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Improving Overall Health Outcomes through Public Health Workforce Development

Zienna Blackwell
zenblackwell@gmail.com

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University of Massachusetts Amherst

DNP Project Chair: Annette Wysocki

DNP Project Committee Member: Terrie Black

Capstone Mentor: Gayle Jones

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Abstract

Poor health outcomes among South Carolinians, indicated by an overall U.S. health ranking of 42 (America's Health Rankings, 2016) may be the result of an underdeveloped public health workforce. This can be mediated through a thorough assessment of the public health workforce followed by the implementation of a workforce development plan. The purpose of this quality improvement project was to assess the competency level of the South Carolina public health workforce and to develop, implement, and evaluate a workforce development plan to address the weaknesses identified through the assessment process. The Competency Assessment for Public Health Professionals developed by the Council on Linkages between Academia and Public Health Practice was used to assess the competency level of the six Midlands Region Program Managers within the eight domains of the instrument: 1) Analytical/Assessment, 2) Policy Development/Program Planning, 3) Communication, 4) Cultural Competency, 5) Community Dimensions of Practice, 6) Public Health Sciences, 7) Financial Planning and Management, and 8) Leadership and Systems Thinking. Training was developed based on the composite assessment scores for all program managers and was prioritized by the areas with the lowest scores. Pre and post test and focus group findings were used to measure the effectiveness of specific training focused on the Public Health Sciences domain of the Core Competency Assessment tool.

Keywords: public health workforce development, health outcomes, public health competency assessment

Improving Overall Health Outcomes through Public Health Workforce Development

The public health workforce has been under pressure to perform in a rapidly changing healthcare environment, respond to epidemics, and address key determinants of health, while public health budgets are rapidly decreasing (Association of Public Health Nurses, n.d.; Hunter, 2015; U.S. Department of Health & Human Services, n.d.). This results in the public health workforce doing more work with fewer resources. Because of the waning budgets and increased threat of communicable diseases and epidemics, it is imperative to maintain a highly competent public health workforce.

Currently South Carolina's health ranking is 42 based on four aspects: behaviors, environment in which we live, health care policy, and clinical care. The core measures used to determine the rank are: smoking, excessive drinking, drug deaths, obesity, physical inactivity, high school graduation, violent crime, occupational fatalities, children in poverty, air pollution, infectious disease, lack of health insurance, public health funding, immunizations, low birth weight, primary care physicians, dentists, and preventable hospitalizations. The leading health issues in South Carolina are premature death, low birth weight, smoking, infectious disease, lack of health insurance, high school graduation, and violent crime (University of Wisconsin Population Health Institute, 2015). The South Carolina Department of Health and Environmental Control (DHEC) is composed of 46 counties divided into four public health regions with a total population of 4.8 million.

The majority of South Carolina's public health workforce lacks formal public health education; many on the executive and senior leadership team have no working experience in public health prior to employment with the Department of Health and Environmental Control (South Carolina Department of Health and Environmental Control [DHEC], 2015). While most

public health agencies are led by physicians with formal public health training, the Director of

DHEC is an attorney with no prior public health work experience. Of the remaining eight

members of the executive leadership team, only two have a background in public health; the

Director of Health Services worked in public health in Connecticut prior to joining DHEC and

the Director of Environmental Affairs holds a master's in public health. (South Carolina

Department of Health & Environmental Control, 2015). Due to the lack of public health

knowledge at the executive level, many position descriptions throughout the agency have been

rewritten to no longer require formal public health education or work experience as a minimum

requirement. This has resulted in a widespread lack of public health knowledge throughout all

levels of the agency which most likely contributes to the overall poor health outcomes of South

Carolinians.

Problem Statement

Risk of poor health outcomes among South Carolinians, indicated by an overall U.S.

health ranking of 42 (America's Health Rankings, 2016), is caused by the absence of a public

health strategic plan, an underdeveloped public health workforce, and a 40% vacancy rate within

the state public health system. The lack of public health knowledge among the South Carolina

public health workforce has resulted in a focus on individual services instead of population based

strategies to improve overall health outcomes among South Carolinians. Because of the narrow

focus on individual and billable services, there are gaps in partner networks, prevention

strategies, and health initiatives that address population health disparities. This can be mediated

by strong public health leadership, workforce retention strategies, and a workforce development

plan given that a public health workforce assessment and measurable health indicators exist. It is

crucial that health departments assess the quality of the workforce and implement strategies to

build public health knowledge and increase retention of highly skilled employees to meet the nation's demand to improve health outcomes and enhance health care quality (U.S. Department of Health & Human Services, n.d.).

Review of the Literature

A review of the literature was completed using the following databases: CINAHL Complete, Medline, Oxford Journals, Wiley Online, and WorldCat. Three searches were completed. The keywords "public health" and "workforce development" were used in the first search while "public health workforce" and "impact on health outcomes" were used in the second. The third search was completed using the keywords "transtheoretical model" and "organizational change." All three searches were for the years 2010 through 2016 and were limited to peer-reviewed articles written in English. The first search resulted in 2,830 articles, the second search produced 1,277, while the third search yielded 269. A review of the South Carolina public health statistics was also completed using the America's Health Rankings and County Health Rankings websites.

Results

Six articles were chosen for review; three articles reported on cross-sectional surveys, two articles discussed a mixed method evaluations, and one article was a review of theoretical frameworks. All six articles spoke of the need for a highly competent public health workforce. Two of the articles by Caron, Hiller, & Wyman (2013 & 2014), stressed the importance of building partnerships to educate the future public health workforce, while three of the articles (Koo & Miner, 2010), (Jacob et al., 2014), (Kenefick et al., 2014) identified strategies for developing effective approaches for training the public health workforce. The sixth article by

Daniels et al. (2014) discussed using the Transtheoretical Model to evaluate leadership behaviors and training interventions.

Evidence Based Practice

The Tang Framework was used to evaluate and select Grade 1 strength evidence to guide this project. The evidence indicates that partnerships between academia and local health departments can reduce costs and allow for shared knowledge which will result in a stronger public health workforce (Caron et al. 2013, 2014). Further studies show successful strategies for assessing the public health workforce and implementing trainings to address deficiencies using adult learning techniques (Koo & Miner, 2010; Jacob et al., 2014; Kenefick et al., 2014). The adaptation of the Transtheoretical Model as discussed by Daniels et al. (2014) focuses on the stages of leadership behavior changes as a method to evaluate training interventions and could serve as an effective strategy in South Carolina when used with a 360 degree feedback approach. The strategies discussed could easily be implemented in South Carolina given that the University of South Carolina (USC) has a strong public health program in the Arnold School of Public Health. A barrier to creating and maintaining active partnerships was identified as inaction; this could be a challenge in South Carolina as a result of weak relationships between USC and DHEC. An e-learning system is already existent in South Carolina and lessons learned outlined by Kenefick et al. (2014) could serve as an excellent resource for the South Carolina public health workforce.

The Core Competencies for Public Health Professionals (2014) and the Core Competency Assessments for Public Health Professionals (2014) developed by the Council on Linkages between Academia and Public Health Practice were also reviewed and assessed. Both of these tools will be extremely useful for the strengthening of the public health workforce in South

Carolina. The assessment tool is designed to assess all levels of public health workers, from

entry level front line staff to executive leadership. The assessment results can be used to identify

gaps in knowledge while the Core Competencies can be instrumental in the development of

training programs. The Core Competencies should also be utilized in position descriptions and

performance evaluation measures as indicated by Healthy People 2020 initiative PHI-1 which

calls for an increase in the number of public health agencies that incorporate the Core

Competencies for Public Health Professionals into job descriptions and performance evaluations

(2014).

A review of health outcomes for South Carolina using the America's Health Rankings

and County Health Rankings websites identified several indicators that contribute to South

Carolina's overall health ranking of 42. When comparing health outcomes nationally, South

Carolina ranks significantly higher in premature death, low birthweight, alcohol-impaired driving

deaths, sexually transmitted infections, teen births, uninsured persons under age 65, children

living in poverty, and violent crimes. It is also important to note that there were no significant

changes in health outcomes when comparing the years 2015 and 2016. Table 1 outlines South

Carolina rankings compared to the national average for these eight health outcome measures.

Table 1

United States and South Carolina Health Outcomes 2015 and 2016

Measure	Description	U.S. Median		South Carolina	
		2015	2016	2015	2016
Premature death	Years of potential life lost before age 75 per 100,000 population	7681	7700	8281	8200
Low birthweight	% of live births <2500 grams	8%	8%	9.9%	10%
Alcohol-impaired driving deaths	% of driving deaths with alcohol involvement	31%	31%	42%	40%

Sexually transmitted infections	# of newly diagnosed chlamydia cases per 100,000 population	291	287.7	575	541.8
Teen births	# of births per 1000 female population ages 15-19	41	40	46	43
Uninsured	% of population under age 65 without health insurance	17%	17%	20%	19%
Children in poverty	% of children under age 18 in poverty	24%	23%	27%	26%
Violent crime	# of reported violent crime offenses per 100,000 population	199	199	577	577

Theoretical Framework

The Transtheoretical Model, also known as the Stages of Change, was developed by

Prochaska and DiClemente in the late 1970s (Boston University School of Public Health, 2016).

The model describes how people progress through six different stages to achieve behavior

change. The stages are precontemplation, contemplation, preparation, action, maintenance and

termination. Assessing which stage a person is in is helpful in determining what intervention

strategies would be most effective. For example, certain interventions implemented during the

precontemplation stage aren't always effective because in this stage, a person is unaware the

behavior is problematic. When looking at the South Carolina public health workforce, staff that

are unaware of the core principles of public health as a result of limited or nonexistent public

health education, or who are focused solely on individual client services, are most likely to be in

the precontemplation stage.

In the contemplation stage, the person is ambivalent about change but is starting to assess

the pros and cons of behavior change. This stage is an opportune time to provide education as an

intervention strategy. In regards to the South Carolina public health workforce, the Core

Competency Assessments for Public Health Professionals could be completed to help identify

gaps in public health knowledge.

The preparation stage occurs when the person has decided that change is appropriate and

starts to take steps toward the behavior change. During this stage, positive reinforcement and

support structures serve as appropriate intervention strategies. South Carolina DHEC could

include the Core Competencies in position descriptions and performance evaluation measures to

reinforce the skills essential for a highly competent public health workforce.

The fourth stage is action. During the action stage, the person has fully embraced the

choice to change and is actively incorporating new behaviors into daily routines. Goal setting is

an appropriate intervention during the action stage. The implementation of a strategic plan,

including logic models which clearly depict DHEC's priorities and quality indicators would be

pertinent during the action stage.

The maintenance stage is achieved once a behavior change is maintained for greater than

six months. During this stage it is crucial to provide support to prevent relapsing to the previous

behavior. The implementation of a workforce development plan that is congruent with position

descriptions and performance measures is applicable during the maintenance stage.

The final stage of the Transtheoretical Model is the termination stage. This stage is rarely

achieved and therefore is often excluded from health promotion programs. The termination stage

is only achieved when there is no desire to return to previous behaviors and there is no threat of

relapse. While the termination stage may not be achievable for a health promotion program, it is

reasonable to include in organizational change. DHEC can achieve the termination stage through

the adoption of policies that assure a highly competent public health workforce. These policies

could include minimum hiring qualifications, annual competency requirements and ongoing professional development opportunities.

Project Design and Methods

This Doctor of Nursing Practice (DNP) Capstone Quality Improvement Project was an evaluation design including use of the Plan-Do-Study-Act (PDSA) method, overall assessment using the Core Competency Assessment Tool for Public Health Professionals and a specific pre and post-test measurement assessment using the Public Health Science domain which is composed of ten items. Methods are both quantitative and qualitative. The Competency Assessment for Public Health Professionals provided quantitative results using a single group pre and post-test design while focus groups provided qualitative results.

Setting and Resources

DHEC was the agency in which this project was completed. The setting, more specifically, was the Midlands Region which is one of four public health regions in South Carolina and is comprised of twelve of the 46 counties. All agency resources were available for this project including staff, materials, data, and access to community partners.

Description of the population.

The Midlands Region has a total population of 1.38 million and includes both rural and urban communities dispersed throughout the twelve counties. Table 2 outlines the population and the overall health ranking by county (United States Census Bureau, 2015) while Table 3 shows the county rankings by health outcome (University of Wisconsin Population Health Institute, 2016). The counties that comprise the Midlands Region range from an overall health ranking of three in York County to 41 in Barnwell County.

Table 2

Population and State Health Ranking of Midlands Region Counties

County	Population	Overall Rank for Health Outcomes (46 Counties)
Aiken	164,176	16
Barnwell	22,119	41
Chester	32,578	34
Edgefield	26,436	8
Fairfield	23,109	35
Kershaw	62,516	14
Lancaster	80,458	21
Lexington	273,752	7
Newberry	37,521	23
Richland	399,256	9
Saluda	20,091	19
York	239,363	3
SC Total Pop	4.832 million	
SC Rank for National Health Outcomes		42

The participants for this project were the six Midlands Region Program Managers. Five of the Program Managers are nurses; four hold bachelor's degrees in nursing and one has an entry level master's in nursing. The sixth Program Manager is a master's prepared registered dietician. The stakeholders are DHEC leadership and staff. DHEC is the centralized public health system that is accountable for health outcomes in the state. Other stakeholders are

residents of the Midlands Region and South Carolina as a whole because individual health is impacted by type, quality, and accessibility of DHEC services.

Organizational analysis of project site.

South Carolina DHEC is a centralized public health system therefore all four public health regions operate under the same policies and standing orders. Each region has its own leadership team, manages its own budget and determines how services are delivered based on community needs. The Midlands Region leadership team consists of a health director, nursing director, three operations directors, a compliance and quality improvement director, a medical director, and a regional administrator. The regional management team includes the leadership team plus the thirteen nursing site supervisors and six program managers. A Midlands Region leadership organization chart is included in Appendix A. The DNP student interacted with all members of the regional leadership team but worked more closely with the program managers for project implementation.

The program managers each manage all aspects of their respective programs and assure fidelity at all levels of service delivery. Because of the unique organizational structure of DHEC and the regional leadership teams, it was imperative to work with all members of the team to assure that services were provided according to policy.

Services provided in the Midlands Region fall under six programs: Tuberculosis, Epidemiology, Women, Infants and Children (WIC), Maternal Child Health, Immunizations, and Preventive Health. Services include: sexually transmitted disease testing, treatment and counseling, family planning, tuberculosis case management, communicable disease surveillance, investigation and management, WIC program, post-partum newborn home visits, Nurse Family Partnership, Children with Special Health Care Needs program, and immunizations.

Table 3

Midlands Region Health Rankings by County

	South Carolina	Aiken	Barnwell	Chester	Edgefield	Fairfield	Kershaw	Lancaster	Lexington	Newberry	Richland	Saluda	York
Health Outcomes	42	16	41	34	8	35	14	21	7	23	9	19	3
Premature death	8,200	8,700	12,200	11,300	7,800	10,900	8,800	9,100	7,300	9,000	7,400	8,900	7,100
Low birth weight	10%	9%	11%	11%	9%	12%	9%	10%	8%	12%	11%	9%	8%
Alcohol-impaired driving deaths	40%	51%	31%	56%	54%	46%	55%	37%	55%	38%	49%	42%	40%
Sexually transmitted diseases	541.8	350.7	589.8	777.4	322.6	577.8	368.9	321.2	362.8	598.8	734.3	573.1	448.8
Teen births	43	41	55	67	33	49	47	51	40	51	28	48	36
Uninsured	19%	17%	16%	18%	18%	18%	19%	19%	16%	20%	16%	24%	16%
Children in poverty	26%	28%	42%	34%	27%	35%	25%	30%	20%	30%	22%	33%	19%
Violent Crimes	577	356	814	722	182	710	492	517	374	383	947	506	515

Goals and Objectives

The goal of this project was to strengthen the Midlands Region public health workforce through increased public health knowledge and competency. The objectives included having program managers complete the Tier 2 Public Health Core Competency Assessment (2014), composed of eight domains with a total of 91 assessment items, and to develop, implement, and evaluate a training based on the Core Competency Assessment scores. The Public Health Core Competency Assessment measures the level of proficiency in eight areas: 1) Analytical/Assessment (15 items), 2) Policy Development/Program Planning (13 items), 3) Communication (8 items), 4) Cultural Competency (8 items), 5) Community Dimensions of Practice (11 items), 6) Public Health Sciences (10 items), 7) Financial Planning and Management (16 items), and 8) Leadership and Systems Thinking (10 items).

Implementation

While often taken for granted, the public health workforce is pivotal in protecting and promoting the health of the nation (Hunter, 2015). There is agreement that the public health workforce needs to be highly trained using adult learning techniques and public health theory. It is imperative for health departments to continually monitor their ability to meet the ever changing demands on the public health system. Below is an outline of how the PDSA cycle method was used to implement this quality improvement project.

1. Plan: A Strength, Weakness, Opportunity Threat (SWOT) analysis provided a framework for identifying strengths, weaknesses, opportunities and threats regarding the completion of a workforce competency assessment and the development and implementation of trainings that addressed the gaps identified by the assessment process. Due to the constraints of a manageable DNP project,

the SWOT analysis was completed with the Midlands Region six Program

Managers and not the organization or region as a whole. Because the Midlands

Region Health Director was in favor of this project, she assigned the Program

Managers to participate as part of assigned work duties eliminating the need for

recruitment.

2. Do: Program Managers completed the Tier 2 Core Competency Assessment. The

DNP student facilitated a focus group discussion with the six Midlands Region

Program managers to identify personal perceptions of training needs that were

relevant to the Program Manager role based on the Public Health Competency

Assessment results.

3. Study: The DNP student reviewed the results of the focus group meetings and the

Core Competency Assessments to identify common themes.

4. Act: The DNP student prioritized a training plan based on the Public Health Core

Competency Assessment scores for each of the eight domains and the role

requirements of the Program Managers. One domain, the Public Health Sciences

domain, was selected as the primary focus and a training was developed to

address the knowledge deficits of the selected domain. The training was provided

by the DNP student to the six Midlands Region Program Managers; a pre and post

tests were administered for the Public Health Sciences domain. A post training

focus group was facilitated by the DNP student to assess what the Program

Managers' perceptions were regarding the need for further training in the eight

domains. The data, which includes the Public Health Core Competency

Assessment scores, focus group results and pre/post test scores for the Public

Health Sciences domain were reviewed by the DNP student. Recommendations

were made to the Midlands Region Health Director regarding next steps in the

development of a comprehensive workforce development plan to maximize public

health competencies as outlined in all of the eight domains of the Core

Competencies for Public Health Professionals.

Cost-Benefit Analysis/Budget

Because the Midlands Region Health Director had requested the Program Managers'

participation in this project as an assigned work function, there was no extra cost to

implementing this project. The benefits of this quality improvement project include increased

knowledge by the Program Mangers which will translate to stronger public health leadership

resulting in improved internal processes which will positively impact overall health outcomes in

the region.

Ethics and Human Subjects Protection

Because this project was a quality improvement project that did not include research as

defined under the human subject regulations, Institutional Review Board (IRB) approval was not

required.

The risks associated with this quality improvement project were negligible while the

benefits were great. The knowledge gained from this project improved the foundational public

health knowledge of the Midlands Region Program Managers which results in a stronger

regional leadership team that could positively impact overall health outcomes throughout the

Midlands region and South Carolina.

Ethically it was important to obtain informed consent from each of the Program Manager

participants before implementing this project. The Program Managers had the right to

confidentiality as related to the individual assessment and pre/post test scores, therefore

individual scores were kept anonymous. Reporting included composite scores; no names or

personal identifiers were used in the dissemination of results.

Results

Outcomes

A presentation was given to the program managers outlining the Core Competencies for

Public Health Professionals. After the presentation, the group was asked to identify in which of

the domains they felt the weakest and strongest. The group consensus was financial

planning/management was the weakest and communication was the strongest. At this point, the

Competency Assessment for Public Health Professionals Tier Two, 2014 Version was completed

by all six program managers. The eight domains of the assessment tool include: 1)

Analytical/Assessment, 2) Policy Development/Program Planning, 3) Communication, 4)

Cultural Competency, 5) Community Dimensions of Practice, 6) Public Health Sciences, 7)

Financial Planning and Management, and 8) Leadership and Systems Thinking. For each

domain, each program manager was asked to think about the level at which she is able to

currently perform the skill and rate proficiency by choosing a number from one to four where 1

is "none" and 4 is "proficient," see Table 4 for complete scoring descriptions. The group's

highest score (3.4) was in Cultural Competency while Financial Planning/Management (2.4) was

the lowest, see Table 5. Overall the group did not rank as "proficient" in any domain but was

"knowledgeable," scoring ≥ 3, in five domains: Cultural Competency, Communication,

Community Dimensions of Practice, Policy Development/Program Planning, and Leadership and

Systems Thinking. The program managers ranked "aware," scoring < 3, in

Analytical/Assessment, Public Health Sciences, and Financial Planning and Management and

had no domains rated as "none". See Table 5 for mean and median scores by domain of the core

competency measures. After the composite scores were shared with the health director, it was

decided to provide training in Public Health Sciences despite the lowest scores being measured

in the Financial Planning and Management domain. It would have been too difficult to provide

financial planning training without the assistance of expert finance personnel with specific

requisite knowledge since each program manager is responsible for different grants and budgets.

A training was developed on the Public Health Sciences domain using PowerPoint slides and

was presented to the group of program managers the following month. The training included a

review of the ten essential services and core functions of public health, key components of

population assessment including a systematic examination of the health indicators and methods

for obtaining community engagement and collaborative participation (Centers for Disease

Control, 2016), and obtaining, critiquing and utilizing data to drive decisions. See Table 7 for an

explanation of the ten essential services and core functions of public health (Centers for Disease

Control, 2014). At the completion of the training, the group was asked to complete only the

Public Health Sciences section composed of 10 items of the Competency Assessment for Public

Health Professionals, see Table 6 for the pre/post test scores (both the pre and post test scores

were identical). The group was asked the following question: "Do you have increased knowledge

in the foundations of public health?" Each member of the group reported having increased

knowledge following the training however when the Competency Assessment scores for the

Public Health Sciences section were reviewed, there were no changes in the competency

assessment scores.

Table 4

Competency Assessment Scoring

1=None	I am unaware or have very little knowledge of the skill
2=Aware	I have heard of, but have limited knowledge or ability to apply the skill
3=Knowledgeable	I am comfortable with my knowledge or ability to apply the skill
4=Proficient	I am very comfortable, am an expert, or could teach this skill to others

Table 5

Mean and Median Scores by Domain

Domain	Mean	Median
Analytical/Assessment	2.8	2.8
Policy Development/Program Planning	3.1	3
Communication	3.2	3.3
Cultural Competency	3.4	3.5
Community Dimensions of Practice	3.1	3.4
Public Health Sciences	2.9	2.9
Financial Planning/Management	2.4	2.6
Leadership/Systems Thinking	3	3.3

Table 6

Pre/ Post Test Scores on the 10 Item Public Health Sciences Domain

Item	Mean	Median
1. Scientific foundation of public health	2.7	3
2. Prominent events in public health	2.8	3
3. Application of public health sciences (i.e. biostatistics, epidemiology, environmental science etc.)	2.7	3
4. Public health sciences in administration and management	3	3
5. Retrieve evidence for decision support	2.8	3
6. Determine limitations of evidence	2.3	2.5
7. Using evidence to develop, implement, evaluate, and improve policies, programs, and services	2.7	3
8. Identify laws, regulations, policies, and procedures for the ethical conduct of research	2.7	3
9. Contribute to the public health evidence base (ex: participate in public health research networks; contribute to academic public health departments; make data available to researchers etc.)	2.5	2.5
10. Develop partnerships that will increase evidence in public health practice	2.8	3

Note: Pre and post-test average scores were identical

Table 7

Public Health Essential Services and Core Functions

Essential Services	Monitor health status
	Diagnose and investigate
	Inform, educate, and empower people about health issues
	Mobilize community partnerships
	Develop policies
	Enforce laws
	Link people to needed personal health services
	Assure competent public health workforce
	Evaluate
	Research
Core Functions	Assessment
	Policy Development
	Assurance

Discussion

Utilizing the Competency Assessments for Public Health Professionals (2014) can identify the strengths and weaknesses at all levels of a public health agency. There are four public health regions within the South Carolina state public health system. Each region could implement a plan to assess the regional workforce while the central office could devise its own plan. At the regional level, the regional leadership could complete Tier 3 assessments, while the program managers and administrative leads could use Tier 2 assessments. All front line staff

would complete Tier 1. The results could be tabulated for each of the eight domains outlined in the core competency assessments. Trainings could be prioritized based on the assessment results.

According to Kenefick et al. (2014), there is a need for competency-based public health training which can be achieved through the use of online, self-paced training. DHEC currently has a fully functioning e-learning system that allows for self-paced training and has the capacity to provide competency based public health training to strengthen the public health workforce. This system is widely used throughout the agency beginning the first week of employment. This results in a delivery method that is familiar and widely accepted by staff.

With the development of a highly competent public health workforce, it is important to also look to the future. Partnering with schools of public health will assure the continuation of a highly competent workforce. Boston University School of Public Health has developed a training institute for local public health workers (Kenefick et al., 2014). The training institute is a result of an advisory committee comprised of local and state public health personnel operating under the mission to develop and maintain a competent public health workforce. DHEC could replicate this model by partnering with USC to identify subject matter experts and developing competency based trainings which could be accessed via the e-learning system. According to Kenefick et al. (2014) a series of online, awareness level trainings were created by Boston University School of Public Health with an estimated cost of less than $5000. The cost was low as a result of graduate students completing the necessary research. The University of Boston initiative shows that the implementation of an online competency-based training is an inexpensive yet effective method to assure a highly competent public health workforce. This

method of educating the public health workforce should be considered by all states, as the public

health workforce is essential to protect and promote the health of the nation.

There are many barriers to strengthening the public health workforce in South Carolina.

Internal weaknesses include a segmented organizational structure. South Carolina has a very

unique public health structure which is not replicated in any other state. This frequently creates

workflow and communication barriers which can lead to poor health outcomes. DHEC is also

recovering from a dictator-like leadership that resulted in an 80% reduction in the workforce

three years ago. This has resulted in a climate of fear. Employees are fearful of losing jobs and

therefore do not offer suggestions on ways to improve processes or delivery of care. Many

policies that are currently in place do not reflect current evidence based practice which also has a

negative impact on overall health outcomes in South Carolina. Due to some poor decisions of

previous leadership and the lack of response to several communicable disease outbreaks which

were spotlighted by the media, the public has an overall distrust of South Carolina DHEC. The

distrust of the public, coupled with DHEC's primary focus on the delivery of billable individual

services has severely damaged community partnerships. As a result, regional DHEC employees

no longer participate in community meetings or events which have culminated a workforce that

is unable to describe the population. Due to the inability to identify the needs of the population,

visit numbers continue to decline annually.

Contextual elements that impacted the project included employee turnover and leadership

dynamics. During the course of this project, three of the six program managers resigned from

the agency and replacements have yet to be hired. The agency leadership was challenging

throughout the project, as workforce development is not an agency priority and the leadership

itself does not have a strong background in public health. The leadership priorities, lack of

education and work experience, coupled with the staff turnover rate, could be in part some of the factors that result in South Carolina ranking 42nd in the nation for overall health outcomes.

Conclusion

It is imperative to maintain a highly developed public health workforce that is able quickly and efficiently respond to new communicable disease epidemics and to mitigate health disparities to improve health outcomes. South Carolina is no exception. A thorough assessment of the public health workforce competency level followed by the implementation of a comprehensive workforce development plan will precipitate progression in the goals of becoming the premiere public health agency in the southeast and achieving a higher ranking by America's health rankings. By utilizing the Program Managers as the implementation group, valuable information was obtained that can be used to most effectively complete an agency wide competency assessment followed by the development of an agency wide workforce development plan. The results of this project were shared with the Midlands Region leadership team and select members of the executive leadership team in hope that there will be a recognized need for strengthening the South Carolina public health workforce.

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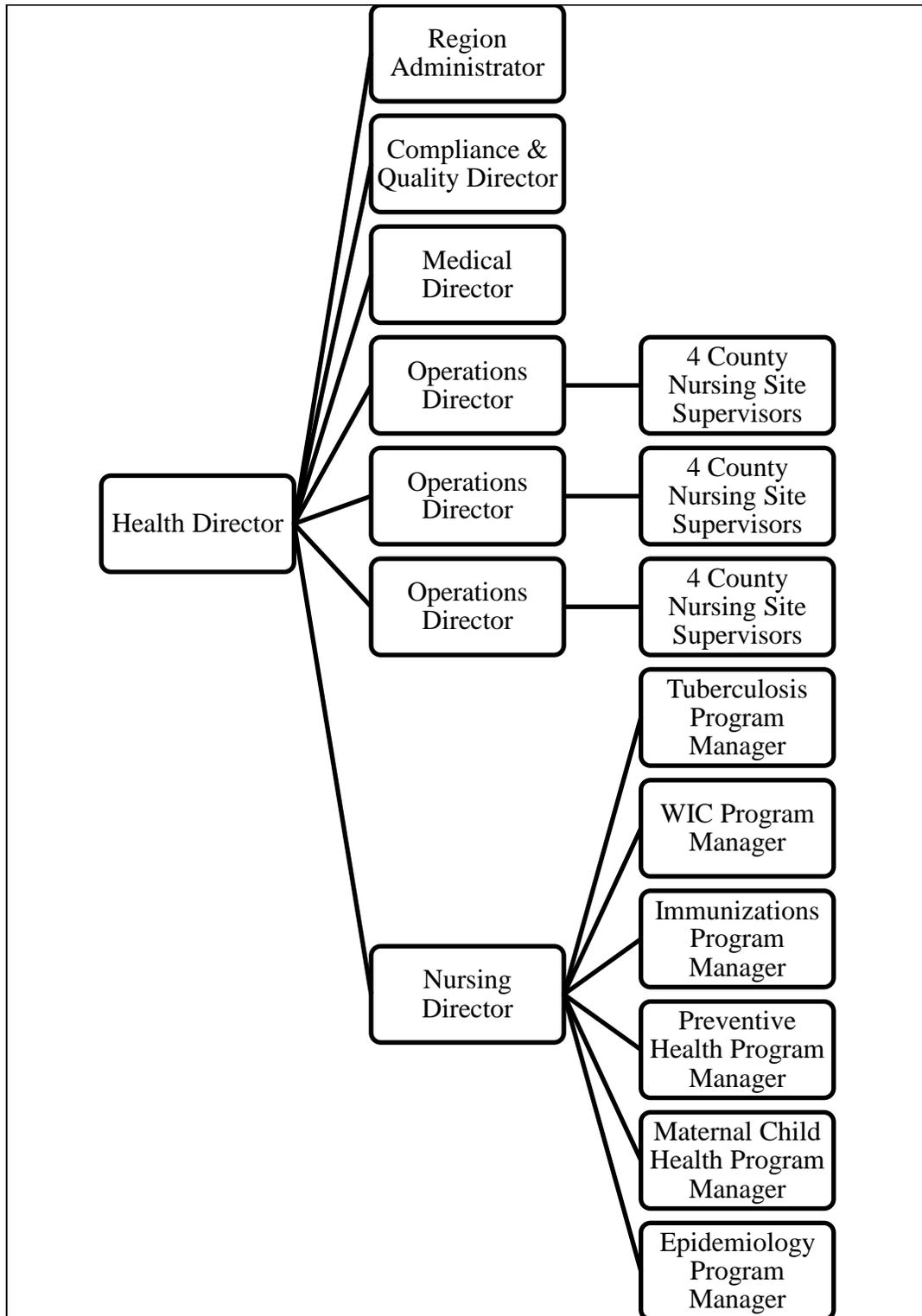
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Appendix A

Midlands Region Organization Chart

Appendix B

IRB Memorandum

University of Massachusetts Amherst
108 Research Administration Building
70 Butterfield Terrace
Amherst, MA 01003-9242

Human Research Protection Office
Research Affairs

Telephone: 545-3428
FAX: 577-1728

MEMORANDUM

To: Zienna Blackwell, College of Nursing
From: Human Research Protection Office
Date: May 26, 2016

Project Title: Developing the South Carolina Public Health Workforce to Improve
Health Outcomes

IRB Number: 16-48

The Human Research Protection Office (HRPO) has evaluated the above named project and has made the following determination:

☐ The activity does not involve research that obtains information about living individuals.

☐ The activity does not involve intervention or interaction with individuals OR does not use identifiable private information.

☒ The activity is not considered research under the human subject regulations. (Research is defined as "a systematic investigation designed to develop or contribute to generalizable knowledge.)

☐   The activity is determined to meet the definition of human subject research under federal regulations and requires submission of applicable materials for IRB review.

For activities requiring review, please see our web pages for more on types of review or submitting a new protocol. For assistance do not hesitate to contact the Human Research Protection Office at 545-3428 for assistance.