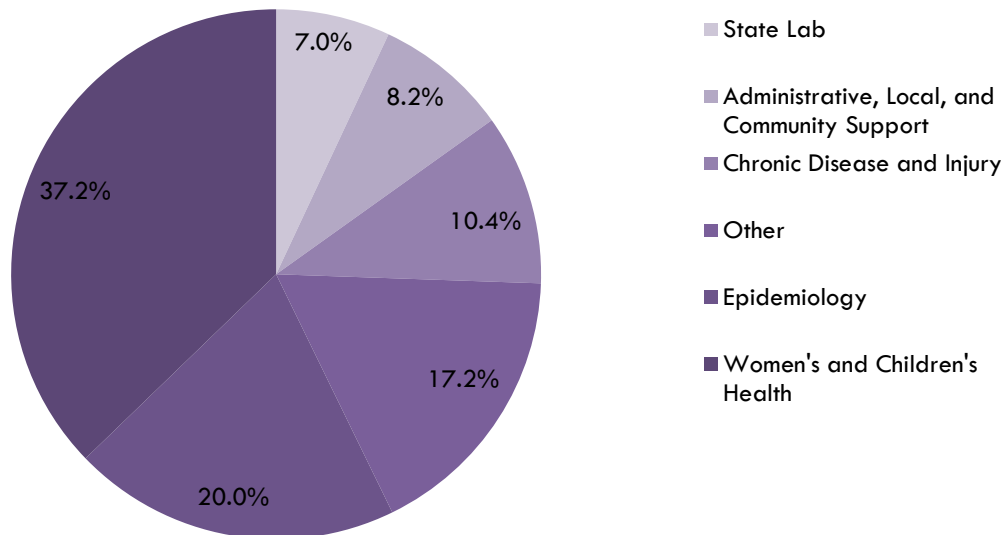
**Years of Service in Public Health,
NC Division of Public Health Employees**
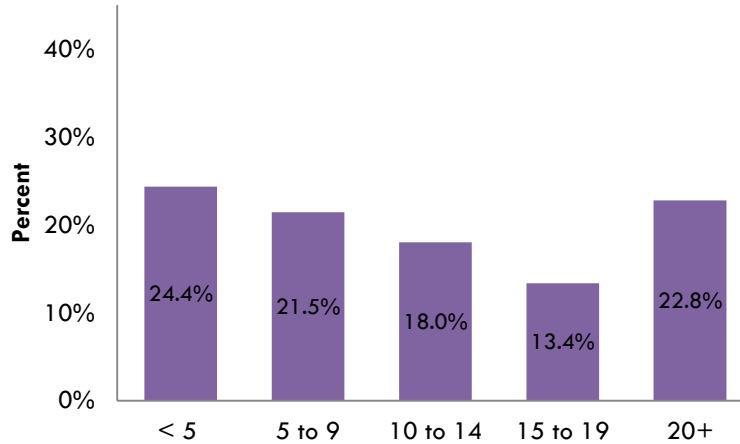
Note: A total of 5 surveys had missing years of service.

The most commonly reported Sections for NC DPH respondents was Women's and Children's Health (37.2%), followed by Epidemiology (20%).

NC Division of Public Health Employees by Section

Note: For Division Section, respondents had to select one of 13 options, including a write-in "Other" option. Survey analysts used several criteria to classify write-ins and to re-classify some respondents who were misclassified due to limitations in the survey options. For reporting purposes, all Sections representing less than 5% of NC DPH respondents were collapsed into the "Other" category. "Other" category includes Environmental Health, Health Statistics, Medical Examiner, Occupational and Environmental, Oral Health, and State Health Director's Office, as well as responses such as interpreter, housekeeping, home health, and those who did not provide information that enabled classification. The Women and Children's Health section includes local Children's Developmental Services Agency employees. A total of 18 surveys were missing DPH Section. The denominator came from the NC Division of Public Health Office of the State Health Director and was based on the Division of Public Health BEACON report, which does not account for vacant positions.

TRAINING NEEDS

Relevance and Skills Gap by Competency Domain

Survey respondents were asked to classify themselves into one of three professional Tiers according to the following definitions:

- **Tier 1 (entry level):** Individuals who carry out the day-to-day tasks of public health organizations and are not in management positions.

- **Tier 2 (supervisors and managers):** Individuals with program management and/or supervisory responsibilities. In general, Tier 2 individuals have earned an MPH or related degree and have at least 5 years of work experience in public health or a related field or do not have an MPH or related degree, but have at least 10 years of experience working in the public health field.

- **Tier 3 (senior managers and CEOs):** Individuals at a senior/management level and leaders of public health organizations. Tier 3 public health professionals (e.g. health officers, executive directors, CEOs etc.) typically have staff that report to them.

A total of 634 (65.5%) NC DPH employees are classified as Tier 1 entry level.

NC Division of Public Health Employees by Tier
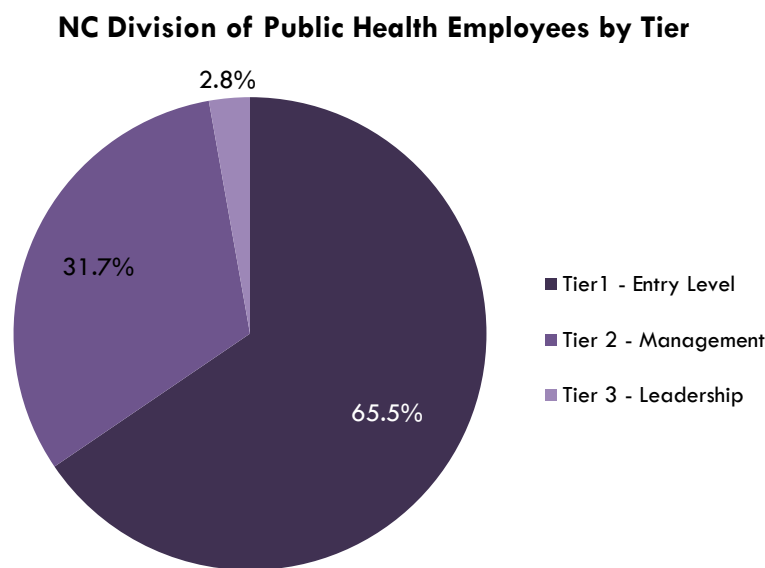
Note: Respondents who identified as management support were not placed in a tier.

Based on their self-identified Tier, respondents were asked to rate Tier-specific competencies within each of the eight domains of the Core Competencies for Public Health Professionals:

1. Analytical/assessment
2. Policy development/program planning
3. Communication
4. Cultural competency
5. Community outreach
6. Public health science
7. Financial planning and management
8. Leadership and systems thinking

Each domain has six to seventeen competencies for each Tier. These individual competencies describe desired skills for professionals at progressive stages of their careers.

> *A listing al all core competencies by Tier level are provided by*
> *the Council on Linkages Between Academia and Public Health Practice:*
> http://www.phf.org/resourcestools/Documents/Core_Competencies_for_Public_Health_Professionals_2010May.pdf

For each competency, respondents assessed their own skill level (using a rating scale of 1 to 4 with 1 being lowest skill level and 4 being highest) and also how relevant the stated competency was to their job (again using a rating scale of 1 to 4 with 1 being lowest relevance and 4 being highest relevance).

These measures were then combined to identify those competencies where respondents reported both a high relevance (relevance ≥ 3) and a skill gap (relevance > current skill level). Table 1 below shows the 8 core competency domains and the counts and percentages of respondents indicating high relevance and skills gaps on any competency within each domain.

The Financial Planning and Management Skills domain ranked highest in terms of relevance and skill gap for Tier 1 (entry level) and Tier 2 (management) respondents, followed by Policy Development/Program Planning Skills for Tier 2 respondents. For Tier 3 (leadership) respondents, Leadership and Systems Thinking Skills ranked highest.

Table 1. Respondents indicating high relevance and skills gap for any competencies listed in domain.

Core Competency Domains Total NC DPH respondents =968*	Tier 1: Entry Level (n=634)		Tier 2: Management (n=307)		Tier 3: Leadership (n=27)	
	N	%	N	%	N	%
1. Analytical/Assessment Skills	237	39.8	128	46.2	10	43.5
2. Policy Development/Program Planning Skills	184	32.4	144	53.1	11	45.8
3. Communication Skills	189	33.5	114	41.6	9	37.5
4. Cultural Competency Skills	170	30.7	103	38.0	7	29.2
5. Community Dimensions of Practice Skills	176	31.9	95	35.4	9	37.5
6. Public Health Sciences Skills	156	28.8	89	33.5	4	16.7
7. Financial Planning and Management Skills	221	41.2	138	53.3	11	47.8
8. Leadership and Systems Thinking Skills*	179	33.9	110	42.5	11	50.0

Note: *Respondents who did not fall into one of the Tiers completed the demographic section only. High relevance = rating of 3 or higher. Skills gap = relevance rating > skill rating.

Top 10 Competencies with High Relevance and Skills Gap

The competencies most frequently reported across all domains as having a high relevance (≥3) and a skill gap (where relevance >current skill level) are reported in Table 2. The purpose is to identify areas where NC DPH employees have a skill gap in areas that are important (relevant) to performing their duties, highlighting "actionable" areas for improvement and targets for training.

The top 10 competencies identified by Tier 1, Tier 2, and Tier 3 respondents in NC DPH are listed below.

Table 2. Top 10 skill gap/high relevance competencies by Tier (NC DPH)

Tier	Competency	Domain
Tier 1 (entry level)	1. Uses information technology to collect, store, and retrieve data	Analytical/Assessment
	2. Adheres to the organization's policies and procedures	Financial Planning and Management
	3. Incorporates strategies for interacting with persons from diverse backgrounds	Cultural Competency
	4. Responds to diverse needs that are the result of cultural differences	Cultural Competency
	5. Communicates in writing and orally, in person, and through electronic means, with linguistic and cultural proficiency	Communication
	6. Recognizes the role of cultural, social, and behavioral factors in the accessibility, availability, acceptability and delivery of public health services	Cultural Competency
	7. Adheres to ethical principles in the collection, maintenance, use, and dissemination of data and information	Analytical/Assessment
	8. Describes the dynamic forces that contribute to cultural diversity	Cultural Competency
	9. Identifies community assets and resources	Community Dimensions of Practice
	10. Uses methods and instruments for collecting valid and reliable quantitative and qualitative data	Analytical/Assessment
Tier 2 (management)	1. Develops strategies for continuous quality improvement	Policy Development/ Program Planning
	2. Develops mechanisms to monitor and evaluate programs for their effectiveness and quality	Policy Development/ Program Planning
	3. Applies public health informatics skills to improve program and business operations	Financial Planning and Management
	4. Incorporates public health informatics practices	Policy Development/ Program Planning
	5. Incorporates strategies for interacting with persons from diverse backgrounds	Cultural Competency
	6. Applies basic human relations skills to the management of organizations, motivation of personnel, and resolution of conflicts	Financial Planning and Management
	7. Uses cost-effectiveness, cost-benefit, and cost-utility analyses in programmatic prioritization and decision making	Financial Planning and Management
	8. Contributes to the measuring, reporting and continuous improvement of organizational performance	Leadership and Systems Thinking
	9. Uses information technology to collect, store, and retrieve data	Analytical/Assessment
	10. Uses evaluation results to improve performance	Financial Planning and Management

Tier 3 (leadership)	1. Applies basic human relations skills to the management of organizations, motivation of personnel, and resolution of conflicts	Financial Planning and Management
	2. Ensures that programs are managed within current and forecasted budget constraints	Financial Planning and Management
	3. Critiques strategies for determining budget priorities	Financial Planning and Management
	4. Ensures the application of ethical principles in the collection, maintenance, use, and dissemination of data and information	Analytical/Assessment
	5. Oversees public health informatics practices and procedures	Policy Development/ Program Planning
	6. Implements organizational and system-wide strategies for continuous quality improvement	Policy Development/ Program Planning
	7. Uses evaluation results to improve performance	Financial Planning and Management
	8. Resolves internal and external problems that may affect the delivery of Essential Public Health Services	Leadership and Systems Thinking
	9. Ensures the management of organizational change	Leadership and Systems Thinking
	10. Critiques methods and instruments for collecting valid and reliable quantitative and qualitative data	Analytical/Assessment

Note: *Respondents who did not fall into one of the Tiers completed the demographic section only. High relevance = rating of 3 or higher. Skills gap=relevance rating > skill rating. The Top 10 are in order with #1 being the most frequently reported. If there were ties for Top 10, more than 10 competencies may be identified as high relevance and a skill gap. Complete tables are available upon request.

Top 10 Competencies by NC DPH Section

The top 10 competencies were also identified by NC DPH Section. All three Tiers were combined for Section-specific competencies with high relevance and skills gap.

Table 3. Top 10 skill gap/high relevance competencies by NC DPH Section

Tier	Competency	Domain
Administrative Section	1. Adheres to the organization's policies and procedures	Financial Planning and Management
	2. Uses individual, team and organizational learning opportunities for personal and professional development	Leadership and Systems Thinking
	3. Communicates in writing and orally, in person, and through electronic means, with linguistic and cultural proficiency	Communication
	4. Operates programs within current and forecasted budget constraints	Financial Planning and Management
	5. Identifies strategies for determining budget priorities based on federal, state, and local financial contributions	Financial Planning and Management
	6. Uses information technology to collect, store, and retrieve data	Analytical/Assessment
	7. Describes the laws, regulations, policies and procedures for the ethical conduct of research	Public Health Sciences
	8. Describes the organizational structures, functions, and authorities of local, state, and federal public health agencies	Financial Planning and Management
	9. Participates in mentoring and peer review or coaching opportunities	Leadership and Systems Thinking
	10. Incorporates public health informatics practices	Policy Development/ Program Planning
Chronic Disease and Injury	1. Responds to diverse needs that are the result of cultural differences	Cultural Competency
	2. Considers the role of cultural, social, and behavioral factors in the accessibility, availability, acceptability and delivery of public health services	Cultural Competency
	3. Incorporates strategies for interacting with persons from diverse backgrounds	Cultural Competency
	4. Assesses public health programs for their cultural competence	Cultural Competency
	5. Uses cost-effectiveness, cost-benefit, and cost-utility analyses in programmatic prioritization and decision making	Financial Planning and Management
	6. Uses decision analysis for policy development and program planning	Policy Development/ Program Planning
	7. Facilitates collaboration and partnerships to ensure participation of key stakeholders	Community Dimensions of Practice
	8. Uses information technology to collect, store, and retrieve data	Analytical/Assessment
	9. Analyzes information relevant to specific public health policy issues	Policy Development/ Program Planning
	10. Describes the need for a diverse public health workforce	Cultural Competency

Environmental	1.	Applies basic human relations skills to internal collaborations, motivation of colleagues, and resolution of conflicts	Financial Planning and Management
	2.	Applies communication and group dynamic strategies	Communication
	3.	Retrieves scientific evidence from a variety of text and electronic sources	Public Health Sciences
	4.	Demonstrates public health informatics skills to improve program and business operations	Financial Planning and Management
	5.	Adheres to the organization's policies and procedures	Financial Planning and Management
	6.	Uses individual, team and organizational learning opportunities for personal and professional development	Leadership and Systems Thinking
	7.	Participates in mentoring and peer review or coaching opportunities	Leadership and Systems Thinking
	8.	Gathers input from the community to inform the development of public health policy and programs	Community Dimensions of Practice
	9.	Relates public health science skills to the Core Public Health Functions and Ten Essential Services of Public Health	Public Health Sciences
	10.	Identifies internal and external problems that may affect the delivery of Essential Public Health Services	Leadership and Systems Thinking
Environmental and Occupational Epidemiology	1.	Gathers input from the community to inform the development of public health policy and programs	Community Dimensions of Practice
	2.	Uses methods and instruments for collecting valid and reliable quantitative and qualitative data	Analytical/Assessment
	3.	Gathers information relevant to specific public health policy issues	Policy Development/ Program Planning
	4.	Applies strategies for continuous quality improvement	Policy Development/ Program Planning
	5.	Explains the expected outcomes of policy options	Policy Development/ Program Planning
	6.	Incorporates policies and procedures into program plans and structures	Policy Development/ Program Planning
	7.	Participates in the assessment of the cultural competence of the public health organization	Cultural Competency
	8.	Maintains partnerships with key stakeholders	Community Dimensions of Practice
	9.	Operates programs within current and forecasted budget constraints	Financial Planning and Management
	10.	Incorporates ethical standards of practice as the basis of all interactions with organizations, communities, and individuals	Leadership and Systems Thinking
Epidemiology	1.	Uses information technology to collect, store, and retrieve data	Analytical/Assessment
	2.	Uses methods and instruments for collecting valid and reliable quantitative and qualitative data	Analytical/Assessment

	3. Recognizes the integrity and comparability of data	Analytical/Assessment
	4. Adheres to the organization's policies and procedures	Financial Planning and Management
	5. Describes the characteristics of a population-based health problem	Analytical/Assessment
	6. Uses variables that measure public health conditions	Analytical/Assessment
	7. Identifies gaps in data sources	Analytical/Assessment
	8. Describes the public health laws and regulations governing public health programs	Policy Development/ Program Planning
	9. Applies strategies for continuous quality improvement	Policy Development/ Program Planning
	10. Demonstrates the use of public health informatics practices and procedures	Policy Development/ Program Planning
Health Statistics	1. Uses information technology to collect, store, and retrieve data	Analytical/Assessment
	2. Adheres to ethical principles in the collection, maintenance, use, and dissemination of data and information	Analytical/Assessment
	3. Demonstrates the use of public health informatics practices and procedures	Policy Development/ Program Planning
	4. Describes the scientific evidence related to a public health issue, concern, or, intervention	Public Health Sciences
	5. Applies basic human relations skills to the management of organizations, motivation of personnel, and resolution of conflicts	Financial Planning and Management
	6. Uses methods and instruments for collecting valid and reliable quantitative and qualitative data	Analytical/Assessment
	7. Describes the public health laws and regulations governing public health programs	Policy Development/ Program Planning
	8. Retrieves scientific evidence from a variety of text and electronic sources	Public Health Sciences
	9. Discusses the limitations of research findings	Public Health Sciences
	10. Describes the laws, regulations, policies and procedures for the ethical conduct of research	Public Health Sciences
Oral Health	1. Identifies gaps in data sources	Analytical/Assessment
	2. Responds to diverse needs that are the result of cultural differences	Cultural Competency
	3. Recognizes the integrity and comparability of data	Analytical/Assessment
	4. Describes the public health applications of quantitative and qualitative data	Analytical/Assessment
	5. Incorporates strategies for interacting with persons from diverse backgrounds	Cultural Competency

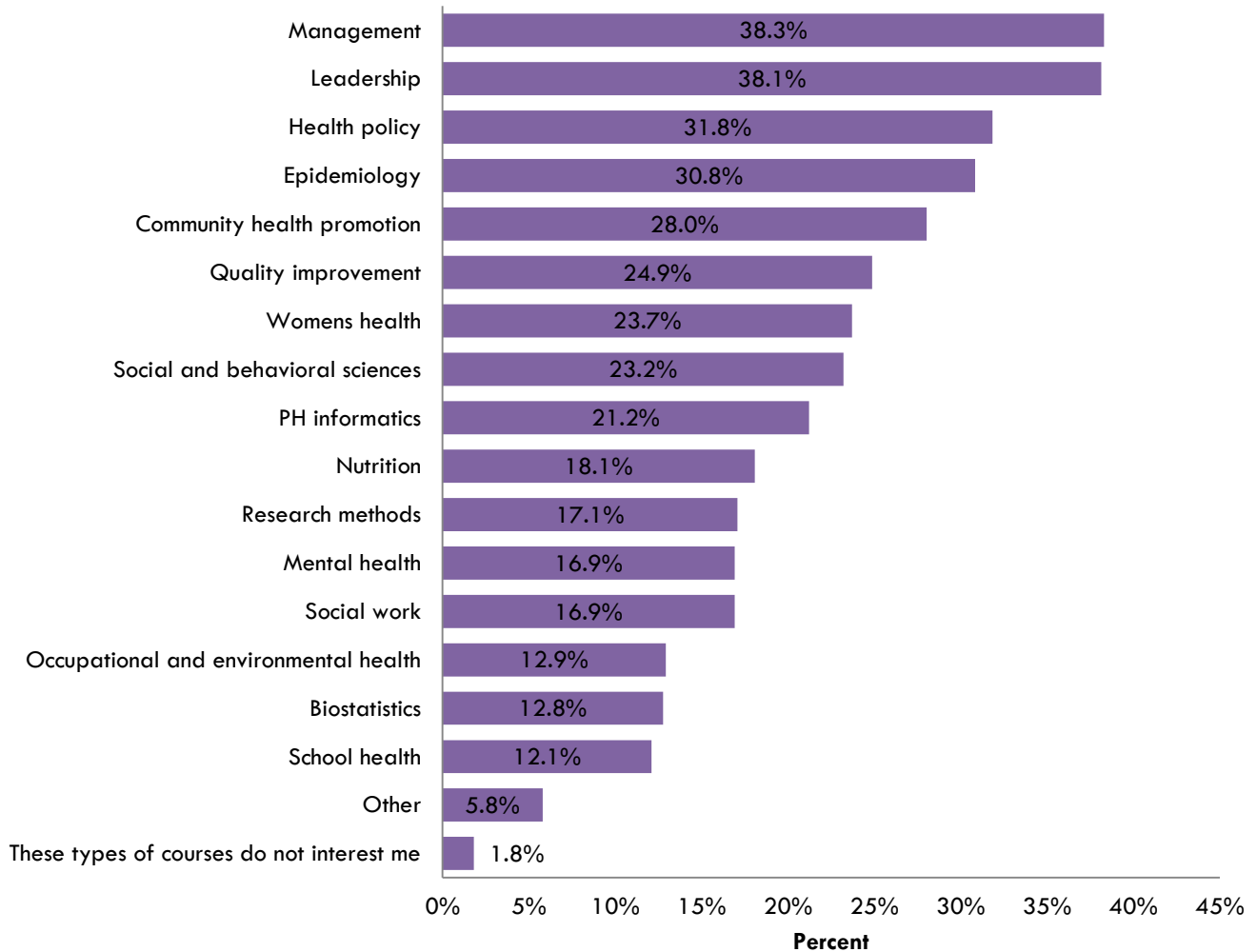|		
	6. Recognizes the role of cultural, social, and behavioral factors in the accessibility, availability, acceptability and delivery of public health services	Cultural Competency
	7. Participates in the assessment of the cultural competence of the public health organization	Cultural Competency
	8. Describes the scientific evidence related to a public health issue, concern, or, intervention	Public Health Sciences
	9. Describes how data are used to address scientific, political, ethical, and social public health issues	Analytical/Assessment
	10. Explains the expected outcomes of policy options	Policy Development/ Program Planning
State Lab	1. Applies strategies for continuous quality improvement	Policy Development/ Program Planning
	2. Adheres to the organization's policies and procedures	Financial Planning and Management
	3. Uses information technology to collect, store, and retrieve data	Analytical/Assessment
	4. Operates programs within current and forecasted budget constraints	Financial Planning and Management
	5. Promotes individual, team and organizational learning opportunities	Leadership and Systems Thinking
	6. Adheres to ethical principles in the collection, maintenance, use, and dissemination of data and information	Analytical/Assessment
	7. Participates in program planning processes	Policy Development/ Program Planning
	8. Communicates in writing and orally, in person, and through electronic means, with linguistic and cultural proficiency	Communication
	9. Applies basic human relations skills to internal collaborations, motivation of colleagues, and resolution of conflicts	Financial Planning and Management
	10. Contributes to the preparation of proposals for funding from external sources	Financial Planning and Management
Vital Records	1. Uses information technology to collect, store, and retrieve data	Analytical/Assessment
	2. Adheres to the organization's policies and procedures	Financial Planning and Management
	3. Uses evaluation results to improve performance	Financial Planning and Management
	4. Identifies the health status of populations and their related determinants of health and illness	Analytical/Assessment
	5. Collects quantitative and qualitative community data	Analytical/Assessment
	6. Describes how data are used to address scientific, political, ethical, and social public health issues	Analytical/Assessment
	7. Applies strategies for continuous quality improvement	Policy Development/ Program Planning

	8. Describes how policy options can influence public health programs	Policy Development/ Program Planning
	9. Gathers information that will inform policy decisions	Policy Development/ Program Planning
	10. Describes the public health laws and regulations governing public health programs	Policy Development/ Program Planning
Women's and Children's Health	1. Incorporates strategies for interacting with persons from diverse backgrounds	Cultural Competency
	2. Responds to diverse needs that are the result of cultural differences	Cultural Competency
	3. Recognizes the role of cultural, social, and behavioral factors in the accessibility, availability, acceptability and delivery of public health services	Cultural Competency
	4. Describes the dynamic forces that contribute to cultural diversity	Cultural Competency
	5. Communicates in writing and orally, in person, and through electronic means, with linguistic and cultural proficiency	Communication
	6. Identifies community assets and resources	Community Dimensions of Practice
	7. Informs the public about policies, programs, and resources	Community Dimensions of Practice
	8. Adheres to the organization's policies and procedures	Financial Planning and Management
	9. Describes the need for a diverse public health workforce	Cultural Competency
	10. Uses group processes to advance community involvement	Community Dimensions of Practice

Note: Tiers were combined at the Section-level to prevent individual identification of respondents. There were two Sections for which a Section-specific report could not be completed due to small sample size (N<10). These sections are Medical Examiner and State Health Director's Office. Respondents who could not be classified into a Section and remained in the "Other" category are not captured in any of the Section-specific reports. The Women and Children's Health section includes local Children's Developmental Services Agency employees.

Areas of Educational Interest

When asked if NC DPH respondents were interested in furthering public health education through academic courses, the top areas of interest identified were management (38.3%) and leadership (38.1%).

Areas of Educational Interest, NC Division of Public Health Employees

Area	Percent
Management	38.3%
Leadership	38.1%
Health policy	31.8%
Epidemiology	30.8%
Community health promotion	28.0%
Quality improvement	24.9%
Womens health	23.7%
Social and behavioral sciences	23.2%
PH informatics	21.2%
Nutrition	18.1%
Research methods	17.1%
Mental health	16.9%
Social work	16.9%
Occupational and environmental health	12.9%
Biostatistics	12.8%
School health	12.1%
Other	5.8%
These types of courses do not interest me	1.8%

Note: Includes percent of the 614 respondents (51.7%) interested in additional education. Respondents could select as many responses as applied.

RESOURCES

The following resources offer core competency-based trainings and tools for public health professionals. If you cannot find a resource to meet your training needs, please contact us at nciph@unc.edu.

- **North Carolina Institute for Public Health (NCIPH):**
  http://sph.unc.edu/nciph/nciph-training-tech-assist/
  NCIPH, part of the UNC Gillings School of Global Public Health, serves as a bridge between academia and partners in community organizations and government agencies. Resources include competency based face-to-face training, webinars, and online training website tailored to public health professionals in North Carolina.

- **North Carolina Area Health Education Centers (NC AHEC):** http://www.med.unc.edu/ahec/
  One of the ways NC AHEC pursues its mission is through the provision of quality continuing education (CE) programs. NC AHEC CE Programs are often taught by health science faculty from the state's four medical academic centers, bringing university expertise into NC communities.

- **TrainingFinder Real-time Affiliate Integrated Network (TRAIN):** http://www.train.org
  TRAIN, is the nation's premier learning resource for professionals who protect the public's health. A free service of the Public Health Foundation, TRAIN is comprised of the national www.train.org site and participating TRAIN affiliate sites.

- **Public Health Training Center Network:** http://bhpr.hrsa.gov/grants/publichealth/trainingcenters
  The Health Resources and Services Administration (HRSA)-funded Public Health Training Centers are partnerships between accredited schools of public health, related academic institutions, and public health agencies and organizations. The network catalog has hundreds of trainings, which cover topics such as leadership and management, epidemiology, and basic public health skills. There are also resources and publications with tools and information relevant to public health practitioners.

NEXT STEPS

NCIPH will be looking across both local and state health department workforce competencies to identify common training needs, highlight opportunities for improvement, and collaborate with state and local partners to develop new training opportunities.

ADDITIONAL REPORT INFORMATION

Methods

During spring 2013, all employees in the North Carolina Division of Public Health (NC DPH) were provided the opportunity to participate in the anonymous survey. Survey questions included a public health competency assessment as well as basic demographics and professional development. The number of full-time NC DPH employees for Section-level percentages came from the NC DPH Office of the State Health Director. Programs.

Limitations

The results shown in this report reflect the counts and percentages from NC DPH respondents. It is important to note that respondents may not represent the entire workforce. In some questions (e.g., NC DPH Section) respondents may have misclassified themselves based on the available options. Therefore, some answers may be over- or under-represented. The competency questions only applied to those who identified themselves in one of the Tiers; management support personnel only completed demographics questions. In addition, the survey was based on self-report and self-assessment.

For more information about the methods and limitations of the report and access to regional and statewide workforce reports, visit the North Carolina Institute for Public Health website at:
http://nciph.sph.unc.edu/training/assessment.

THE NORTH CAROLINA
Institute *for* Public Health