Survey of Accredited Master of Public Health (MPH) Programs With Health Education Concentrations: A Resource for Strengthening the Public Health Workforce

Lynn D. Woodhouse, MEd, EdD, MPH, CHES
M. Elaine Auld, MPH, CHES
William C. Livingood, PhD
Lori A. Mulligan, MPH

The authors designed survey research to assess accredited master of public health (MPH) programs with health education concentrations. A Web-based survey was distributed to program directors and was used to collect characteristics of program faculty, students, graduates, internships, employment, and competency development. Results indicate that students and graduates are diverse; 72% of students complete internships and 61% of graduates work in government or community public health–related agencies; 98% of faculty hold a doctoral degree and 67% have at least one degree from an accredited public health school or program; and 85% of programs build competencies in most of the Institute of Medicine–suggested areas. The authors conclude that accredited MPH programs with a concentration in health education train diverse public health practitioners highly likely to work in a government or community public health agency with competencies to enhance public health.

Keywords: *public health training; public health workforce; accredited MPH programs; health education; applied social-behavioral sciences*

The public health system is dependent on a competent public health workforce, a multifaceted and dynamic part of the core public health infrastructure (Cioffi, Lichtveld, & Tilson, 2004; Gebbie, Merrill, & Tilson, 2002). The tasks of the public health workforce are challenged by an array of multidimensional, evolving issues such as bioterrorism and emergency preparedness. These challenges underscore the importance of developing a workforce that is competent in both providing evidence-based public health practice to communities and in applying the ecological perspective (Brownson, Baker, Leet, & Gillespie, 2003; Cioffi et al., 2004; Gebbie et al., 2002; Institute of Medicine, 2002, 2003).

A recent synthesis by Tilson and Gebbie (2004) defined the public health workforce as being

> composed of those who work for official public health agencies at all levels of government, community-based, and voluntary organizations with a health promotion focus, the public health-related staff of hospitals and health care systems, and a range of others in private industry, government and the voluntary sector. (p. 343)

One is a member of the professional, public health workforce if "a significant portion [of] work content advances or contributes to accomplishing one or more of the ten essential public health services" (Tilson & Gebbie, 2004, p. 343). Although there are disagreements about what constitutes evidence-based practice (Mays, Halverson, & Scutchfield, 2004), there is mounting documentation about how to conduct evidence-based practice while providing the 10 essential services (Brownson et al., 2003; Potter, Barron, & Cioffi, 2003).

Authors' Note: *This survey was sponsored by the Council of Accredited MPH Programs (CAMP)—the organization of CEPH-accredited MPH programs; the Society for Public Health Education (SOPHE)—the only independent national organization dedicated to improving the profession of health education and to improving the health of all people through health education research, advocacy, and training; the Council on Education for Public Health (CEPH)—the nationally recognized public health accrediting agency; George Washington University—an accredited school of public health; Texas A&M University; and Dr. Don Chaney, who assisted with the computer survey and data collection.*

Health Promotion Practice
April 2006 Vol. 7, No. 2, 258-265
DOI: 10.1177/1524839905284574

The Authors

***Lynn D. Woodhouse**, MEd, EdD, MPH, CHES, is a professor and master of public health (MPH) program director at East Stroudsburg University in Pennsylvania.*

***M. Elaine Auld**, MPH, CHES, is executive director of the Society for Public Health Education in Washington, DC.*

***William C. Livingood**, PhD, is an associate professor of pediatrics at the University of Florida College of Medicine and director of the Institute of Health Policy and Evaluation Research at the Duval County Health Department in Jacksonville, Florida.*

***Lori A. Mulligan**, MPH, contributed to this article as part of her graduate experience at George Washington University. She now serves as the director of science policy and public liaison at the National Center for Research Resources in Bethesda, Maryland.*

In practice, public health workers accomplish these 10 services within varying contexts. There is a plethora of recent articles calling for enhanced training of public health practitioners, regardless of their work setting, to ensure that they possess the adaptable competencies needed to provide these essential services while simultaneously facilitating the well-being of the specific communities in which they work (Amodeo, 2003; Association of State and Territorial Health Officers [ASTHO], 2004; Bailey, 2003; Cioffi et al., 2004; Institute of Medicine, 2002, 2003; Mays, McHugh, Shim, Perry, & Halverson, 2004).

To accomplish these practice goals, practitioners are most effectively trained on the front line and within the culture of public health (Lichtveld et al., 2001). Optimally, this culture should emphasize collaboration, a population-based approach to practice, development of competencies relevant to the community, and the ability to conduct practice-based, transdisciplinary research (Cioffi et al., 2004; Milne, 2000; Potter, 2001; Potter & Eggleston, 2003; Taub, 2003). However, this culture has not always been emphasized in public health training institutions (Potter & Eggleston, 2003). A study examining credentialing of the public health workforce indicated that leaders in the public health shared common goals, such as social justice and a population focus, more frequently than they shared a common definition of the skills or training needed to reach these goals (Livingood, Woodhouse, & Godin, 1995).

The Purpose of This Article

The purpose of this article is to report the results of a descriptive study of master of public health (MPH) programs with a concentration in health education (MPH-HE) within the context of emerging public health workforce needs. The rapidity and magnitude of changes in the nation's public health and medical care systems call for improved data on the broad range of public health training programs so that their current and potential contributions can be understood. This clarification could improve the quality and quantity of graduates (through informed program planning) as well as inform strategic planning and policy development (for agencies and organizations charged to enhance the public health workforce). These accredited MPH programs with a concentration in health eduction, which were formally established by the American Public Health Association (APHA) in 1969, have not been previously studied as a group.

Overview of Accredited MPH Programs in Health Education

Schools of Public Health (SPH), developed prior to World War I, were originally accredited by the APHA. Likewise, in 1969, the APHA Committee on Professional Education published the first criteria and guidelines for accrediting graduate programs in community health education (CHE) and, later, began accrediting CHE (P. P. Evans, personal communication, February 2004). The University of Tennessee was the first accredited CHE program. The University of California, Northridge, and New York University were other early CHE programs accredited by APHA in 1971.

The Council on Education for Public Health (CEPH) assumed accreditation responsibility in 1974. Since the late 1970s, CEPH has accredited all schools of public health and all programs using the same accreditation procedures for both types of accreditation (Council on Education for Public Health [CEPH], 2005; Davis, Dandoy, & Greaves, 2003). In terms of criteria, all SPH and programs must develop students' competencies in the five core areas of public health (i.e., epidemiology, biostatistics, health administration, environmental health, and health behavior/health education). In addition, all SPH must offer at least one doctoral program as well as an MPH track or concentration in all five core areas of public health (CEPH, 2005).

According to CEPH, during 2003-2004 academic year there were two types of program accreditation: Community Health Education (CHE) and Community Health/Preventive Medicine (CH/PM). The CH/PM programs, initially housed in medical schools, have the option of offering one or more concentrations. Many of these programs are no longer located in medical schools and many no longer have concentrations in preventive medicine or links to a preventive medicine residency program. MPH-HE may be housed in CH/PM programs. About 30 of the 55 accredited CHE and CHPM programs offer a track in health education. All 15 of the accredited CHE programs offer only concentrations in health education because during the 2003-2004 academic year this type of program accreditation does not allow additional concentrations. Of the 53 programs with health education concentrations listed by CEPH, almost 60% are housed within CHE or CH/PM programs (the rest being

located in SPH). It is important to note that during recent CEPH criteria revision discussions, many program representatives requested a change in types of program accreditation. These representatives requested that future accreditation criteria offer only one type of MPH program accreditation. This request was approved in the 2005 criteria revisions.

BACKGROUND

The Health Education Discipline

Health education is defined as a discipline of applied social-behavioral sciences (Livingood, 1996). It is the application of behavioral science for improving the process of health change (Hajat, Brown, & Fraser, 2001). A health educator engages in a planned approach to health education for individual, organizational, or social change (Hajat et al., 2001). An MPH program with this concentration is designed to produce graduates with core public health training and the skills to apply social-behavioral sciences to enhance the health of the public within a population perspective.

According to a 2001 report of the National Association of City and County Health Officials (NACCHO), health education is considered one of the top public health occupations in demand by local public health agencies, a trend that is expected to continue throughout the next 5 or more years (Institute of Medicine, 2000).

Two main sets of competencies provide the foundation for training in MPH-HE programs—the emerging public health competencies and those developed by the health education profession. The core public health competencies have emerged after 10 years of development by the public health academic and practice communities and were adopted by the Council on Public Health Linkages Between Academia and Public Health Practice in 2001 (Public Health Foundation, 2004). The MPH-HE programs also require graduates to meet the graduate-level health education competencies described below.

Evolution of the health education competencies started with the *Statement of Functions of Community Health Educators and Minimum Requirements for their Professional Preparation, with Recommendations for Implementation* published in 1967 (Henderson, Wolle, Cortese, & McIntosh, 1981; NCHEC, SOPHE and AAHE, 1999; Vitello & Koontz, 2000). The subsequent development of a detailed set of competencies has guided professional preparation, program accreditation, and practice in health education for nearly 20 years. The competencies also serve as the foundation for a sophisticated system of voluntary health education credentialing, which has been in place since 1989 (Livingood & Auld, 2001). Graduate-level health education competencies were developed collaboratively with leadership from professional organizations in 1997 (NCHEC, SOPHE, and AAHE, 1999), and CEPH endorsed these competencies shortly thereafter. These dual foundations in the disciplines of public health and the applied social-behavioral sciences of health education provide unique opportunities to meet the training needs of the public health workforce.

Applied Social-Behavioral Sciences and Public Health Workforce Development

Recently, expert panels have released reports and articles describing the status of training and research needs for developing the public health workforce. These reports have assessed past successes and failures and provided direction for future training. Two recent reports published by the Institute of Medicine (IOM; 2000, 2003) have strong social and behavioral science implications for training of the public health workforce, especially in the area of community-based prevention and intervention. Although many reports have documented emphasis areas for workforce development, these reports provide a complementary look at the importance of weaving an emphasis on ecologically focused, applied social-behavioral science training, communication, and research (including community-based research skill development) into public health workforce development.

The 2000 IOM report *Promoting Health: Intervention Strategies From Social and Behavioral Research* emphasizes the need for developing more health interventions that incorporate the broad impact of social, behavioral, and environmental factors. The report recommends an enhanced emphasis on illuminating the complexity of issues across the ecological spectrum so that practitioners gain experience applicable in real communities and contexts. It also calls for the use of research designs to highlight these complex contexts. The committee proposed expanding the current models of intervention development and evaluation from traditional models of randomized control trials to those that include mixed method approaches (Institute of Medicine, 2000). A basic message is the need to transform training of the public health workforce to incorporate these skills and abilities rather than to augment the current process.

The IOM 2003 report *Who Will Keep the Public Healthy? Educating Public Health Professionals for the 21st Century* focuses on how public health training should be "strengthened to meet the needs of future public health professionals" (p. 3). The report describes the multiple advancements of science that have challenged public health practitioners (e.g., advancements in technology and genomics). It also describes the continual transformation in the demographics of the world that present challenges to the future of public health education and health disparity reduction. Much of the proposed framework for training illuminated in this report is grounded in the need for understanding

the multiple determinants of community health within the ecological context and ecological perspective (Lichtveld & Cioffi, 2003). The goal is to ensure that practitioners can develop multiple strategies with the power to document or impact health determinants at multiple levels. Although the report acknowledges that the traditional core areas of public health remain important for public health training, it emphasizes that eight additional content areas

> are now and will continue to be significant to public health and public health education in programs and schools of public health for some time to come: informatics, genomics, communication, cultural competence, community-based participatory research, global health, policy and law and public health ethics. (p. 7)

The report proposes an expansion and transformation of skills and knowledge that can support the critical emphasis on the ecological view and perspective (Stokols, 1996).

The descriptions of these eight areas demonstrate that the majority of this expanded knowledge and skill, as well as the emphasis on the ecological view and approach, evolved primarily from applied social and behavioral sciences (with exceptions being genomics and informatics). The combined competencies developed and validated by the health education profession, in conjunction with the core public health content that is required by graduates of MPH-HE programs, go a long way to accomplish the transformation of skills suggested by both reports described above.

METHOD

Little data exist documenting the specific characteristics of the MPH-HE programs that are preparing public health practitioners with a concentration in applied social and behavioral sciences outside of SPH. Other surveys of MPH programs in collaboration with CEPH do not provide specific findings on the MPH-HE programs (Davis et al., 2003).

This survey was developed and conducted to contribute to the assessment of the public health workforce and to assess the potential contribution of accredited MPH-HE programs to meeting the needs of contemporary public health workforce development. The survey had three primary goals:

1. To document MPH-HE program efforts to address major public health accreditation criteria, such as diversity, faculty, students, graduates, and worksite, as a group;
2. To assess the effectiveness of MPH programs with an emphasis in preparing community-based public health practitioners in terms of training experiences and employment; and
3. To assess the extent to which MPH programs address training challenges identified in recent IOM reports.

This survey data will enable future comparisons with other MPH training programs and/or SPH programs preparing students in health education. The data will encourage the sharing of aggregate data with emerging MPH programs offering health education concentrations to assist in their local program development or accreditation efforts.

Survey Development and Distribution Methods

The goals for this survey were collaboratively developed by the Council of Accredited MPH Programs (CAMP—the professional organization of CEPH-accredited MPH-HE programs) and the Society for Public Health Education (SOPHE). The survey was sponsored by CEPH and supported by George Washington University, an accredited SPH, through a graduate student research project. A Texas A&M (TAM) professor provided technical support for the survey Web site development and data collection processes. Human subjects approval was gained through George Washington University SPH Institutional Review Board.

The survey sample consisted of all fully accredited MPH programs, outside of SPH, listed by CEPH in 2003 or identified through CAMP as having a health education concentration ($N = 27$). A cover letter and a link to the survey Web site were distributed by e-mail to all MPH-HE program directors listed by CEPH. Data were collected for the 2002-2003 academic year using the online Web-based survey. All survey items, seven sections with a total of approximately 60 items, were developed collaboratively by a team of CAMP leadership and SOPHE representatives. During development, the survey was pilot tested for language and clarity in an MPH program research class at East Stroudsburg University and by selected CAMP program volunteers. Multiple iterations were tested and revised.

The item structure included primarily closed-ended questions. The following areas were covered by the survey:

- description of program;
- composition of curriculum and field experience; and
- description of students, graduates, and faculty related to diversity, community involvement, and employment.

The survey was available online for approximately 8 weeks at the Web site sponsored by TAM. Reminder e-mails were sent. Phone calls were made in an effort to ensure that program directors received the survey. The data were collated and prepared for analysis at TAM. SPSS and Excel were used to calculate descriptive statistics and develop various charts. Decisions were made by faculty of programs as well as officers of CAMP and SOPHE about how to organize findings with the most relevance to public health practitioner workforce development and to the issues presented in the 2003 IOM

TABLE 1
Faculty, New Enrollees, and Graduates in MPH Programs in Health Education by Ethnicity/Race, 2002-2003

Ethnicity/Race	*% Faculty (Full-Time or Permanent)*	*% Recently Enrolled Students*	*% Graduates*
Black, non-Hispanic	8	15	23
Latino, Hispanic	6	14	9
Asian, Pacific Islander	6	13	11
Native American or Other	0	9	1
White, non-Hispanic	80	49	56

NOTE: MPH = master of public health.

report. Preliminary data and findings were presented at the 2003 SOPHE annual meeting, November 14-16, in San Francisco.

RESULTS

Response rate for the survey was 70% (19 of 27 recipients responded) across all accredited MPH-HE programs. Twenty percent of programs did not respond, and 10% of programs were in transition and responded that they did not have data available. One hundred percent of the CHE programs responded.

The programs responding require a range of semester or credit hours. Nearly 90% of the programs require 41 to 49 semester hours/credits for graduation, whereas 50% require 44 or more semester hours for graduation.

Demographics of Students and Graduates

Students enrolled in the accredited MPH-HE programs in 2003 were primarily in-state students, that is, people from the region served by the institution. Seventy-five percent were residents of the state in which the program was located. New enrollees in the program (2002-2003 academic year) were ethnically and racially diverse. Of the programs reporting these data, 49% of the students were White. The majority of enrollees were non-White: 15% Black, 14% Latino, 13% Asian or Pacific Islander, and 9% Other or Native American (see Table 1).

Graduates in the 2002-2003 year were also diverse. Twenty-three percent of graduates were Black, 9% Latino, 11% Asian/Pacific Islander, 56% White, and 1% Other or Native American. Of these graduates, 95% were in-state students.

All MPH-HE programs require field placement experiences that emphasize exposure to public health practice (see Table 2). Approximately 72% of all student field placements took place in a community agency or governmental agency that focused on population-based public health.

Of great concern for the future of the public health workforce is the low percentage of all MPH graduates who go to work in public-health-serving institutions (Milne, 2000). The survey found that 61% of MPH-HE graduates were employed after graduation in either a community agency with a public health focus or a governmental public health agency (see Table 2). Some (not measured) of these graduates were employed in these sectors while in training.

It is possible that students exposed to public health service in their internships prior to graduation are more likely to desire to continue in public health service (Milne, 2000). Clearly, this idea seems to be supported by the data in Tables 2 and 3. Future surveys will be designed to clarify this issue.

TABLE 2
Student Field Experience Placement by Setting and Percentage Employment by Sector After MPH Program Graduation

Placement Setting/Employment Sector	*% Students in Placement Setting*	*% Graduates Employed in Sector*
Community public health–related agency	33	21
Government public health–related agency	39	40
Hospital–community focus	16	11
University health promotion	6	14
Private corporation	5	8
Other	1	6

NOTE: MPH = master of public health.

TABLE 3
IOM Priority Areas: MPH Programs in Health Education Building Competencies in the Area

IOM Priority Area	*% of Programs Building Competencies in the IOM Priority Areas*
Public health ethics	81
Policy and law	95
Global health	70
Cultural competence	85
Communication	95
Community-based participatory research	85
Informatics	50
Genomics	10

NOTE: IOM = Institute of Medicine; MPH = master of public health.

TABLE 4
Types of Academic Degrees by MPH-HE Program Faculty Members

Type of Degree	*% Faculty With Degree Type*
PhD	59
MPH	34
DrPH	11
MD	8
EdD	5
ScD	1

NOTE: 67% of faculty members report at least one degree from an accredited SPH or program. Some faculty members reported more than one degree. MPH-HE = master of public health–health education.

Competency Development in the IOM Priority Areas

The 2003 Institute of Medicine report states that future public health practitioners need to continue to build the required competencies in the core public health areas as well as in the eight new priority areas. As part of this survey, respondents were asked to list any of the eight new competency areas for which the curriculum of their program was already building skills. As shown in Table 4, more than 80% of the programs are building skills in cultural competence, public health ethics, community-based participatory research, communication, and public policy and law. Eighty percent of the programs build competencies in global health. A smaller percentage of MPH-HE programs are focusing on students' competency development in informatics (50%) or genomics (10%).

Program Faculty

Of importance to any quality MPH training program is the academic training and diversity of the full-time and/or permanent faculty. To remain accredited, MPH-HE programs must have an adequate number of well-prepared and diverse faculty members. Sixty percent of the programs have between 8 and 15 faculty members. Twenty percent have more than 16 faculty members. In some cases, these faculty members are also responsible for other MPH tracks. Many faculty members serve undergraduate programs in health services, community health, or public health and are frequently housed in the departments with the MPH-HE programs.

Most faculty members (98%) are trained at the doctoral level, and 67% have formal public health training (at least one degree) from a CEPH-accredited SPH or MPH program. Faculty are not likely to be trained as medical practitioners (e.g., 8% report an MD degree), although the number of faculty with a nursing degree was not measured. Faculty research histories tend to emphasize community-based research and practice rather than basic research or large clinical trials (Amodeo, 2003; Mays et al., 2004; Potter, 2001). This emphasis helps to develop skills of students to employ processes that emphasize collaboration, transdisciplinary initiatives (Kreitner, Leet, Baker, Maylahn, & Brownson, 2004), and integration with communities to conduct primary disease prevention interventions (Maurana & Goldenberg, 1996). Table 4 demonstrates the diverse types of academic degrees held by the faculty of these programs.

Ethnic diversity of the faculty is an important consideration in the effort to train a diverse workforce. The diversity of the faculty is displayed in Table 1.

A 2004 follow-up e-mail survey to CAMP member MPH-HE program directors ($N = 26$) was conducted to document the number of preceptor-supervised, in-community internship hours required by the MPH-HE programs. The CAMP member institutions responding (50% response rate) require a mean of 270 hours of supervised practicum, with five programs requiring less than 200 hours, two requiring between 200-299, and seven requiring greater than 300 hours of internship.

DISCUSSION

This survey documented some important characteristics of these MPH-HE public health workforce training programs and facilitates efforts to assess the status of the public health workforce. In addition, the findings have important implications for the credentialing of the public health workforce. The following paragraphs examine the implications of this information as a way to assess how the MPH-HE programs can facilitate efforts to increase the size and capacity of the public health workforce.

The MPH-HE programs require students to experience a supervised internship in a public health practice setting. This provides graduates with valuable practice experience not always found in MPH training programs (Milne, 2000). Because of this experience, graduates are exposed to and learn to help nurture the relationships with communities that facilitate effective practice (Potter & Eggleston, 2003). Data show most MPH-HE program students are in-state and tend to remain in the same locality to work after graduation. Sixty-one percent of graduates work in governmental and/or community-based public health agencies. Enrolled students and graduates are racially and ethnically diverse, with less than half of recently enrolled students being White. Developing and maintaining a diverse public health workforce is critical to the goal of eliminating health disparities (Amodeo, 2003).

Graduates have developed competencies in the traditional core public health areas as well as in most emerging public health core areas illuminated in the IOM 2003 report. Significant progress toward skill building in these areas is ongoing. In addition, with the growing emphasis on undergraduate training to expand the public health workforce, many of the MPH-HE programs are offered in conjunction with undergraduate public

health programs so they are contributing other well-trained professionals for the workforce. Review of MPH CHE Web sites indicates that most programs are housed in a department that also serves undergraduate public health–focused programs.

Graduates are enculturated to "practice" public health and to conduct research in the context of local communities, a process that is being increasingly understood by the field (Kennedy & Moore, 2001; Potter & Eggleston, 2003). Through this process, the skills students develop are a reflection of the needs of the region and communities served by the programs (Kennedy & Moore, 2001). Only a very small percentage of the graduates of these programs go to work in the corporate world (8%).

The service, research, and scholarship produced by the faculty of MPH-HE and health education faculty constitute applied social-behavioral sciences for public health. The health education literature, some of which is produced by these faculty and programs, is replete with examples of community-based efforts, including linking research and theory to practice through community-based participatory research, coalition and partnership development, capacity building and empowerment, individual and community change interventions and evaluations, risk communication, social marketing, advocacy, and health disparities reduction. Regular and special issues of the *American Journal of Health Promotion*, *Health Education & Behavior*, *Health Promotion Practice*, *Health Education Research*, *American Journal of Health Education*, and so forth, are major contributors to the knowledge base of public health initiatives. The applied social-behavioral science research foundation documented in these journals and other health education professional journals is a strength of the field.

Challenges

A challenge for MPH-HE programs is to infuse genomics into the curriculum to enhance graduates' ability to translate genomics research (Clayton, 2003; Tyler, 1995; Wilkenson, 2003). Likewise, competency development in informatics should be enhanced. As the technology changes, the master's-level practitioner needs expanded skills for working with databases and technology for planning and problem solving (Institute of Medicine, 2002, 2003).

It is important that MPH-HE programs continue to address student and faculty diversity through collaboration and partnership development, especially to enhance their ability to meet Latino health needs. Increasing these efforts could expand the MPH-HE program's capacity to expose students to social justice and the elimination of health disparities as they are experienced in the real world.

Perhaps the greatest challenge of MPH-HE relates to program funding. Although large federal and foundation investments have gone into training the public health workforce (Potter et al., 2003; Tyler, 1995), for the most part, these dollars have not reached the MPH-HE programs. MPH-HE programs outside of SPH have demonstrated their sustainability, surviving and proliferating because of a strong history of partnering with communities, which has been sustained without significant funding. However, the number of graduates remains small. Funding challenges make it difficult for the programs to substantially increase the number of graduates. To maintain CEPH accreditation and ensure a quality program, the MPH-HE programs must keep a low student-faculty ratio and produce exceptional applied research and service. Maintaining quality faculty who are faced with high teaching loads—some as high as 12 hours per semester—is a challenge. Funding is needed to support faculty time for applied research involving more students and reduced teaching loads.

Lack of access to (either due to exclusion or research history) dedicated research dollars, for example, from the Centers for Disease Control and Prevention (CDC) or National Institutes of Health (NIH), is another obstacle to growth. Without access to dedicated funding streams, it is difficult to maintain quality infrastructure for collaborative faculty and student research. Increasing funding earmarked for these programs to support practice-based research, participatory research, and for translation of research to practice has the potential to substantially increase workforce development opportunities throughout the country, particularly for areas that cannot sustain an SPH, such as rural communities (Hajat et al., 2001). Increased funding to enhance programs' academic and community partnerships for research and service could exponentially increase the number of graduates while complementing the value of the programs.

There are important advocacy and action efforts to be launched by the Council of Accredited MPH Programs, SOPHE, and organizations involved in the effort to move the health education field toward graduate and undergraduate accreditation (National Transition Task Force, 2005). These include efforts to support programs as they work to increase faculty and student diversity; continually update curriculum as additional information on best practice is gained; secure funding to support stipends for faculty, students, and public health preceptors to increase availability of internship experiences in local public health departments; more effectively associate applied social-behavioral science with health education so all stakeholders can have a greater appreciation for its contributions to public health; and increase access to funding, perhaps by allowing programs not associated with an SPH or Prevention Research Center to compete for an increased amount of NIH- or CDC-funding currently only available to these institutions.

Because of their strong practice base and their emphasis on community, MPH-HE programs have tremendous potential. Even moderately increased investment in this integrated learning approach could produce large numbers of highly qualified leaders of the public health workforce capable of facing future challenges. The academic programs exist because the communities

need them and because they are responsive to community needs. Increasing their viability will increase community capacity for ensuring a healthy public.

REFERENCES

Amodeo, A. (2003). Commentary. Developing and retaining a public health workforce for the 21st century: Readiness for a paradigm shift to community-based public health. *Journal of Public Health Management and Practice*, *9*(6), 500-503.

Association of State and Territorial Health Officers. (ASTHO). (2004). *State public health employee worker shortage report: A civil service recruitment and retention crisis*. Retrieved from http://www.ASTHO.org.

Bailey, S. (2003). Training the public health practitioner. *Journal of Public Health Management and Practice*, *9*(2), 87.

Brownson, R. C., Baker, E., Leet, T., & Gillespie, K. N. (2003). *Evidence-based public health*. New York: Oxford University Press.

Cioffi, J. P., Lichtveld, M. Y., & Tilson, H. T. (2004). A research agenda for public health workforce development. *Journal of Public Health Management and Practice*, *10*(3), 186-192.

Clayton, E. (2003). Ethical, legal and social implications of genomic medicine. *New England Journal of Medicine*, *349*(6), 562-569.

Council on Education for Public Health. (CEPH). (2005). Retrieved May 25, 2005, from http://www.ceph.org/

Davis, M. V., Dandoy, S., & Greaves, W. W. (2003). Gradate programs: What is their contribution to the training of the public health workforce. *American Journal of Preventive Medicine*, *24*(4), 361-366.

Gebbie, K. M., Merrill, J., & Tilson, H. (2002). The public health workforce. *Health Affairs*, *21*(6), 57-67.

Hajat, A., Brown, C. K., & Fraser, M. (2001). *Local public health agency infrastructure: A chartbook*. Washington, DC: National Association of City and County Health Officials.

Henderson, A. C., Wolle, J. M., Cortese, P. A., & McIntosh, D. V. (1981). The future of the health education profession: Implications for preparation and practice. *Public Health Reports*, *96*(6), 555-559.

Institute of Medicine. (2000). *Promoting health: Intervention strategies from social and behavioral research* (B. D. Smedley & S. L. Syme, Eds.). Washington, DC: National Academies Press (http://www .nap.edu).

Institute of Medicine. (2002). *The future of the public's health in the 21st century* (Committee on assuring the health of the public in the 21st century). Washington, DC: National Academies Press (http://www.nap.edu).

Institute of Medicine. (2003). *Who will keep the public healthy? Educating public health professionals for the 21st century*. Washington, DC: National Academies Press (http://www.nap.edu).

Kennedy, V. C., & Moore, F. I. (2001). A systems approach to public health workforce development. *Journal of Public Health Management and Practice*, *7*(4), 17-22.

Kreitner, S., Leet, T. L., Baker, E. A., Maylahn, C., & Brownson, R. C. (2004). Assessing the competencies and training needs for public health professionals managing chronic disease prevention programs. *Journal of Public Health Management and Practice*, *9*(4), 284-290.

Lichtveld, M. Y., & Cioffi, J. P. (2003). Public health workforce development: Progress, challenges, and opportunities. *Journal of Public Health Management and Practice*, *9*(6), 443-450.

Lichtveld, M. Y., Cioffi, J. P., Baker, E., Bailey, S. B., Gebbie, K., Henderson, J. V., et al. (2001). Partnership for front-line success: A call for a national action agenda on workforce development. *Journal of Public Health Management and Practice*, *7*(4), 1-7.

Livingood, W. C. (1996). Becoming a health education profession: Key to societal influence. *Health Education Quarterly*, *23*(4), 421-430.

Livingood, W. C., & Auld, M. E. (2001). The credentialing of a population-based health profession: Lessons learned from health education certification. *Journal of Public Health Management Practice*, *7*(4), 38-45.

Livingood, W. C., Woodhouse, L. D., & Godin, S. (1995). Perceived feasibility and desirability of public health credentialing. *American Journal of Public Health*, *85*(6), 765-770.

Maurana, C. A., & Goldenberg, K. (1996). A successful academic-community partnership to improve the public's health. *Academic Medicine*, *71*(5), 425-431.

Mays, G., Halverson, P., & Scutchfield, F. (2004). Making public health improvement real: The vital role of systems research. *Journal of Public Health Management and Practice*, *10*(3), 183-185.

Mays, G., McHugh, M., Shim, K., Perry, N., & Halverson, P. K. (2004). Identifying dimensions of performance in local public health systems: Results from the national public health performance standards program. *Journal of Public Health Management and Practice*, *10*(3), 193-203.

Milne, T. L. (2000). Strengthening local public health practice: A view from the millennium. *Journal of Public Health Management and Practice*, *6*(1), 61-66.

National Commission for Health Education Credentialing, Society for Public Health Education, and American Association for Health Education. (NCHEC, SOPHE and AAHE). (1999). *A competency based framework for graduate-level health educators*. Allentown, PA: National Commission for Health Education Credentialing.

National Transition Task Force on Accreditation of Health Education. (2005). Retrieved May 26, 2005, from http://www .healthedaccred.org/.

Potter, M. A. (2001). *Editorial: A twenty-first century call for public health workforce development*. New York: Aspen.

Potter, M. A., Barron, G., & Cioffi, J. (2003). A model for public health workforce development using the National Public Health Performance Standards Program. *Journal of Public Health Management and Practice*, *9*(3), 199-207.

Potter, M. A., & Eggleston, M. (2003). Supporting academic public health practice: A survey of organizational structures in public health schools. *Journal of Public Health Management and Practice*, *9*(2), 165-170.

Public Health Foundation. (2004). *Core public health competencies lists*. Retrieved July 6, 2004, from http://www.trainingfinder .org/competencies/background.htm.

Stokols, D. (1996). Translating social ecological theory into guidelines for community health promotion. *American Journal of Health Promotion*, *10*(4), 282-298.

Taub, A. (2003, Spring). Transdisciplinary approaches to building the capacity of the public health workforce. *Ethnicity and Disease*, *13*, 45-47.

Tilson, H., & Gebbie, K. (2004). The public health workforce. *Annual Review of Public Health*, *25*, 341-356.

Tyler, C. (1995). Public health practice and public health education: A personal view of their current relationship. *Journal of Public Health Management and Practice*, *1*(2), 44-47.

Vitello, E. M., & Koontz, N. L. (2000, January 15-16). *A brief overview of the chronology of events of quality assurance efforts for professional preparation of health education: Future directions for quality assurance of professional preparation in health education*. Paper presented at the Dulles Hyatt Hotel.

Wilkenson, J. M. (2003). Health promotion in a changing world. *American Journal of Health Promotion*, *18*(2), 157-161.