Advising the Newest Faces of Public Health: A Perspective on the Undergraduate Student

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In the 20th century, public health education in the United States existed as a professional degree program, with training at the masters (MPH) and doctoral (PhD, DrPH, and ScD) levels.

Today, the system is rapidly evolving as undergraduate majors, minors, and concentrations are establishing themselves around the country. This new focus of public health education, rooted in a liberal arts environment, is distinct from the professional training of graduate school. As such, undergraduate public health students have unique characteristics and needs that should be considered as part of the advisors' responsibility to provide meaningful, relevant advising.

The perspective and comments presented here are largely based on the authors' nearly 30 years of combined experience in undergraduate public health education. (*Am J Public Health.* 2010;100:1374–1380. doi: 10.2105/AJPH.2009.180695)

HISTORICALLY, PUBLIC health and medicine were closely tied in the United States. In the early 1900s, the Flexner and Welch–Rose Reports distinguished between the two,[1] with the former addressing a failing medical education system and the latter recognizing public health as a separate entity with specific training needs. These documents set the stage for establishing formal public health education as a professional degree program. The educational structure was highly debated, with Welch advocating for a system that incorporated research and practical training, drawn respectively from German and English models. This system was epitomized in the Johns Hopkins School of Hygiene and Public Health (today The Bloomberg School of Public Health), founded in 1916. Other schools of public health, such as those at Harvard, Yale, Columbia, and Michigan, quickly followed. As the demand for training exceeded the capacity of existing programs, federal funds were later allocated for additional schools.[1]

Today, the Association of Schools of Public Health (ASPH) includes 41 fully accredited institutions and 6 associate members.[2] Each entity offers masters and doctoral degrees with a comprehensive curriculum rooted in 5 core disciplines: epidemiology, biostatistics, environmental health, health education and behavioral science, and health services administration. The Council on Education for Public Health accredits an additional 74 programs that support public health degrees that may or may not offer specific concentrations.[3]

ADVANCES IN UNDERGRADUATE PUBLIC HEALTH

Among the first undergraduate degrees in public health were those at Johns Hopkins University, George Washington University, and Rutgers University. These schools have a core curriculum that provides an overview of the field and includes foundational work in areas such as epidemiology, statistics, and health policy. Electives offered by the major and other departments (e.g., sociology, psychology, exercise science) emphasize the interdisciplinary nature of the field and provide insight into different career paths.

In 2003, the Institute of Medicine's Committee on Educating Public Health Professionals for the 21st Century recommended that public health education be accessible to all undergraduates.[4] Since then, the Association for Prevention Teaching and Research, the Council of Colleges of Arts and Sciences, and the Association of American Colleges and Universities (AAC&U) have advocated for undergraduate public health programs rooted in a liberal arts curriculum.[5] A consensus report[6] and curriculum guidelines[7] were published to serve as a structure for establishing undergraduate public health programs. A 2008 workshop sponsored by the AAC&U called "The Educated Citizen and Public Health: An Undergraduate Curriculum Development Institute" provided guidance on content for 3 core courses (Public Health 101, Epidemiology 101, and Global Health 101), as well as service-learning, interdisciplinary components, and administrative issues to institutions developing undergraduate public health programs.[8] The 41 participating schools ranged from large state universities (e.g., University of Nebraska, University of San Francisco) to small private colleges (e.g., Muhlenberg College, Haverford College).[9] Following this conference, detailed guidelines for the 3 core classes were published.[10]

As of 2008, 16% (n=137) of the 837 AAC&U schools offered undergraduate public health majors or minors, most of which required a capstone experience such as research or fieldwork.[11] Today, 21 ASPH schools offer undergraduate public health majors or minors in addition to graduate degrees (Table 1). Non-ASPH schools have also initiated undergraduate programs, including New York University (major or minor), Washington University in St. Louis (minor), and the University of New Hampshire (minor). Some universities, such as Yale and Tufts, support articulated bachelor's (BA or BS) and master of public health (MPH) programs that enable students to start their MPH during the undergraduate years despite not having a major or minor in the discipline (Table 1).

TABLE 1—Selected Colleges and Universities With Undergraduate Public Health Programs as of August 2009

School	Major	Minor	Capstone[a]	Articulated BA or BS and MPH	Web Site
Member of the Association of Schools of Public Health					
Boston University	No	Yes	NA	Yes	http://sph.bu.edu/index.php/Academic-InformationsDegrees-a-Programs/degrees-a-programs/menu-id-616794.html
East Tennessee State University[b]	Yes	Yes	Yes	No	http://www.etsu.edu/cph/academics/undergraduate/bspublichealth.aspx
Florida International University	No	Yes	NA	No	http://ssph.fiu.edu/academic_programs.html#minor_public_health
George Washington University	Yes	No	No	Yes	http://www.gwumc.edu/sphhs/academicprograms/undergraduate.cfm
Johns Hopkins University	Yes	No	Yes	Yes	http://sites.jhu.edu/publichealth/undergrad.html
Loma Linda University	Yes	No	Yes	No	http://www.llu.edu/public-health/bsph/index.page
Ohio State University	No	Yes	NA	No	http://cph.osu.edu/academics/ugradminor.cfm
San Diego State University	Yes	Yes	Yes	No	http://publichealth.sdsu.edu/bsmain.php
Tulane University	Yes	Yes	Yes	Yes	http://www.sph.tulane.edu/bsph/index.htm
University of California, Los Angeles	No	Yes	NA	No	http://www.ph.ucla.edu/stud_pubhealth.html
University at Albany	Yes	Yes	Yes	No	http://www.albany.edu/sph/academicprograms/undergrad.html
University of Arizona	Yes	No	Yes	No	http://www.publichealth.arizona.edu/AcademicPrograms/BSPH.aspx
University of California, Berkeley	Yes	No	No	No	http://sph.berkeley.edu/students/undergrad/index.php
University of Florida[b]	No	Yes	NA	Yes	http://www.registrar.ufl.edu/catalog0809/programs/minors/publichealth.html
University of Iowa	No	Yes[c]	NA	No	http://www.public-health.uiowa.edu/academics/certificate_ph
University of Maryland[b]	Yes	No	Yes	No	http://www.sph.umd.edu/dpch/ugrad/overview.htm
University of Massachusetts, Amherst	Yes	No	Yes	No	http://www.umass.edu/sphhs/public_health/academics/undergraduate/index.html
University of North Carolina, Chapel Hill	Yes	No	No	No	http://www.sph.unc.edu/student_affairs/undergraduate_application_958_2000.html
University of South Carolina	Yes	Yes	No	No	http://www.sph.sc.edu/undergrad
University of South Florida	No	Yes	NA	Yes	http://health.usf.edu/publichealth/undergraduate_programs.html
University of Washington	Yes	No	Yes	No	http://depts.washington.edu/istudies/faculty_designed/public_health
Emory University	No	No	NA	Yes	http://www.sph.emory.edu/eoh/BSMPH5year.php
Texas A&M University	No	No	NA	Yes	http://srph.tamhsc.edu/prospective-students/4+1-programs.html
University of Buffalo[b]	No	No	NA	Yes	http://undergrad-catalog.buffalo.edu/academicprograms/es_degrees.shtml
University of Illinois, Chicago	No	No	NA	Yes	http://www.uic.edu/depts/oaa/spec_prog/gppa/conditions/SPH_2008.pdf
University of Medicine and Dentistry of New Jersey	No	No	NA	Yes	http://sph.umdnj.edu/degrees.cfm
Yale University	No	No	NA	Yes	http://publichealth.yale.edu/admissions/babs_mph.html
Not a member of the Association of Schools of Public Health					
Ball State University	No	Yes	Yes	No	http://www.bsu.edu/physiology-health/publichlthminor
New York University	Yes	Yes	Yes	No	http://steinhardt.nyu.edu/nutrition/public_health/bs
Northern Illinois University	Yes	Yes	Yes	No	http://www.chhs.niu.edu/ph/default.asp
Rutgers University[d]	Yes	Yes	Yes	Yes	http://policy.rutgers.edu/academics/undergrad
Temple University	Yes	Yes	Yes	No	http://www.temple.edu/chp/departments/publichealth/PH_undergrad_programs.htm
University of California, Irvine	Yes	Yes	Yes	No	http://www.cohs.uci.edu/publichealth/public_health_undergraduate_programs.shtml
University of New Hampshire	No	Yes	NA	No	http://www.shhs.unh.edu/hmp/undergradhmp_minor.html
University of Southern California	No	Yes	NA	Yes	http://www.usc.edu/dept/publications/cat2009/private/pdf/2009_10/Medicine_09.pdf
University of Virginia	No	Yes	NA	Yes	http://www.healthsystem.virginia.edu/internet/phs/phpp/fiveyearba-mph.cfm
Washington University in St. Louis	No	Yes	NA	No	http://publichealth.artsci.wustl.edu
Brown University	No	No	NA	Yes	http://bms.brown.edu/commhealth/undergrad.html
Stony Brook University	No	No	NA	Yes	http://www.stonybrookmedicalcenter.org/publichealth/combineddegrees
Tufts University	Yes	No	NA	Yes	http://www.tufts.edu/med/education/phpd/mph/pathways/bamph/index.html

Note. NA = not available. Information in the table based on Web sites accessed August 10, 2009.
[a]Capstone experiences include internships, senior research projects, and graduate coursework.
[b]Association of Schools of Public Health (ASPH) associate member.
[c]Certificate program in public health, available to undergraduates.
[d]BA or BS and MPH program in conjunction with the University of Medicine and Dentistry of New Jersey (an ASPH member school).

POTENTIAL CONTRIBUTIONS OF PUBLIC HEALTH UNDERGRADUATES

The ASPH estimates that by 2020, the United States will need 250 000 additional public health workers at the federal, state, and local levels; this number may be even higher because of projected retirement of the current workforce (about 25%). To meet these needs, ASPH graduation rates would need to increase threefold.[12,13] Particular areas of shortfall include health education, administration, epidemiology, health sanitation, and environmental health.[12–14] Preparing undergraduates for entry-level positions has the potential to offset the projected shortages and alleviate some of the pressure on graduate programs. Adequate coursework and field experience can prepare an undergraduate public health major to obtain certified health education specialist (CHES) credentials, gain certification as a sanitary inspector, become a registered environmental health specialist, and accumulate credits and practicum hours required for licensed nursing home administration (LNHA) certification. (Although CHES certification requirements are national, the other certifications and requirements are on a state-by-state basis.) In these ways, college graduates can be prepared to fill some of the gaps the nation faces in the public health workforce, gaps that until now were traditionally filled by people with graduate degrees.

THE UNDERGRADUATE PUBLIC HEALTH STUDENT

Student demand for undergraduate public health courses is strong. For example, the number of public health majors at Johns Hopkins University doubled (from 159 to 311) in the past 10 years. Established undergraduate programs report the need to expand course offerings, and new programs are seeing their classes fill to capacity, often with the need to create additional sections to meet student demand.[11] Yet who are these students? In short, they are anyone and everyone. They come to public health from other majors, such as sociology, engineering, biology, anthropology, environmental science, and psychology. Many double major or minor in these other disciplines, and a substantial portion of their curriculum consists of distribution requirements for graduation. They have varying quantitative and writing skills; some struggle to pass a math or English requirement, others take multivariable calculus or advanced writing courses. Based on our nearly 30 years of combined experience in undergraduate public health education, we divide the students most commonly encountered in these classrooms into the following categories.

Prehealth Students

Some students who plan to get a medical or other health profession degree are searching for a major other than the traditional premedical choice of biology. They want to incorporate social, behavioral, and biological perspectives but may not (initially) recognize the difference between medicine, allied health, and public health. Some think a public health major will make them more attractive to medical schools. Other students see public health as a viable backup plan in the event that their prehealth plans fall through.

Data do not exist to support whether a public health major helps or hinders a premed application. However, it has been argued that the premed experience should reflect the breadth of a liberal arts education, and the Association of American Medical Colleges encourages interdisciplinary undergraduate courses that integrate medicine and basic science with social and behavioral sciences.[15] Among suggested courses to add to the premed curriculum are biostatistics, ethics,[16,17] and health administration and management,[17] all of which are components of public health training. Thus, an undergraduate public health major or minor is one example of how the premed experience can be broadened to encompass a multidisciplinary perspective. At the same time, it is important for advisors to encourage students who aspire to attend medical school (or other professional programs in health care) to pursue advanced coursework in the basic sciences in addition to their public health curriculum in order to remain competitive in their applications.

Premed Direction-Changers

Some premed students change direction, either voluntarily or involuntarily; their interests evolve, they find they are not competitive for medical school, or they want to pursue another track before applying to medical school at a later date. Some direction-changers seek out public health because of its tie to medicine or because previous coursework may count toward required or elective courses, allowing a smooth transition between majors.

Future Public Health Workers

Some students have a desire to work in the public health sector, perhaps as nursing home administrators, registered environmental health specialists, food inspectors, or health educators. They may want to work for nonprofit organizations, departments of health, international organizations, or pharmaceutical companies. A portion of these students will seek entry-level jobs after graduation; others will seek admission to an MPH program.

Undecided Students

A number of undergraduates taking public health classes never intended to pursue either a clinical or public health career. They are drawn to the classes because they want to complement their interests in related areas (e.g., social work, environmental science, psychology, sociology). These students are exploring their options while planning to pursue graduate degrees in other fields (e.g., anthropology, law, social work, women's studies); a handful may ultimately consider dual degree programs. Traditionally, exposure to public health occurred after the undergraduate experience, largely through a job or graduate studies. Today, emerging undergraduate public health programs provide undecided students with the opportunity to explore their interests and make informed decisions about future pursuits at an earlier stage than was previously possible.

Idealists

Regardless of their background, the majority of undergraduate public health students come to the field with big dreams and goals; they want to make a difference in the world. Among the strongest areas of interest are global health, infectious diseases, environmental health, and health

policy. A large number envision working for international organizations (e.g., the Peace Corps, United Nations, or World Health Organization). Their enthusiasm is contagious, and they are full of energy. They follow the news, question what they have learned, and seek hands-on experience. They get frustrated when they cannot find internships or entry-level jobs because many positions require experience or an MPH. These students want to know how to make themselves competitive for graduate school and the workforce.

THE NEEDS OF UNDERGRADUATE PUBLIC HEALTH STUDENTS

Academic advising is a critical component of undergraduate education. In many ways, public health students are no different than any other undergraduate; they are trying to figure out what to do with their lives and want advice on careers, graduate school, and internships.

Career Options

Many advisors faced with public health career questions commonly refer students to their institution's career services staff or premed–prehealth office. However, these offices may not be familiar with the spectrum of opportunities available in public health. This is a particular challenge at undergraduate-focused institutions without public health graduate programs or affiliations with schools of public health. Although some undergraduates have a well-defined vision of their career path, most have a broader outlook—they may want to work in the nonprofit, industry, government, or academic sectors and ask what they can do in these settings. It is the advisors' responsibility to open students' minds, to give a comprehensive overview of options, and to connect students with resources that will help them make decisions (Table 2). Similarly, it is their responsibility to be informed about how undergraduates may fill shortages in the workforce (e.g., health education, administration), and to council them in how to prepare to do so upon graduation (e.g., CHES or LNHA certification requirements). This can be a challenge, especially if the advisor lacks a public health background. Conversely, advisors with public health training may be unaccustomed to advising liberal arts students.

Graduate School

One of the biggest messages to convey to undergraduates is that not all MPH programs are the same; some allow concentration in 1 of the 5 core areas (e.g., biostatistics, epidemiology), others have concentrations in a subfield (e.g., maternal child health, global health), and still others offer a general degree. Complicating matters is the fact that there are a number of related masters' degrees that might be a better match for a student than an MPH. For instance, someone interested in global health may be encouraged to apply for an MPH in international or global health, a master of social work (MSW) in international social work, or a master of science (MS) in international health policy programs; someone interested in health administration might be encouraged to apply for an MPH or masters in health administration (MHA) programs. Students may bring their graduate school questions to the prehealth office, but, as with career counseling, advisors there may not be familiar with the variety in MPH and related programs. Students should be counseled on aspects of a strong graduate application, the advantages of going to an accredited versus nonaccredited school or program, and certifications (e.g., CHES) versus degrees. Advisors should be able to suggest several schools or programs in line with students' interests and encourage them to thoroughly research curricula, faculty, and admission requirements. Students interested in dual degrees (e.g., MPH in conjunction with BA or BS, MD [doctor of medicine], JD [juris doctorate], MSW, or MBA [master of business administration]) should consider program length and structure as well. For example, undergraduates who seek advanced standing in an MPH program may not be prepared for graduate studies; students who complete a dual MD–MPH degree in 4 years will have a different experience than those who do a 5-year program.

Field Experience

Undergraduates want to know how public health interfaces with other fields and seek relevant, hands-on experiences. Finding fieldwork can be a challenge because they either lack the graduate school–based background sought by many sponsors or are in competition with graduate students for the same spots. Field experiences for undergraduates do exist, but it takes time and energy to identify them. Examples include New York (City and State) and Philadelphia Departments of Health internships, the National Institute of Environmental Health Sciences summer program, the Barbara Jordan Health Policy Scholars Program, the Harvard Summer Program in Quantitative Science, and Project L/EARN (Table 2). Undergraduate public health programs should be encouraged to build databases of internships and other opportunities based on Internet searches, student experiences, and contacts in the field. Such resources will be invaluable as undergraduate public programs continue to attract a growing number of students. Having the field placement site understand what can be expected of a student is also important. Specifically, advisors should consider written guidelines that lay out the "rules of the road" for both the student and the field mentor. Clarifying expectations at the beginning of the experience allows the program to make judgments about the student's performance and the academic institution to decide whether to recommend the site for future interns.

ADVISORS' CHALLENGES

The variety of backgrounds, skills, and goals of undergraduate public health students makes advising them fun but challenging. The undergraduate public health student may plan to go to medical school, law school, nursing school, graduate school in political science, social work, sociology, anthropology, or education, or work for a service organization such as the Peace Corps or Teach for America. The student may or may not plan to get an MPH. Thus, advisors must be prepared to answer a broad range of questions and provide information and guidance across the spectrum of public health, foster connections, and accumulate resources to adequately address student needs. Advisors have a responsibility to educate themselves about public health and become familiar with a variety of internships, training, and graduate and career

TABLE 2—Selected Internet Resources for Advisors of Undergraduate Public Health Students

Resource	Brief Description	Web Site
	Informational Web sites	
Council on Education for Public Health (CEPH)	General public health education information	www.ceph.org
Association of Schools of Public Health (ASPH)	Information about degrees at accredited Schools of Public Health	www.asph.org
Schools of Public Health Application Service (SOPHAS)	Information and application for graduate study in public health	www.sophas.org
National Board of Public Health Examiners	Information about the national public health certification exam	www.publichealthexam.org
National Commission for Health Education Certification	Information about becoming a certified health education specialist (CHES)	http://www.nchec.org
Peace Corps	Links to graduate programs in public health that offer credit for Peace Corps service	http://www.peacecorps.gov/index.cfm?shell=learn.whyvol.eduben.univandprog
General public health information	Overview of the public health field and career options	www.whatispublichealth.org
Public health jobs	Job listings	www.publichealthjobs.net
Public Health Employment Connection	Job search engine	http://cfusion.sph.emory.edu/PHEC/phec.cfm
Pfizer Public Health Career Materials	Career guides, general public health information materials (available for free)	http://www.pfizerpublichealth.com/OrderBook.aspx
	Internships and summer programs	
Alliance for Health Reform	Health policy internships in Washington, DC	http://allhealth.org/aboutus_internships.asp
Association of Minority Health Professions Schools Public Health Summer Fellows Program	Public health internships in Atlanta, GA	http://minorityhealth.org/p-student-public.php
Barbara Jordon Health Policy Scholars Program	Health policy program in Washington, DC	http://www.kff.org/docs/topics/jordanscholars.html
CDC Student Summer Employment Program	Public health internships in Atlanta, GA	http://www.cdc.gov/employment/menu_student.html
Center for Research, Education, Training and Strategic Communication on Minority Health Disparities	Health disparities internships in Los Angeles, CA	http://www.gdnet.ucla.edu/asis/srp/cretscmhd.htm
College of Public Health Summer Undergraduate Research Program	Public health internships in Omaha, NE	http://www.unmc.edu/publichealth/surp.htm
Collegiate Leaders in Environmental Health	Environmental health internships in Norfolk, VA	http://www.cdc.gov/nceh/cleh
Harvard Summer Program in Quantitative Science	Epidemiology or biostatics program in Boston, MA	http://www.hsph.harvard.edu/biostats/diversity/summer
Health Education and Advocacy Liaisons	Global health internships in Honduras	http://www.roatanclinic.org/heal/index.html
Health Management and Policy Summer Enrichment Program	Health policy internships in Ann Arbor, MI	http://www.sph.umich.edu/sep
M. D. Anderson Summer Undergraduate Research Program and Public Health Student Internship	Public health and cancer epidemiology internships in Smithville, TX	http://cred.mdanderson.org/surp
Morehouse Public Health Summer Fellows Program	Public health internships in Atlanta, GA	http://www.msm.edu/educationTraining/degreePrograms/mph/summerProgram.aspx
National Institute of Environmental Health Sciences	Environmental health internships in Research Triangle Park, NC	http://www.niehs.nih.gov/careers/research/summers
New York City Department of Health Summer Intern Program	Public health internships in New York City	http://www.nyc.gov/html/dcas/html/employment/summerintern.shtml
New York State Public Health Works Summer Undergraduate Internship Program	Public health and environmental health internships in Albany and across New York State	http://www.health.state.ny.us/prevention/public_health_works
Philadelphia Department of Health: Mayor's Internship	Public health internships in Philadelphia, PA	http://www.phila.gov/experiencephila/mayor.html
Rutgers University: Project L/EARN	Public health research experiences in New Brunswick, NJ	http://www.ihhcpar.rutgers.edu/projectlearn
University of Massachusetts, Amherst Summer Student Scholar Program	Public health internships in Amherst, MA	http://baystatehealth.com/cbr/SummerScholar.html

Note. CDC = Centers for Disease Control and Prevention. Information in the table is based on Web sites accessed in July 2009.

options so as to effectively convey these resources to students.

Undergraduates pursuing public health differ from their graduate school counterparts in many ways (Supplemental Table 1, available in the online version of this article at http://www.ajph.org). They may pursue a double major in related or unrelated areas, complete a comprehensive curriculum that includes major courses and distribution requirements, seek information about the spectrum of career options and graduate programs, or simply want to gain a global perspective of public health within the context of a liberal arts education. They are passionate about their studies, but their interests and priorities are varied. Like undergraduates in other disciplines, these students will come to their public health advisors seeking assistance with family, financial, and personal issues as well as graduate school and career plans. In these ways, they need more attention and guidance from their advisors than do MPH students.

PUBLIC HEALTH PRACTITIONERS AS ADVISORS

Academic advising is only one side of the advising process. Equally important are career development and mentorship, which can be provided by public health professionals. To encourage undergraduate–practitioner connections, the American Public Health Association's Committee on Affiliates recently launched an initiative aimed at linking public health practitioners and undergraduate public health programs.[18] Through this program, state public health associations in Maine, New Hampshire, Maryland, and Virginia have actively begun to bring the expertise and community-based experience of practitioners to the undergraduate population. As practitioners connect with undergraduates, they too must remember that these students are being educated in a liberal arts environment, not the professional setting of graduate school. Students will ask academic advisors what they can do with public health in the "real world," but it is the practitioners who can provide living examples of the multidisciplinary nature of the field, different pathways to a common career goal, and the reality of community-based work in the government, private, and nonprofit sectors. For instance, it is one thing to learn about outbreak investigations in the classroom, but another to work alongside a health inspector to visit local eateries and investigate reports of suspected foodborne illness. To be mentored in the day-to-day activities, job expectations, and qualifications needed for entry-level positions provides invaluable advice to the undergraduate. Practitioners can reinforce the application of concepts taught in the classroom and translation of those concepts into practice.

CONCLUSIONS

Because public heath education has existed as a professional degree for so long, it may be instinct to approach advising undergraduates as one would advise MPH students, but there are significant differences between the two. The undergraduate experience is based in liberal arts tradition aimed at providing a comprehensive perspective on public health rather than focused professional training. The success of undergraduate public health programs is dependent on faculty or advisors having a global appreciation for public health, continually educating themselves and their students about the spectrum of opportunities in the field, and knowing how their students can achieve career or graduate school goals. Flexibility and a breadth of knowledge about options are imperative for advising these students. Advisors need to be able to talk with one student about options, internships, and graduate schools strong in environmental health, and then discuss the same issues in the context of health policy, epidemiology, or international health with the next student. To aid in this process, undergraduate programs in public health should be encouraged to hire faculty and staff with practical experience as well as an academic background in public health. Advisors must strive to show these students the difference between medicine and public health, serve as an informative resource for graduate school and career counseling, and be able to address student concerns and questions about the spectrum of public health. This is what makes advising these undergraduate students challenging, exciting, and extremely rewarding. ■

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Contributors

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Community Engagement in Research: Frameworks for Education and Peer Review

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Community engagement in research may enhance a community's ability to address its own health needs and health disparities issues while ensuring that researchers understand community priorities. However, there are researchers with limited understanding of and experience with effective methods of engaging communities. Furthermore, limited guidance is available for peer-review panels on evaluating proposals for research that engages communities.

The National Institutes of Health Director's Council of Public Representatives developed a community engagement framework that includes values, strategies to operationalize each value, and potential outcomes of their use, as well as a peer-review framework for evaluating research that engages communities.

Use of these frameworks for educating researchers to create and sustain authentic community–academic partnerships will increase accountability and equality between the partners. (*Am J Public Health.* 2010;100:1380–1387. doi:10.2105/AJPH.2009.178137)

THE SIGNIFICANT RENAISSANCE of community engagement in research stems from demands by community leaders, policymakers, and funders for meaningful community involvement to address health problems facing communities. The published peer-reviewed literature and numerous reports point to the many potential benefits of community engagement in research.[1–16] According to the Institute of Medicine, for example, community-based participatory research increases community understanding of the issues under study and enhances researchers' ability to understand community priorities, the importance of addressing community priorities, and the need for culturally sensitive communications and research approaches.[17]

Several models for community engagement in research exist, including community-based participatory research,[18,19] empowerment evaluation,[20,21] participatory or community action research,[22] and participatory rapid appraisal.[23] Some confusion exists about the definition of community engagement in research, however, because many researchers use the terms interchangeably.

Researchers conducting community engagement in research need appropriate education and training not typically offered by traditional doctoral and master's level curricula. The field clearly needs long-term programs that integrate the knowledge and skills of experienced community and researcher partners in high-quality participatory research to build the capacity of young and traditionally trained researchers and scientists interested in pursuing community engagement in research.[24]

Funding agencies often find it difficult to assess participatory research proposals, especially if they use traditional review criteria that are not necessarily applicable to participatory research.[25] A 2004 review[26] points out that when reviewers in typical study sections are not familiar with community-based participatory research or are even skeptical about the approach's merits, investigators find it challenging to obtain funding for their community-based participatory research projects through conventional peer-review mechanisms.

Many funders include members of the lay public in their peer-review panels to evaluate proposals from the patient's or family member's perspective.[27,28] Lay public reviewers help scientists understand the impact of the research on the community and help them make appropriate funding recommendations that address the needs and concerns of patients, health care providers, and family members.[29] However, many scientists are concerned that lay peer reviewers do not have the scientific expertise required to offer an appropriate evaluation.[30,31] A survey of the National Cancer Institute of Canada's scientific grant review panel members found that not all scientists value lay contributions and many lay members feel insecure about the importance of their contributions.[32]

Because of these barriers, community engagement in research is probably underused. The National Institutes of Health (NIH) Director's Council of Public Representatives (COPR), a federal advisory committee to the NIH director, addressed these issues and produced this