

Undergraduate Public Health at 4-Year Institutions It's Here to Stay

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Abstract: Undergraduate public health education at 4-year institutions, those with and without graduate public health education, has grown rapidly during the first decade of the 21st century since the IOM recommended that “all undergraduates have access to education in public health.” Much of this growth has been guided by the Educated Citizen and Public Health initiative, a collaboration of arts and sciences and public health educators that encourages introductory course work in public health, epidemiology, and global health plus undergraduate minors and majors in public health.

The Educated Citizen and Public Health model, as opposed to existing professional models, envisions core public health education based on the Association of American Colleges and Universities' Liberal Education and America's Promise essential learning outcomes that encourage experiential learning, evidence-based thinking, a global and community focus, plus integration and synthesis. Public health education in this model provides solid generalist grounding for graduate education in public health as well as a range of graduate disciplines from the health professions to international affairs and from law to business. In addition, it helps ensure a broad range of college graduates who understand and support public health approaches.

The Healthy People 2020 objective to increase the proportion of 4-year colleges and universities that offer minor or major in public health should help propel additional growth, especially in 4-year colleges without graduate public health education. Integrative curricula designed as part of the reform of undergraduate education provide opportunities to make evidence-based public health approaches available to a large number of undergraduates.

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Introduction

Healthy People 2010 barely mentioned undergraduate public health education. Healthy People 2020 and the Education for Health framework, however, place undergraduate public health in the center of the action. This article will examine what has changed, why it has changed, and what roles undergraduate public health education at 4-year institutions, both those with and without graduate public health education, can and should play during the next decade.

Throughout the twentieth century, public health was considered a professional degree taught at the graduate level. Its roots in the 1915 Welch–Rose report¹ specifically define public health education as graduate educa-

tion, designed exclusively for those who already possess training and experience in a relevant profession, then usually limited to medicine, nursing, and engineering. This tradition of public health education continued throughout the 20th century despite the changes that occurred in the composition of the graduate student body. By the early years of the 21st century, a large proportion of students were entering graduate public health education with a bachelor's degree and with little if any background in public health. In addition, despite the relevance of public health to general education, few undergraduate institutions were teaching courses or integrating public health principles into general or liberal arts education. Thus, the timing was right to systematically introduce public health into the undergraduate curriculum.

The idea of undergraduate education taught as part of a general and liberal arts education is not entirely new. Abraham Lilienfeld outlined a model for an undergraduate major in epidemiology in 1976.² His ideas led to a comprehensive undergraduate public health program at Johns Hopkins. Offered by the Krieger School of Arts and

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Sciences, public health now ranks among the most popular majors at Johns Hopkins.³

The connection between liberal arts education and epidemiology was brought to wide attention first within the medical and public health community in 1987 by David Fraser in his now classic article “Epidemiology as a Liberal Art,”⁴ which was published in the *New England Journal of Medicine*. Fraser was then the President of Swarthmore College, one of the most prestigious of liberal arts institutions, but his audience was the medical and public health professions and his approach never fully reached its intended undergraduate audience. His vision for the future was promising, but the time for public health within liberal arts education had not yet arrived.

The Educated Citizen and Public Health Initiative

Public health in the past decade has entered centerstage in undergraduate education. The process formally began with an IOM recommendation as part of the IOM’s 2003 report *Who Will Keep the Public Healthy?* The report made the following recommendation: “All undergraduates should have access to education in public health.” The authors based this recommendation on the premise that “public health is an essential part of the training of citizens.”⁵

Schools of public health and programs in public health rapidly took up the challenge of developing undergraduate public health curricula. By 2005–2006, data from the Association of Schools of Public Health as well as the Association for Prevention Teaching and Research indicated that approximately half of schools and programs of public health were offering undergraduate courses, minors, or majors.⁶ These changes in public health education in institutions with graduate public health education were encouraging but affected fewer than 100 institutions of the nearly 2000 in the U.S. that are 4-year colleges or universities.

An approach was needed to extend undergraduate public health to all 4-year colleges and universities that framed public health education as part of the reforms underway in liberal education at 4-year colleges and universities. These changes are reflected and being stimulated by the Association of American Colleges and University’s Liberal Education and America’s Promise (LEAP) essential learning outcomes outlined in Table 1.⁸ To structure and promote this effort, an informal collaboration of arts and sciences and public health educational institutions and organizations was organized, called the Educated Citizen and Public Health Initiative.⁹

This educated citizen approach implies that public health is a core discipline that should be offered to all undergraduates as part of general education, satisfying requirements for integrative learning or more traditional breadth or distribution requirements. Educated citizen and public health activity now is prompting development of a range of undergraduate minors and majors that are increasingly referred to as “public health studies.”¹⁰ The concept of public health studies distinguished undergraduate public health education with its emphasis on broad-based and integrative learning outcomes from the increasingly discipline-focused emphasis of graduate public health education.

The educated citizen and public health initiative aims to make public health education available to all undergraduates. The goal is to develop an educated citizenry who understand and support public health approaches and institutions. In addition, the initiative hopes to prepare students for careers in public health as well as other professional career directions ranging from the health professions to business, law, and international affairs.¹¹

Other Approaches to Undergraduate Health Education

The educated citizen and public health approach to undergraduate learning differs from two other longstanding efforts that may be distinguished from or connected to it. First, the health and wellness movement has long provided popular undergraduate courses with enticing titles such as Human Sexuality, Drugs and Bugs, and Your Body–Your Mind. These courses generally focus on individual health risks and health behaviors and aim to engage students in individual prevention. These courses, often categorized under “personal health and wellness,” complement the educated citizen approach but usually provide little understanding of the larger social or population factors that influence the development and course of disease and other health conditions.

The second type of programs that traditionally exist in undergraduate institutions are professionally oriented degree programs designed to help students obtain job-related skills. Most of these degree programs fall under one of three categories: health education, environmental health/sanitarian, and health administration.

Health education degrees are usually designed to fulfill the requirement to take the Certified Health Educator Specialization examination that qualifies students for jobs in many public health and clinical settings.¹² Similarly, a sanitarian program or what now is referred to as an environmental health–specialist degree qualifies students to take the national environmental health–specialist certifying examination.⁷

Table 1. The LEAP essential learning outcomes⁷

Knowledge of human cultures and the physical and natural world
<ul style="list-style-type: none"> ● Through study in the sciences and mathematics, social sciences, humanities, histories, languages, and the arts
Focused by engagement with big questions, both contemporary and enduring
Intellectual and practical skills, including
<ul style="list-style-type: none"> ■ inquiry and analysis; ■ critical and creative thinking; ■ written and oral communication; ■ quantitative literacy; ■ information literacy; and ■ teamwork and problem solving.
Practiced extensively , across the curriculum, in the context of progressively more challenging problems, projects, and standards for performance.
Personal and social responsibility, including
<ul style="list-style-type: none"> ■ civic knowledge and engagement—local and global; ■ intercultural knowledge and competence; ■ ethical reasoning and action; and ■ foundations and skills for lifelong learning
Anchored through active involvement with diverse communities and real-world challenges
Integrative and applied learning, including
<ul style="list-style-type: none"> ● Synthesis and advanced accomplishment across general and specialized studies
Demonstrated through the application of knowledge, skills, and responsibilities to new settings and complex problems
LEAP vision and activities: The LEAP campaign is organized around a 21st-century vision of liberal education—a design for learning that broadens horizons, fosters transferable knowledge and skills, and cultivates a strong sense of ethical and social responsibility. Characterized by challenging encounters with important issues, a liberal education—comprising both general education and one or more major and minor fields, and spanning the undergraduate professional and pre-professional majors as well as the arts and sciences—prepares graduates for both socially valued work and active citizenship in a diverse and globally engaged democracy.

LEAP, Association of American Colleges and Universities Liberal Education and America's Promise

The Association of University Programs in Health Administration has since the 1980s encouraged development of undergraduate health administration programs.¹³ As in the case of graduate training in health administration, there is no formal certification other than as a nursing home administrator.

Thus, a wide range of professionally oriented undergraduate programs incorporating components of public health now exist side-by-side with programs designed around the more extensive educated citizen and public health approach. Defining the connections between these two different but compatible approaches to public health education will be an important challenge in the coming years.

Growth and Direction of the Educated Citizen and Public Health Approach

The educated citizen and public health approach was initiated as a result of the 2006 Consensus Conference on Undergraduate Public Health, convened by the Healthy People Curriculum Task Force and funded by the Josiah Macy Jr. Foundation. The Association for Prevention Teaching and Research (APTR), the Association of

Schools of Public Health (ASPH), and the Council of Colleges of Arts and Sciences (CCAS) served as cosponsors. The Association of American Colleges and Universities (AAC&U) and the CDC also participated.¹⁴

The consensus conference and subsequent collaborations of arts and sciences with public health educators produced a series of principles for teaching and learning in public health as part of general and liberal education. These principles help distinguish the educated citizen approach from the personal health and wellness approach and the professional education approach. The educated citizen and public health approach

- designs or models public health studies to address essential learning outcomes, as defined by LEAP,⁸ including integrative and applied learning utilizing a range of experiential learning approaches as well as capstone or synthesis curricula;
- takes a population and global perspective incorporating epidemiologic concepts as part of general education in order to take an evidence-based approach to understand the broader forces that influence the devel-

opment and course of disease and other health conditions; and

- sees public health as a field that is grounded in and applies a wide range of arts and sciences disciplines from economics to public policy and from chemistry and biology to anthropology, communications, and ethics.

Using these principles as a focus, the educated citizen and public health initiative began by advocating for core public health curricula that satisfy general education requirements. One option for core public health curricula consists of core courses such as Public Health 101, Epidemiology 101, and Global Health 101.¹⁵ Additional recommendations built on the core curricula as the basis for the development of minors. In contrast, majors have been considered appropriate for institutions with the necessary infrastructure but the educated citizen and public health initiative has not placed a high priority on the development of majors or aimed to create a separate identity for bachelor's-degree graduates in public health. Table 2 outlines the recommendations for minors included in the Recommendation for Undergraduate Public Health Education published by the APTR and AAC&U.¹⁵

Next Steps in the Development of Undergraduate Public Health as Part of Bachelor's-Degree Education

In 2009, the Association of Schools of Public Health convened an Undergraduate Public Health Leadership Group, including representation from not only Schools of Public Health but also accredited Programs in Public Health and institutions that are members of AAC&U. The Leadership Group is guiding a process of developing undergraduate public health learning outcomes built on the LEAP essential learning outcomes

and is intended for all undergraduates. The learning outcome development process is engaging a wide range of public health and arts and science educators with a target of publishing learning outcomes in the spring of 2011.

Healthy People 2020 has recommended objectives to encourage the further development of both majors and minors. Baseline data collected by AAC&U are available from 2008, suggesting that overall 16% of 4-year institutions were offering undergraduate public health or related majors or minors. However, the 16% includes approximately half of all institutions that offer graduate-level public health education. Among bachelor's-degree institutions without graduate public health education, only approximately 5% offer public health or related majors or minors.¹⁰ Thus, despite the progress made in recent years, there is a long way to go to fulfill the IOM recommendation that “all undergraduates should have access to education in public health.”

The acceptance of undergraduate public health education by colleges and by faculty is becoming increasingly evident. The interest among undergraduate faculty has been demonstrated by the response to the APTR/AAC&U faculty development program, which in 2007 and 2008 attracted more than 250 faculty members to its three workshops. A March 2010 forum, cosponsored by AAC&U and Community–Campus Partnerships for Health, sought to build the link between service learning and undergraduate public health based on the contention that service-learning experiences are an important component of an undergraduate public health program and their availability will increase interest in public health education.¹⁶ The forum drew about 100 faculty members, an audience that combined the interests of community-engaged or service learning with interests in public health. There is a great opportunity to link public health with community-based learning experiences that will help achieve the goal set by the IOM.

Reaching the wide range of potential audiences for undergraduate public health has required multiple types of publications. Recent publications have brought the educated citizen and public health movement to greater attention and acceptance by the arts and sciences community as well as the general public. The summer 2009 issue of AAC&U's publication *Peer Review* was devoted to liberal education and public health studies.¹⁷ Three articles in the *Chronicle of Higher Education* focused on or included undergraduate public health education and most likely influenced arts and sciences faculty perceptions of undergraduate public health.¹⁸ Finally, a front-page article in the *Washington Post* has helped to bring knowledge of undergraduate public health to a wide audience.¹⁹

Table 2. Generic structure for a minor in public health¹⁴

Required interdisciplinary core
<ul style="list-style-type: none"> • Public Health 101 • Epidemiology 101 • Global Health 101
Selectives
<ul style="list-style-type: none"> • Discipline-specific or interdisciplinary courses determined by the institution and the student • Departmental or interdepartmental public health-related courses based on the interests and strengths of each institution
Experiential learning —Health-related activities, such as:
<ul style="list-style-type: none"> • Service-learning • Capstone or synthesis project • Structured research and study abroad

Public health is rapidly being integrated into undergraduate education and distinguished from the increasing specialty emphasis of graduate public health education. To further solidify this distinction, the AAC&U has emphasized the LEAP essential learning outcome of integrative and applied learning. A range of curricular options for incorporating integrative and applied learning into undergraduate public health education were discussed at a workshop held as part of the 2010 AAC&U national meeting. These options include health and justice as well as health, environment, and sustainability. Evidence-based public health may provide an underlying framework for integrating and synthesizing undergraduate public health education based on the educated citizen and public health model. For additional information on the educated citizen and public health approach to undergraduate public health education, see the following websites: www.aacu.org/public_health/index.cfm; www.aptrweb.org/undergraduatepublichealth/AboutUs.html; www.asph.org/document.cfm?page=1145.

Vision for 2020

Undergraduate public health education at 4-year institutions has come a long way during the first decade of the 21st century. Rapid growth appears to have continued since the 2008 baseline data were collected, and the inclusion of the Healthy People 2020 objective on undergraduate public health education at 4-year institutions should stimulate further growth. The basic goals, structures, and roles of core curricula, minors, and majors are well on their way to acceptance at many if not most 4-year institutions. What will this mean for 2020?

Undergraduate public health at 4-year institutions should take a central place in public health education. The educated citizen and public health initiative should continue to nurture the development of programs while inviting students to take an active role in connecting with communities and helping to advance health equity. The integrative curricula offered by a large number of institutions should help prepare students to enter clinical health professions, as well as law, business, international affairs, and a wide range of other professions, including graduate education in public health. Those with public health minors and majors should also be prepared for entry-level jobs as part of the public health workforce. Yet undergraduate public health education should be more than career preparation. It should be central to becoming an educated citizen.

The growth of undergraduate public health education will also influence the direction and structure of graduate

public health education. Students entering graduate education in public health should be prepared for challenging discipline-specific curricula. An increasingly sophisticated graduate-level public health education should sync well with the generalist and integrative approach of undergraduate public health minors and majors. The attendant challenge of developing a seamless transition process will require the attention of graduate schools and programs.

Perhaps most importantly, those exposed to courses and integrative curricula as well as minors and majors in public health will understand and appreciate an evidence-based approach to public health. This preparation should engage students, encouraging them to discuss, advocate for, and support public health solutions to the health problems of the third decade of the 21st century and for decades to come.

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References

1. Fosdick RB. The story of the Rockefeller Foundation. New York: Harper and Brothers Publishers, 1952.
2. Lillienfeld AM, Garagliano F, Lillienfeld DE. Teaching Epidemiology 101: the new frontier. *Int J Epidemiol* 1978;7:377–80.
3. Rienzi G. A major change. *John Hopkins University Arts and Sciences Magazine*, Fall/Winter 2006:23–6.
4. Fraser DW. Epidemiology as a liberal art. *N Engl J Med* 1987; 316:309–14.
5. Gebbie K, Rosenstock L, Hernandez LM. Who will keep the public healthy? Educating public health professionals for the 21st century. Washington DC: National Academy Press, 2003:144.
6. Riegelman RK. Undergraduate public health education past, present, and future. *Am J Prev Med* 2008;35(3):258–63.
7. National Council for Science and the Environment, National Environmental Health Association. Credentials. www.neha.org/credential/index.shtml#rehsrs_cred.
8. Association of American Colleges and Universities. Liberal Education and America's Promise (LEAP). Washington DC: AAC&U, 2007.
9. Association of American Colleges and Universities. The educated citizen and public health. www.aacu.org/public_health/index.cfm.
10. Hovland K, Kirkwood BA, Ward C, et al. Liberal education and public health: surveying the landscape. *Liberal education and undergraduate public health studies*. Peer Review 2009, Summer:5–8.
11. Albertine S. Undergraduate public health: preparing engaged citizens as future health professionals. *Am J Prev Med* 2008;35(3): 253–7.
12. National Commission for Health Education Credentialing Inc. CHES exam eligibility. www.nchec.org/exam/eligible/ches/.

13. Association of University Programs in Health Administration. Undergraduate certification. www.aupha.org/i4a/pages/index.cfm?pageid=3519.
14. The educated citizen and public health: report of the Consensus Conference on Undergraduate Public Health Education, Council of Colleges of Arts and Sciences, Williamsburg VA, 2007.
15. Association for Prevention Teaching and Research and Association of American Colleges and Universities. Recommendations for undergraduate public health education. www.teachpublichealth.org.
16. Cashman SB, Seifer SD. Service-learning: an integral part of undergraduate public health. *Am J Prev Med* 2008;35(3):273–8.
17. Association of American Colleges and Universities. Liberal education and undergraduate public health studies, theme issue. *Peer Review* 2009, Summer.
18. *Chronicle of Higher Education* August 31, 2009.
19. For a global generation, public health is a hot field. *The Washington Post* 2008, Sept 18. www.washingtonpost.com/wp-dyn/content/article/2008/09/18/AR2008091804145.html?hpid=topnews.