

The Management Academy for Public Health: The South Carolina Experience

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In the late 1990s, the South Carolina Department of Health and Environmental Control (SCDHEC) was faced with the challenges of a workforce that was not prepared in public health; the impending loss of significant agency expertise, leadership, and institutional knowledge through retirement; the lack of available and accessible training; and continuing state budget cuts. Preparedness for bioterrorism and other public health emergencies was also of concern, a need made more urgent after 2001. To respond to current and emerging public health challenges, the SCDHEC had to have a workforce with the knowledge and skills necessary for the delivery of essential public health services. To address these challenges, the department partnered with the University of North Carolina in the pilot of the Management Academy for Public Health. The Management Academy is now integrated into the South Carolina workforce development strategy, and 199 staff members and 22 community partners have graduated from the program. Along with increased knowledge, skills, and abilities of individual staff and increased organizational and community capacity, a significant result of South Carolina's experience with the Management Academy for Public Health is the development of a training program for emergency preparedness modeled on the Management Academy. This highly successful program illustrates the replicability of the Management Academy model.

KEY WORDS: management development, managers, public health, public health preparedness, training

The South Carolina Department of Health and Environmental Control (SCDHEC) is the public health

and environmental protection agency for the state. The SCDHEC touches the life of every South Carolinian, from making sure that drinking water is clean and beaches are healthy to assuring immunizations are provided to the most vulnerable populations, to planning for the event of a bioterrorism attack, hurricane, or other threats to safety. The agency was created in 1973 when the General Assembly reunited the State Board of Health (created in 1878) and the Pollution Control Authority. The agency is supervised by the Board of Health and Environmental Control, which has seven members, one from each congressional district and one at large, all appointed by the governor.

The SCDHEC is centrally organized under four deputy areas: Environmental Quality Control, Health Services, Health Regulations, and Ocean and Coastal Resource Management. The department performs its mission of *promoting and protecting the health of the public and the environment* with approximately 4,700 full-time and 500 temporary/hourly employees who provide services through a state central office and 8 regional and 46 county offices. After 9/11, the SCDHEC established an Office of Public Health Preparedness, whose 130 full-time employees are responsible for strengthening public health capabilities for epidemic disease control and emergency response.

In coordination with a Robert Wood Johnson Turning Point Initiative, the agency conducted a comprehensive assessment and analysis of the public health workforce in 1999, with two overarching findings: only a small percentage (3.6%) of the SCDHEC workforce come to the agency prepared in public health, and about a quarter

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of the staff with years of expertise in public health leadership (~1,100) would be eligible for retirement within 2 to 4 years.

The agency faced the challenge of a staff without formal training in public health, the impending exodus of seasoned staff through retirement, the lack of available and accessible public health training for the workforce, and continued budget cuts. The agency had to make sure that SCDHEC personnel were trained in basic public health and had the knowledge and skills necessary to meet current and emerging demands.

● **Methods**

When the University of North Carolina School of Public Health approached the agency for participation in the Management Academy for Public Health pilot, the SCDHEC Executive Management Team recognized the unique opportunity that the Management Academy could provide for developing a competent workforce for public health management. The training program offered a business approach to competency-based skill development in managing people, data, money, and partnerships. The Management Academy complemented the agency’s strategic planning goal of strengthening organizational capacity, and the program quickly became a component of the agency’s workforce development and capacity-building initiative.

The agency’s approach was to target managers at the state, regional, and local levels who were currently in or might soon be assuming managerial roles. The first SCDHEC teams were not all naturally occurring work teams; many were staff members from different geographical areas, programs, and deputy areas brought together about subjects of common interest and/or priority. Early teams were composed of only SCDHEC staff, but to promote collaboration and building partnerships, the SCDHEC, with encouragement from the Management Academy, soon established that each team must include a community partner.

The Management Academy was institutionalized through the agency’s strategic planning and the Employee Performance and Development Plan (EPDP)

processes: attending the Management Academy became an objective in many staff members’ development plans, and areas of the agency used the Management Academy as a requisite for certain positions.

Table 1 summarizes the state’s level of participation in the Management Academy for Public Health.

Through a targeted recruitment strategy, the agency now has 199 staff members and 22 community partners who have graduated from the Management Academy. The agency has had participation from all health regions and all areas of agency administration. Most participants (179) are from the Health Services deputy area, which is responsible for the direct delivery of the more traditional public health services: maternal and child health; home healthcare; laboratory functions; chronic and infectious diseases; and environmental health. All of the agency’s regional management teams have staff that completed the Management Academy.

Table 2 lists the wide variety of public health issues addressed by South Carolina attendees to the Management Academy for Public Health. The goal of this participation has been to enhance overall capacity to meet public health challenges.

Participation in the Management Academy was originally funded through the Centers for Disease Control and Prevention Bioterrorism Grant for public health infrastructure and preparedness, first awarded in 1999. Since that time, although those funds have declined, bioterrorism preparedness has been a central responsibility of the department and its Office of Public Health Preparedness. In January 2002, the federal Health Resources and Services Administration established the Bioterrorism Hospital Preparedness Program, which required health departments to develop work plans for epidemic response, emergency communications, and bioterrorism disaster drills, specifically geared toward hospitals, but involving the coordination of other services integral to emergency preparedness.

In response to this new requirement, an SCDHEC team enrolled in the 2002–2003 (year 4) Management Academy to develop a bioterrorism resource for South Carolina hospitals. This team included the SCDHEC Bioterrorism Preparedness Training Director, as well as other key SCDHEC managers, and a representative

TABLE 1 ● SCDHEC participation in UNC Management Academy for Public Health*

	1999–2000	2000–2001	2001–2002	2002–2003	2003–2004	2004–2005
# DHEC participants	26	48	65	19	27	14
# Community partners	0	0	4	7	7	4
Total participants	26	48	69	26	34	18
Grand total 221 (199 DHEC staff, 22 community partners—51 teams)						
# Teams	7	11	15	6	8	4

*SCDHEC indicates South Carolina Department of Health and Environmental Control; UNC, University of North Carolina.

TABLE 2 ● South Carolina teams attending the UNC Management Academy for Public Health*

Team/health district	Problem	Business plan
Year 1		
SCDHEC	STD/AIDS	Program that uses teens to deliver STD and sexual abstinence messages through a drama group
Lower Savannah	Healthcare for poor	Improving primary care coverage for Medicaid-eligible children
Edisto	Pediatric asthma	Improving indoor air quality in schools
SCDHEC	Epidemiological surveillance	A multihealth district effort to strengthen the effectiveness of district epidemiology teams to detect and do preventive follow-up for acute disease clusters, including (but not limited to) possible food-borne disease outbreaks
Wateree	Chronic heart disease	A county-wide collaborative effort to reduce the risk factors leading to cardiovascular mortality, partnering with the (USC/DHEC) Physical Activity Grant staff and local restaurants
Waccamaw	Access to healthcare	Combining two clinic locations to create a comprehensive integrated delivery system, ensuring access to healthcare for the medically underserved, including uninsured and underinsured
Appalachia I	Healthcare quality	Create a district health advisory board
Year 2		
SCDHEC	Preventive healthcare	Improve access to preventive healthcare services in Pickens County, South Carolina
Pee Dee	Diabetes	Program to improve diabetes self-management and service utilization
SCDHEC	Health disparities	Pin the Palmetto: Winning strategies to eliminate health disparities
Waccamaw	Healthcare for working poor	Preventive health plan with local employers
Wateree	Hepatitis C	"Train the Trainers" program for education about hepatitis C and preventive measures
SCDHEC	Medicaid funding	State Medicaid funding project
SCDHEC	Health disparities	A comprehensive plan for the Bureau of Community Health to further integrate and maintain programmatic efforts and promote fiscal and staff resources
Appalachia I	Health disparities	Community partnership to address an identified health disparity
SCDHEC	HIV/AIDS	HIV/AIDS education project
SCDHEC	Accidental injuries	A plan to involve county administration, Department of Transportation Law Enforcement, hospital, and existing organizations to reduce injuries and fatalities in Richland County
Lexington	Low birth weight	Identifying public health issues that affect the low-birth-weight rate
Year 3		
SCDHEC	Hepatitis C	An integrated community education approach including prevention, screening, referral, education, and surveillance; partnering with pharmaceutical companies and multiple community agencies; funding is under way
Catawba	General health	"Healthy and Whole" faith-based initiative; grant funding \$87,500
Trident	Health disparities	Healthcare plan for Hispanic women and children
Low Country	Injury prevention	In-Home Injury Prevention for Seniors project aimed at providing assessments to identify safety hazards in the home and to access resource and provide assistance to ensure a "safe home" environment for seniors aged 60 years and older
SCDHEC	Adolescent crime	TRANS Program—Teens Reaching a New Start—community-wide integrated approach at reducing juvenile recidivism in South Carolina
Appalachia II	Domestic violence	Facilitate, coordinate, and expand community partnerships aimed at increasing awareness of the health effects of domestic violence
Palmetto	Environmental health	Lead Poisoning Abatement Program
SCDHEC	Food safety	Are You On The "A" Team? Food-safety project aims to increase compliance in restaurants and educate consumers about food-safety issues using a variety of media; implemented
SCDHEC	Women's health	South Carolina Women's Health Foundation
Wateree	Health disparities	"Soulfully Fit": An African American faith-based healthy lifestyle program Blue Ribbon winner, April 2002
Pee Dee	Youth tobacco use	Multiagency collaboration to reduce tobacco access and use in 12- to 13-year-olds in Florence County
SCDHEC	Healthcare quality	A fee-based educational "compliance" workshop for licensed healthcare facilities' administrators and staff addressing the top complaints and noncompliance items noted in inspections

(continues)

TABLE 2 ● South Carolina teams attending the UNC Management Academy for Public Health* (Continued)

Team/health district	Problem	Business plan
Appalachia I	Osteoporosis	Osteoporosis awareness and prevention program aimed at improving the identification, screening, and referral of those at risk
SCDHEC	Health disparities	One-stop health complex project located at the former Chopee High School seeks to provide clinical and other services to underserved African American community
Edisto	Diabetes	Partnering to impact diabetes
Bureau of Drug Control	Illegal drug use	Program to control illicit release and misuse of narcotics therapy to reduce the overdose and long-term arrest rates within the community
Year 4		
Palmetto	Gynecological cancer	WECARE—women's colposcopic and repeat examinations
SCDHEC	Adolescent obesity	Healthy Body Achievers: Program to work with medical professionals, dieticians, and fitness experts to develop best practices for educating girls about preventing obesity
Waccamaw	Health disparities	Faith in Health in Action, working with local African American churches to increase access to health information for their members
Appalachia II	Dental health	Molar Rollers mobile dental unit; Blue Ribbon winner
SCDHEC	Bioterrorism preparedness	Bioterrorism and hospital training ("BioBunch")
Appalachia III	HIV/AIDS	Association for HIV treatment
Year 5		
Trident	Preparedness	Multiagency consortium of healthcare providers and institutions to deal with all hazards, natural and manmade, in three counties (9 hospitals—501-c6)
SCDHEC	Indoor air quality	Prevent air-borne agents through the ventilation systems, and development of a facilities readiness checklist
Lower Savannah	HIV/AIDS	Partnering Title III and Title II Ryan White functions to increase local capacity in serving the HIV/AIDS population
Richland	Maternal and child health	Program to decrease the incidence of preterm labor among women in Richland County
Edisto	Workplace health and safety	Worksite wellness program
Lexington	Adolescent health	Healthy lifestyles for adolescents
Appalachia II	Obesity	Program to prevent overweight/obesity
SCDHEC	Heart disease	"Phone Home" telemonitoring program—pilot program to expand number of CHF patients while maintaining quality outcomes
Year 6		
Palmetto	Obesity	Fitness Buddies—a childhood obesity mentoring program
Appalachia I	Preparedness	Critical Incident Consultants of the Carolinas
Edisto	Asthma	Trigger Busters—community asthma prevention program
Appalachia II	Children's health	"Fit Kids R Us"

*UNC indicates University of North Carolina; SCDHEC, South Carolina Department of Health and Environmental Control; STD, sexually transmitted disease; AIDS, acquired immunodeficiency syndrome; USC, University of South Carolina; HIV, human immunodeficiency virus; and CHF, congestive heart failure.

from the South Carolina Hospital Association. They called themselves the "BioBunch" and created a plan for the BTREK—the Bioterrorism Training, Response and Evaluation Kit—which included training modules, a guide for conducting and assessing tabletop exercises, flow charts for managing biological agents, and other resources for healthcare preparedness.

● Results

Although BTREK was a good instructional tool, it was recognized that public health preparedness goes beyond the scope of a traditional educational approach. It

requires extensive planning and collaboration with traditional and nontraditional response agencies. Emergency preparedness training was highly specialized by discipline, and opportunities to cross-train with public health were virtually nonexistent. The challenge for South Carolina was to develop comprehensive training for building preparedness capacity among state public health workers and all response partners.

Building on the experience of the Management Academy, the Bioterrorism Training Director saw the concept of the team-based learning as a practical approach to bring the partners together to train and work toward a common goal. With this idea in mind, the SCDHEC partnered with the University of South

Carolina Center for Public Health Preparedness (USC-CPHP) to establish an academy modeled after the Management Academy that would address both partners' grant requirements, shared goals, and help build a cohesive community response. The partners incorporated a business plan approach for planning the Academy for Public Health Emergency Preparedness (APHEP). As a result, two overarching goals for the APHEP were established: (1) to strengthen interdisciplinary collaborative effectiveness in relation to public health emergency responses; and (2) to strengthen individual and organizational capacities to manage public health emergencies.

The Academy for Public Health Emergency Preparedness

Several elements of the APHEP are modeled on the Management Academy for Public Health, including (1) the curriculum is presented over a several month period, with work time spent at the training site and at scholars' organizations; (2) scholars attend in teams; and (3) teams complete a project (a tabletop exercise) to demonstrate their acquisition of skills and knowledge from the program.

Curriculum

The supporting curriculum is designed to help team members build knowledge and skills in exercise design, public health role in incident command, forensic epidemiology, and risk communication. Existing courses are used and taught by experts from the Federal Emergency Management Agency, the National Association of County and City Health Officials, the Centers for Disease Control and Prevention, and local agencies. Team-building activities are also integral to the on-site sessions. The SCDHEC and USC-CPHP design team serve as the APHEP staff members who plan sessions, develop curriculum, prepare materials, and mentor students.

Over a 6-month period, the teams come to Columbia for two 3-day sessions and end with a 2-day session to present overviews and lessons learned from their tabletop exercise. As in the Management Academy, APHEP staff coach the teams in between sessions as they worked on components of designing the exercise. The APHEP staff travel to each location to observe the tabletop and evaluate the team's application of knowledge gained.

Team-based learning

The public health preparedness directors in the SCDHEC health regions each select teams of between 8 and 10 members representing all disciplines that would

be involved in an actual response: at least one law enforcement officer, one county emergency manager, one hospital infection control practitioner or emergency department personnel, one public health preparedness director, and one epidemiologist. Some teams include partners from bordering counties in Georgia. Teams are encouraged to expand the core team during planning meetings to include representation across all disciplines.

Learning project

The capstone project for the APHEP is an assignment similar to the Management Academy business plan, except that it is geared toward building capacity for emergency preparedness rather than capacity for creating a financially sustainable program in other public health arenas. For the first 2 years of the APHEP (2003–2004 and 2004–2005), the capstone project was to plan and conduct a tabletop exercise. In year 3 (2005–2006), teams would be developing mass casualty plans. The teams are coached between sessions by the APHEP staff members who travel to each location to observe the exercises and evaluate the team's application of knowledge gained.

Results

Since 2003, 185 individuals have been graduated from the APHEP, and 80 are enrolled in the current year (2005–2006). Of the graduates, 73 are public health staff members, and 112 are community response partners. The current cohort includes 31 public health staff members and 41 community response partners, including representatives from bordering counties in Georgia.

A comprehensive evaluation of process and outcomes has been conducted after each APHEP session, as well as a follow-up evaluation at 6 months. Participants evaluated so far (cohorts I and II) reported strengthened collaborative effectiveness in relation to bioterrorism preparedness through relationship building, both within and outside of their teams.^{1–3} Specifically, results indicated a significant increase in networking, communication, and coordination between individuals from different agencies who were on the same teams, as well as significantly increased collaboration with other teams. Participants also reported an increased familiarity with teammates and enhanced appreciation of others' contributions. These results are presented in more detail elsewhere.⁴

● **Lessons Learned**

The following lessons pertain to the applicability of the Management Academy model to a preparedness

training program, and speak to the more general replicability of that model.

Curriculum

Like the Management Academy for Public Health, the APHEP is a challenging course of study with very concrete goals. In both cases, the program is meant to change how participants think about their jobs. In the case of the Management Academy, “entrepreneurial thinking” informs everything students are asked to do. In the case of the APHEP, the idea that informs the curriculum is “relationship building.” For effective emergency management, law enforcement personnel must understand what epidemiologists do, and vice versa; hospital workers must understand how emergency communicators get messages to the public, and how the public health infrastructure is organized.

Team process

An outgrowth of the curriculum goals, team-based learning is also a critical success factor for the APHEP. The program’s use of teams differs slightly from that of the Management Academy. The South Carolina teams brought together for the Management Academy are self-selected, made up primarily of public health managers and one community member. The purpose of having teams is to maximize impact at the health department and facilitate the creation of a business plan; the community member is included both to enhance the probability of the business plan’s success and to open doors for more cooperative endeavors in the future.

The APHEP teams include at least three or four community members, rather than one, and are determined on the basis of SCDHEC recommendations about who should be included to ensure representation of key disciplines and organizations. Broad representation is crucial to the program’s primary goal to enhance collaboration, coordination, and communication in the event of an emergency.

Working in teams was a challenge for Management Academy participants from South Carolina. The earliest Management Academy teams were rich with diversity of knowledge, skills, and experience, but the fact that members had neither a common work experience nor geographical proximity was a challenge for developing team dynamics. Beyond building trust, establishing a common goal, and learning how to coordinate and cooperate, these teams had the additional challenge of having to communicate long-distance or travel to work together, and not having frequent informal opportunities to build a cohesive team. After the first 2 years, the agency moved to defining a team as a group of people that already had a working relationship, and the project

of interest might be the basis of that relationship. The APHEP teams were based on the same criteria, thus avoiding some of the difficulties faced by early Management Academy teams.

APHEP participants report a positive change in collaborations and a “significant increase in networking, communication, and coordination” between individuals, organizations, and disciplines, not only with teammates but also with others from different teams or cohorts.^{4(p58)}

Learning project

The Management Academy business plan illustrates the acquisition of skills by the scholars, and is meant to be implemented, thus potentially providing a concrete benefit to the health departments and communities involved. For the APHEP program, the exercise also has multiple purposes. Participants examine an emergency scenario and develop plans for addressing it. Teams take their individual response roles and combine them into a comprehensive plan of action. The purpose of the exercise is both to learn and to evaluate the current system—identifying gaps, inconsistencies, or duplications in policies, plans, and procedures. Finally, an after-action report is used to evaluate the exercise and develop a final work plan. Participants must understand organizational structures, human resources, and communication systems that go into responding to emergencies.

As a learning tool, creating a tabletop exercise illustrates the acquisition of core public health emergency preparedness competencies (Table 3).⁵

The APHEP project both solidifies those competencies in the participants and adds to the literature

TABLE 3 • Competencies related to emergency response activities in public health

- Define situations that require an emergency response
- Describe the responsibilities of a health department during an emergency
- Describe your health department’s emergency response plan
- Describe the incident command system in your community
- Use emergency communication equipment
- Perform your communication role in an emergency (communication within the health department, with the media, or with the community)
- Find resources that will help you carry out your responsibilities during an emergency
- Describe the signs and symptoms of biological agents that may be used in a bioterrorist attack (ie, plague, small pox, anthrax), and respond appropriately when you suspect someone in your community has been exposed to one of these agents
- Describe the signs and symptoms of an emergency, and respond appropriately
- Apply creative problem solving and flexible thinking to unusual challenges

available to other planners. Since its inception, the APHEP has produced 20 tabletop exercises, adding to the state's overall response effort. A total of 71.4 percent of participants rated their satisfaction with the tabletop exercise as "good" or "excellent."⁴⁽⁵⁷⁾

● Conclusion

When faced with critical challenges in workforce development, the SCDHEC incorporated the Management Academy as an integral component of its workforce development and capacity-building initiative. In inspiring and forming the creation of the APHEP, this capacity building has been extended to emergency preparedness by enhancing the training efforts of the state and local communities.

The Management Academy for Public Health advocates finding ways to make public health programs sustain themselves financially. The Management Academy itself is sustainable because it charges participants' tuition to attend the program. With the significant cuts in state budgets and federal resources (particularly public health preparedness funds), a challenge for continued Management Academy participation by the SCDHEC will be identifying resources to meet the interest and demand that have been generated over the past 6 years.

The Management Academy has been institutionalized, and the agency remains committed, but the agency's ability to sustain the past level of participation will be limited. Table 1 (see above) documents the recent decline in the number of participants from South Carolina.

As part of their federal preparedness grants, the SCDHEC and the USC-CPHP share the costs of the APHEP program. The primary goal is to support the capacity of South Carolina's public health workforce to meet ongoing and emerging challenges through workforce development programs that give them skills, knowledge, and new ways of thinking about their tasks.

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