

Community Colleges and Public Health Making the Connections

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Abstract: Community colleges, in collaboration with public health agencies, can advance public health education by reaching a diverse student body, integrating public health into general education, and providing specialized associate degrees that serve workforce needs. Career ladders that include transferability of coursework to 4-year institutions and continuing education, including certificate programs, are key to success of these efforts. Community, or 2-year, colleges are well positioned to connect components of the Healthy People Curriculum Task Force's Education for Health framework by providing general education core courses in public health, epidemiology, and global health compatible with the educated citizen and public health movement. To serve specific workforce needs, associate degree programs are proposed, including environmental health, public health preparedness, public health informatics, and pre-health education. A generalist option designed for transfer to public health and related majors at 4-year institutions is also recommended.

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Healthy People 2020 includes a new regular objective to increase the proportion of 2-year colleges offering public health or related associate degrees and/or certificate programs. The collection of baseline data for the objective, made possible with funding through the Association of Schools of Public Health (ASPH)–CDC cooperative agreement in partnership with the American Association of Community Colleges, suggests that fewer than 2% of community colleges offered public health or related associate degrees in the 2009–2010 academic year. Enrolling 44% of all undergraduates and training the majority of healthcare workers, including nearly 60% of new nurses, community colleges have the potential to substantially contribute to strengthening the public health workforce. Collaboration with public health agencies will be essential if the proposed vision for public health in community colleges is to be realized.

Education for Health and Community Colleges

An evolution is taking place in public health education. Graduate students are no longer the exclusive audience for public health studies as the movement toward inte-

grating public health into undergraduate education is rapidly developing. This expanding interest was reflected in *The Chronicle of Higher Education*, which identified public health as one of the five most rapidly growing undergraduate majors.¹ Most of the observed growth has occurred in 4-year institutions whereas 2-year institutions have been, up until this point, an untapped audience. As the field continues to evolve, though, this may be about to change.

The Education for Health framework, proposed by the Healthy People Curriculum Task Force, highlights the need for the integration of education on all levels, bringing together the areas of health literacy, undergraduate public health, and evidence-based practice. Even though the Education for Health framework and Healthy People 2020 distinguish separate objectives for 4-year and 2-year institutions, an overall aim of the framework is to connect the educational offerings among institutions and to facilitate movement from education to the workforce and from the workforce back to education. The development and implementation of a coherent process is central to the success of the Education for Health framework. Community colleges are integral to this process, making the connections between K–12 education and 4-year institutions, providing access to higher education to all who seek it, regardless of economic or educational backgrounds.

These publicly funded 2-year institutions place an emphasis on serving the community by offering an affordable and accessible education, often to those who may not otherwise pursue higher education. This article will look at potential roles of 2-year, or community, colleges in

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connecting with 4-year colleges and the public health workforce to help address public health workforce needs.

The roles of community colleges are complex and growing due, in part, to the diverse needs of the population they serve. One audience community colleges serve is recent high school graduates who utilize community colleges as a step on the way to a 4-year degree. Other students seek associate degrees intended to prepare them for entry-level jobs. In addition, many individuals of all ages and backgrounds now return to community colleges after, or while, working to pursue continuing education, to enhance skills or explore career changes, often in the form of certificate programs.

Community colleges have become a major component of the educational process, which cannot be ignored. As indicated in Table 1, community college students constitute 44% of all undergraduates today, and approximately half of all bachelor's degree recipients have attended a community college at some point in their education. Among the 1177 community colleges recognized by the American Association of Community Colleges in academic year 2009–2010, 11.7 million students were enrolled. Community college students are highly representative of the American population, including underrepresented minorities, who constitute ~36% of the community college student population. Community colleges have a strong tradition of preparing the healthcare workforce, with nearly 60% of all nurses and the majority of healthcare workers being educated in community colleges.² A recognition and understanding of the important contributions that community colleges already have made in healthcare workforce development can shed light on their potential to assist with strengthening the public health workforce. Defining the roles that community colleges can and should play in the field of public health is key to developing a coherent approach for link-

ing the components of the Education for Health framework.

Potential Roles of Community Colleges in Education for Health

Community colleges can play two key roles in implementing the Education for Health framework. They can provide general education core courses compatible with the educated citizen and public health movement, which sets out to promote the integration of public health perspectives in a comprehensive liberal education framework. They also can provide public health workforce-related associate degrees and certificate programs to prepare students for public health careers that include career ladders.

Core public health courses offered at 2-year institutions as part of general education should be interchangeable with those offered at 4-year institutions. This is critical to the ability to transfer courses to 4-year institutions and to satisfy general education requirements. For example, core curriculum such as Public Health 101, Epidemiology 101, and Global Health 101 are increasingly relevant to all college students as they read the newspaper, search the web, and are exposed to the multitude of public health issues faced by their generation from AIDS, to the impacts of aging, to the costs of health care.³ All these issues could be integrated successfully into a community college degree or certificate program.

Community colleges, however, have an additional role to play in meeting the needs of the public health workforce. In December 2008, the Association of Schools of Public Health (ASPH) produced a report estimating the number of local, state, and federal governmental public health workers needed by 2020 at 250,000. These workers are needed to replace governmental worker retirements and return the public health worker-to-population ratio to its 1980 level of

Table 1. Data on community colleges

Institutions (n)	Students enrolled (n)	Percentage of all U.S. undergraduates (%)	Percentage of all bachelor's degree recipients who attended a community college (%)	Percentage of community college student enrollees (%)	Percentage of health workers (%)		
1177	11.7 million	44	~50	Minorities	36 ^a	Allied health workers	63
				Black	13	Nurses	59
				Hispanic	16		
				Asian/Pacific Islander	7		
				Native American	1		

Source: American Association of Community Colleges, 2009²

^aPercentages do not add to total because of rounding.

220 public health workers for every 100,000 U.S. residents.⁴ It is not yet clear how many of the needed 250,000 public health workers can and should be educated at community colleges. Active involvement of the public health practice community will be needed to determine which of the current and changing needs of the public health workforce can be fulfilled by community colleges.

Healthy People 2020 and Community Colleges

A new, regular Healthy People 2020 objective for community colleges provides a leverage point for the development of public health curricula in community colleges. The objective reads:

Increase the proportion of 2 year colleges that offer public health or related associate degrees and/or certificate programs.

Associate degrees are generally 2-year degrees and include 1 year of general education. Certificate programs, offered for academic credit, are generally professionally focused 1-year programs taken by individuals who have been, or are still, in the workforce.

This objective originally was proposed as a developmental objective because baseline data were not yet available. However, the collection of baseline data has been made possible with funding from the CDC through the ASPH–CDC cooperative agreement, in partnership with the American Association of Community Colleges. Table 2 displays the baseline data allowing conversion from a developmental to a regular Healthy People 2020 objective, included in the final set of Healthy People 2020 objectives. In the 2009–2010 academic year, an estimated 1.58% of community colleges offered public health or related associate degrees and/or for-credit certificate programs. The Healthy People 2020 Public Health Infrastructure Workgroup has incorporated these data in the target-setting process for development of the 2020 target for this objective.

Table 2. Baseline data for Healthy People 2020 2-year institutions objective

Program/degree	Estimated percentage (95% CI)
Community colleges with associate degrees and/or certificate programs in public health or related fields	1.58 (0.70, 2.46)
Associate degrees	1.58 (0.70, 2.46)
Certificate programs	0.25 (0.25, 2.11) ^a

^aBecause of very low frequencies of certificate programs, the estimated CI was calculated based on a simple random sample.

Connecting Community Colleges and Public Health

As efforts begin to address the Healthy People 2020 objective that relate to the 2-year colleges, the public health workforce is presented with an opportunity to actively participate in the process, providing guidance on the structure and evaluation of prototype programs that address the needs of the workforce while meeting the needs of students. As a starting point for this process, a set of principles compatible with the Education for Health framework are proposed. The public health community should collaborate with community colleges to

- gear curricula to areas of defined and long-term workforce needs;
- build career ladders into the process by connecting 2-year and 4-year institutions and, as much as possible, graduate education;
- offer certificate programs as well as associate degrees to encourage current workers seeking new opportunities to return to the classroom;
- apply to the field of public health the community colleges' extensive experience preparing graduates for the clinical health professions workforce;
- build professional degree programs on the same type of core public health curriculum that has been recommended for all 4-year and 2-year institutions.

Prototype Public Health Associate Degrees and Certificate Programs

The Healthy People 2020 objective implies a link to the public health workforce but it does not define any specific associate degree or certificate programs or suggest particular structures. To provide tangible curriculum guidance, four potential prototype public health associate degrees and certificate programs are discussed in Table 3:

- Environmental Health Technician
- Public Health Preparedness
- Public Health Informatics
- Pre–Health Educator

These prototypes are the result of a review of the identified overall public health workforce needs and community college structure and consultations with the USDHHS/OPHS Public Health Systems Working Group as well as other national public health organizations. All of these prototypes are designed to ensure a career ladder. That is, they are designed to encourage articulation of the curricula of 2-year and 4-year institutions and often encourage continuing career development at the graduate level. The current framework of environmental health provides many of these elements. Graduates of 2-year institutions are eligible to take the

Table 3. Prototype associate degrees/certificate programs: sample curriculum requirements

<p>Four prototype public health programs designed for implementation in community colleges recently have been outlined in the <i>Community College Journal</i>,⁵ a publication of the American Association of Community Colleges. Each of the prototype curricula include the core introductory “101” curriculum (Public Health 101, Epidemiology 101, and Global Health 101). They also include an experiential learning component, including community- or field work–based curriculum. Each prototype aims to fulfill a unique workforce need defined by the following specialized curricula.</p>
<p>Environmental Health Specialty courses 18 semester hours designed to fulfill the educational requirements for the Environmental Health Technician certification providing experiential career-oriented learning opportunities.</p> <ul style="list-style-type: none"> ● Principles of Environmental and Occupational Health (3 semester hours) ● Courses cover the following content areas of the Environmental Health Technician Certification examination: (15 semester hours) <ul style="list-style-type: none"> Food Vector and Pest Control Occupational Health/Hazardous Exposure Water Housing/Shelter–Environment Toxicology Air Pollution Solid Waste Waste Water
<p>Public Health Preparedness Specialty courses 18 semester hours designed to prepare students for an all-hazards approach to public health preparedness. Graduates will acquire a range of skills necessary for prevention, detection, and response to outbreaks, emergencies, and disasters as well as skills and knowledge, enabling them to obtain entry-level positions as generalists in public health.</p> <ul style="list-style-type: none"> ● Overview of Public Health Preparedness (3 semester hours) ● Implementing and Managing Public Health Preparedness (3 semester hours) ● Health Information Systems (3 semester hours) ● Health Communications (3 semester hours) ● Environmental Health (3 semester hours) ● Applied Epidemiology (3 semester hours)
<p>Public Health Informatics Specialty courses 18 semester hours designed to prepare graduates for careers in public health informatics that enable them to work as part of a team to collect and manage epidemiology data, including surveillance activities and outbreak investigations. Graduates will acquire a range of skills necessary for developing and implementing research studies, obtaining and managing high-quality data, and participating in field investigations, including acute outbreaks.</p> <ul style="list-style-type: none"> ● Principles of Biostatistics (3 semester hours) ● Introduction to Computerized Data Systems (3 semester hours) ● Applications of Computerized Data Systems (3 semester hours) ● Introduction to Study Design (3 semester hours) ● Data Collection and Data Quality (3 semester hours) ● Surveillance and Public Health Data Systems (3 semester hours)
<p>Pre–Health Educator Specialty courses The Pre–Health Educator curriculum is designed to prepare community college graduates to enter health education programs in bachelor’s degree–granting institutions. The curriculum is designed as a concentration but may be included as part of an associate degree or certificate in Community Health or other public health–related discipline. It includes 6 semester hours of coursework that covers fundamental principles and applications of health behavior and health communications:</p> <ul style="list-style-type: none"> ● Health behavior (3 semester hours) ● Health communications (3 semester hours)

certifying examination as an Environmental Health Technician.⁶ More than 130 4-year institutions offer environmental sciences degrees and many others offer curricula that allow bachelor’s degree graduates to take the certifying examination as an Environmental Health Specialist.⁷ Master’s and doctoral degrees in environmental health, in theory, should complement these degrees and provide the potential for a fully developed career ladder. Although not yet packaged as a career ladder, the experiences of the environmental health path can inform other public health areas as they develop their own coherent educational continuum.

Learning from Others

Among the few community colleges that currently offer public health or related degrees and/or certificates, lessons can be gleaned from their experiences. Howard Community College (HCC), located in Columbia MD recently designed and implemented an Arts and Sciences Associate of Arts transfer degree program in public health. The program has been designed to articulate with the Health Administration and Policy Program public health track at the University of Maryland Baltimore County (UMBC) and earns transfer students credits at the upper-division level at UMBC for coursework completed at HCC.

Diné College, a tribal college located in Arizona, launched an Associate of Science degree in public health in the 2004–2005 academic year. The curriculum is constructed to allow students to either transfer to a 4-year institution or to enter directly into the workforce. It also allows for attainment of a certificate in public health for students unable to complete the full 4-year degree program.

Kingsborough Community College, City University of New York, has had an Associate of Science program in community health since 1985. The program is designed for transfer to baccalaureate programs, providing a foundation for careers with a population-based focus. In addition to the academic programs offered, Kingsborough Community College provides a range of continuing education and other staff training opportunities beneficial to those already employed in public health settings.

The City University of New York has also initiated a New Community College (NCC) plan, which advocates integrating public health into the education of all students, which is in line with the educated citizen and public health movement. In a White Paper on the development of the NCC, they indicate:

The NCC should be able to expose all students to the issues and perspectives of public health and at the same time encourage some portion of those students to become public health professionals. These goals resonate with the mission of the college, which includes both preparation of citizens and the development of a workforce. Students benefiting from the NCC curriculum are expected to acquire an understanding of the core values of public health: that it is population-based, it addresses prevention, justice and equity, and understanding among different groups; it is evidence-based; and it involves working with the community.⁸

The NCC goals can serve as a model for adoption by other community colleges to engage their students in public health issues and work toward an educated citizenry while also developing the public health workforce.

Next Steps

The key to acceptance of public health education in community colleges is availability of jobs for those who graduate with associate degrees or certificates in specific public health fields. This requires a process of engaging public health practitioners and their national organizations in identifying the workforce needs that can be addressed by community college graduates. This might proceed based on a review and additional vetting of the prototype associate degrees in environmental health, public health pre-

paredness, public health informatics, and pre-health education proposed in this article.

The overall needs of the public health workforce have been well documented, including the need to replace the large number of retirees in the next decade.⁴ The issue that remains is the potential for community college graduates to fulfill the requirements of many of these job openings. Informal discussions with public health agencies indicate that they already hire community college graduates and provide career ladders. Case studies describing the process and successful practices should be prepared and widely distributed.

Assessing the added benefit to public health of providing specialized public health associate degrees and certificate programs requires the engagement of public health practitioners and public health agencies at the local, state, and federal levels. Public health agencies need to formally assess these needs and work with community colleges to ensure standardized and quality curricula that include opportunities for experiential learning in public health agencies and other community settings.

Another potential catalyst to assist in meeting the Healthy People 2020 community college objective lies with the Patient Protection and Affordable Care Act, commonly referred to as the healthcare reform legislation, which includes two sections that could be used to dramatically increase the availability of jobs for recent community college graduates in health agencies. Section 5204 authorizes loan repayment funding for those with recent undergraduate as well as graduate degrees who commit to work in a qualified local, state, or federal health agency for 3 years. Section 5406 provides opportunities for scholarships for members of the current public health workforce to continue their education at 2-year and 4-year colleges as well as graduate programs. Public health agencies and organizations should consider all educational levels and opportunities, including associate-level degrees and certificates, when considering these sections of the legislation.

Vision for 2020

It can be envisioned that by 2020, community colleges will be well on their way to being as central to public health education as they currently are to clinical health professions education. Most community colleges will offer core public health coursework that satisfies general education requirements and permits transfer of credits to 4-year institutions.

Many community colleges will offer associate degree programs and certificate programs that address public health workforce needs such as environmental health, public health preparedness, public health informatics,

and pre–health education. These degree and certificate programs will provide career ladders and articulate with programs in 4-year institutions and as much as possible with graduate degree programs. In addition, a generalist public health associate degree option will soon become important for those students wishing to transfer from 2-year to 4-year institutions. A generalist option, like the other associate degree options presented in this article, could build upon public health general education courses. Among institutions that also provide workforce oriented public health associate degrees, introductory coursework in these areas of specialization could be offered to students enrolled in the generalist option. The generalist option could then serve as a key component of a public health career ladder, allowing articulation between 2-year, 4-year, and graduate education in public health.

Well before 2020, a mechanism will be needed to hold these pieces together and provide continuing education. One option is to expand the mission and funding of the Public Health Training Centers program of the Health Resources and Services Administration, which is now focused on strengthening the competence of the existing and entry-level public health workforce by providing accessible training opportunities for this target audience. An expanded scope and resources for the Training Centers could provide a vehicle to combine the continuing public health education needs of all levels of public health workers as well as the public health training needs of clinicians. In addition, the Public Health Training Centers could develop an ongoing mechanism to assess the educational needs and propose new and modified degree and certificate programs.

Conclusion

The process of achieving the goals and objectives of Healthy People 2020 will benefit immensely from the involvement and engagement of community colleges. The new national attention to community colleges with their focus on workforce needs and their ability to reach students representative of the entire U.S. population makes it imperative that public health education embrace

community colleges. By 2020, community colleges will be an integral part of public health education. Our nation needs and deserves no less.

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