Core Competencies for Doctoral Education in Public Health

The Association of Schools of Public Health (ASPH) released the Doctor of Public Health (DrPH) Core Competency Model in 2009. Between 2007 and 2009, a national expert panel with members of the academic and practice communities guided by the ASPH Education Committee developed its 7 performance domains, including 54 competencies.

We provide an overview and analysis of the challenges and issues associated with the variability in DrPH degree offerings, reflect on the model development process and related outcomes, and discuss the significance of the model, future applications, and challenges for integration across educational settings.

With the model, ASPH aims to stimulate national discussion on the competencies needed by DrPH graduates with the new challenges of 21st-century public health practice and to better define the DrPH degree. (Am J Public Health. 2012;102:22–29. doi:10.2105/AJPH.2011.300469)

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THE DOCTOR OF PUBLIC health (DrPH) is viewed as the advanced, terminal degree for public health practice. However, DrPH programs vary widely across the nation on a variety of characteristics: mission, admissions criteria, prerequisite coursework, curriculum requirements, generalist versus specialist orientation, program length, required fieldwork, culminating requirements, and competencies.1 Many in practice and academia, including the Institute of Medicine (IOM), have recommended that schools of public health better prepare graduates for meeting the challenges of 21st-century public health practice and practice-based research.2 At the same time, health professions have put greater emphasis on measurable, competency-based training that coincides with the rise of outcomes-based higher education.3,4 Over the past decade, there has been increased focus on developing greater consensus regarding the DrPH degree and consistency in the education of DrPH students.5–7 With funding from the Centers for Disease Control and Prevention in 2007, the Association of Schools of Public Health (ASPH) and its member institutions accepted the challenge for filling the void in the preparation of the DrPH workforce by defining the competencies expected from their related educational experiences. We provide an overview and analysis of the challenges and issues associated with the documented variability in the DrPH degree offerings, a reflection on the model development process and related outcomes, and a discussion of the significance of the model, its future applications, and challenges for integration across educational settings.

IMPETUS FOR MODEL DEVELOPMENT

The trends regarding the need for greater accountability in both undergraduate and graduate education, the transition to increased transparency and clarity in learning expectations, and enhanced practice-based public health graduate programs have been well-documented.8–12 These realities, coupled with the growth of nonacademic employment opportunities for doctoral graduates, have led to the lack of agreement regarding models for doctoral education and confusion concerning how doctoral programs in public health can meet the needs of diverse learners, employment requirements, and demands in the public health field.13,14 In addition, many employers and faculty consider the DrPH a less prestigious degree than the PhD degree.9,15

During the past decade, doctoral programs in public health have become increasingly specialized and diverse to meet the breadth of career pathways and work settings, as well as the rapidly changing student demographics, learning styles, and educational modalities.16–18 This diversity has led to challenges associated with planning for doctoral programs, including faculty pedagogical skill building, curriculum development, the selection of optimal learning methods and modalities, and the establishment of educational standards. A number of recent national studies and reviews have addressed these challenges, including 4 seminal IOM reports that have advocated enriched and expanded educational experiences for advanced public health practitioners.19–22

Building a cohort of well-trained DrPH graduates has been suggested as a promising approach to meet the need for advanced practice leaders in public health. However, as indicated by Northridge and Heaton in this issue of the Journal,23 the number of DrPH degree holders graduating annually from accredited schools of public health is quite low compared with the number of PhD degrees awarded. In 2010, there were only 126 DrPH graduates, in contrast to 776 PhD degrees awarded from 26 of the 46 schools of public health.24 As a cohort, DrPH graduates have acquired the full spectrum of undergraduate degrees and possess varied content area expertise. Some DrPH degree holders start with clinical training, most often in medicine and nursing. Others obtain liberal arts and science or other technical degrees. In general, those with a DrPH degree practice in a broad range of work settings and perform many different roles and functions. However, the complete array of career pathways and positions has not been adequately documented because of the lack of alumni data monitoring mechanisms across the ASPH-member schools.
Furthermore, there was an absence of educational-level tracking in the most recent public health workforce enumeration, and no formal job performance analysis of DrPH degree holders exists.25

Despite the paucity of data about DrPH graduates’ scope of practice, the national expert panel formed for this initiative took into account the wide range of variability in DrPH career pathways and placed an emphasis on the need for generalist leadership management and research skills that could be applied across a wide array of workforce positions. Other panel views regarding DrPH work roles that guided project planning included the following:

- DrPH degree aspirants often return to academe from an early career in practice or are concurrently pursuing their degree while in the workforce.
- Public health professionals with a DrPH degree function in practice leadership positions and academic programs as faculty role models by translating research into practice, evaluating and disseminating the results of effective public health practice programs, and contributing to the published public health practice literature.
- Rather than serving as a technical expert (although some function as subject-matter experts), they are more likely to supervise or collaborate with technical experts to solve multifaceted problems. Hence, their roles require breadth across many aspects of public health rather than depth of technical skills in a single research area.1,2,26
- An appreciation of the linkages and synergies between research and practice is an essential element of the DrPH degree.

**PROJECT GOALS**

The ASPH considers the DrPH a professional degree offered for advanced education and training in public health leadership.2,14,15,27 In contrast to the PhD degree, the DrPH places greater emphasis on evidence-based practice to execute the 3 core public health functions (assessment, policy development, and assurance) across local, state, federal, and global settings.28,29

Although both the PhD and DrPH degrees involve research components, the DrPH focuses on providing leadership to find evidence-based solutions for public health practice, versus following narrower lines of research, as is common for the PhD. Therefore, the primary intent in the development of the DrPH Core Competency Model was to specify a model contextually grounded in research practice-relevant skills (e.g., program evaluation, data acquisition, analysis, interpretation, translation, dissemination) essential for developing and implementing critical public health practice activities.

Other related ASPH aims for this initiative were to define DrPH degree competencies, foster consistency across graduate qualifications and the DrPH degrees conferred by ASPH-member schools, differentiate the DrPH degree from the PhD degree, and enable accredited schools and programs of public health to evaluate their DrPH programs against a national, expert-panel-driven model.

**COMPETENCY-BASED FOUNDATION**

An emerging strategy for the improvement of graduate education across the health professions has been the emphasis on competency-based education (CBE) as a methodology for gaining stakeholder consensus, establishing a common lexicon for continued professionwide dialogue, and facilitating educational transformation. Lengthier discussions and listings of the rationales for and imperatives supporting CBE—in addition to the initial challenges and issues surrounding the related methodologies—have been widely addressed in the literature.2,29-40 Based on the soundness of the research evidence and pedagogy supporting CBE, both the Council on Education for Public Health—the accrediting agency for schools of public health and public health programs44—and ASPH, representing these accredited schools, have embraced competency-based education.8,36 To ensure that competencies guide curriculum development, the Council on Education for Public Health amended its accreditation criteria in 2005 to require identified competencies for all areas of specialization, including core courses and content majors, across all accredited public health programs and schools.42,43

In 2006, members of the ASPH Education Committee convened a steering committee to address professional doctoral education in public health, including the development of a consensus statement defining the degree and planning for public health. The MPH Core Competency Model, released by ASPH in 2006, was assumed as a prerequisite for those pursuing the DrPH degree. In June 2007, the steering committee released the following consensus statement:

The basic public health degree is the master of public health (MPH), while the doctor of public health (DrPH) is offered for advanced training in public health leadership.

The DrPH curriculum should serve to integrate the five core areas of public health, emphasize work experience relevant to the degree, and address learning methods in the context of public health practice. The DrPH should represent an advanced competency in public health practice and leadership skills, among others.44

Members of the steering committee also agreed on the need for student practicum experiences to develop advocacy and leadership skills and a doctoral thesis or dissertation investigating knowledge applicable to practice.44

In late 2007, ASPH gathered public health faculty and practitioners to address 3 major areas for DrPH competency model development and future planning. The goals were (1) to specify current and future public health practitioner workforce needs for doctoral training in public health, (2) to discuss the perceived degree value and employment opportunities for those with the DrPH degree, and (3) to initiate a formal DrPH competency model development project.

**Core Domain Specification Process**

The DrPH competency development project was formally launched in February 2008. Throughout the process, great effort was made to include a wide range of stakeholders from both academic and practice settings engaged in an array of model development specification and development activities. The various conferences, committees, councils, and advisory roles used to guide these activities are outlined in the final project technical report (http://www.asph.org/competency).

A task force of 2 dozen experts from public health academia and practice, several with DrPH degrees, launched the effort by envisioning the scope of DrPH
holders for the future. They discussed the need for technically competent managers at health departments and individuals capable of creating visions for public health organizations. They also considered the emerging need for future DrPH graduates to better anticipate and more adequately respond to emergent issues.

**Domains and Workgroup Selection**

An advisory panel, composed of a subset of the experts, subsequently identified and defined 7 overarching content domains for framing the competency development process: advocacy, communication, community—cultural orientation, critical analysis, leadership, management, and professionalism and ethics. Workgroups of practitioners and representatives from academia were then created to draft specific behaviorally based and measurable competencies within each of the 7 domains. These workgroups were populated on the basis of recommendations from deans at schools of public health and leaders from 3 ASPH partner organizations, including the American Public Health Association, Association of State and Territorial Health Officials, and National Association of County and City Health Officials. A total of 185 professionals participated in the 7 workgroups, with 61 (33%) representing practice.

**Competency Identification: Modified Delphi Process**

The 7 workgroups were charged with the creation of an inclusive slate of proposed competencies for their respective domains. The range of preliminary competencies was 82 to 190 per workgroup, with a total pool of 881 competencies. To distill the large slate of proposed competencies to 8 to 10 competencies per domain, each workgroup member completed 3 modified Delphi surveys and participated in follow-up consensus conference calls. The number of competencies per domain was limited to help ensure a parsimonious model and to facilitate the ease of adoption and use by the target audience of schools of public health. The overall response rate from the workgroup members across all 3 survey rounds was 88%.

**Model Integration**

The Competency Integration Council comprising the cochairs from each workgroup met to integrate the domains and competencies into a unified model. They considered the set of competencies from a national, multischool, and program perspective and recommended ways to disseminate and implement the model.

The council confirmed that the final competencies were action or behaviorally based, observable, measurable, and teachable. In addition, its members sought to ensure that the competencies were critical to transformational leadership in public health, augmentative to the 12 foundational MPH core competencies domains, and at a high enough level of performance for a DrPH graduate (based on Bloom’s Taxonomies of Educational Outcomes). After substantial review and related discussion, council members agreed on 51 core competencies across the 7 competency domains.

**Model Finalization and Dissemination**

Model version 1.0 was vetted in April 2009 with key stakeholders, including the ASPH Education Committee, directors of DrPH programs in Schools of Public Health, the Council on Linkages Between Academia and Public Health Practice, associate deans for academic affairs, and deans of ASPH member schools.

Feedback and recommendations from all of these groups, in addition to the suggestions from the field, were provided to the workgroup chairs for consideration. A major concern was the level of emphasis on the ability of a DrPH holder to both appreciate the need for, as well as to guide, research. The model was subsequently further refined with the addition of 3 research-oriented competencies that had been previously generated through workgroups’ use of a modified Delphi survey research method. The DrPH Core Competency Model with the 7 domains and 54 related competencies, version 1.3, was subsequently approved by the ASPH board in November 2009.

**FINDINGS**

The final DrPH Core Competency Model is graphically presented in Figure 1. In addition, an electronic version of the model and a detailed development process report have been posted online at http://www.asph.org/competency. This document includes a comprehensive summary of the model identification, specification, and refinement processes over the 2-year development period.

Leadership serves as the central focus of the model in line with the education and training outlined for the degree in the 2003 IOM report, Who Will Keep the Public Healthy? Six additional core competency domains essential to asserting DrPH field leadership include advocacy, critical analysis, communication, community—cultural orientation, management,
and professionalism and ethics. Also depicted in the model are the 5 MPH core public health sciences foundational to the DrPH degree: biostatistics, epidemiology, environmental health sciences, health policy and management, and social and behavioral sciences. Although not displayed in the DrPH model, the 7 interdisciplinary MPH core competency domains (communication and informatics, diversity and culture, leadership, public health biology, professionalism, program planning, and systems thinking) are also viewed as educational prerequisites to optimal DrPH graduate functioning.

Of the 54 final competencies, 52 (96%) match the cognitive domain classification of Bloom’s Taxonomy of Educational Outcomes, with 2 (4%) fitting into the affective domain. The 7 domains, definitions for each domain, and the collective 54 competencies for the model are displayed by domain in Table 1.

ANALYSIS

Throughout the initiative, participants emphasized the need to focus education in DrPH programs on scholarship for practice-oriented research. Such scholarship, as previously defined by ASPH, contains four dimensions, which are discovery, teaching, integration, and application. Students need to generate and then transmit knowledge, make connections with other disciplines, and finally facilitate practice, professional, and community sectors in enhancing the development of their capacity for performing essential public health functions.

The resulting model represents DrPH degree holders as leaders in the field of public health with advanced research expertise for developing and implementing evidence-based public health practice. Hence, leadership is viewed as a critical integrator for the other skills.

Creators of the DrPH Core Competency Model recognized the dynamic nature of public health and the grounding of the model in the 5 core public health sciences—as well as the competencies in the 7 cross-cutting interdisciplinary domains—acquired in MPH programs. The model represents DrPH degree holders as leaders in the field of public health who use advanced research expertise to perform and evaluate evidence-based public health practice using advocacy, communication, community—cultural orientation, critical analysis, leadership, and management skills as well as professionalism and ethics.

A key tenet guiding the model development process was the recognition that the DrPH degree is offered in a wide variety of forms—with a broad range of content—at institutions with varying academic emphases. Accordingly, the Core Competency Model is not intended to prescribe DrPH education, but rather is posited to provide assistance to schools of public health in developing new or reformulating existing programs. The model is also intended to represent only the core competencies for the DrPH degree, recognizing that individual schools of public health will supplement these core competencies with additional knowledge and skill sets reflecting their specific programmatic focus, whether general or discipline-specific. Participants intentionally created a model without discipline-specific boundaries for broad application of the competencies across disciplines.

The development of the ASPH DrPH model serves as the first step in responding to the numerous calls for further educational advancement and transformation across the health professions. By fostering an evidence-based educational outcome model derived from both the academic and practice communities, ASPH has provided both a framework and a set of educational standards that will contribute to the varying needs and expectations of its many stakeholders, including students, faculty, curriculum planners, accrediting bodies, and the field’s employers.

Both students and employers are expecting skill-based and behaviorally focused curricula for the development of optimal career-long leadership capabilities. Faculty who are involved with educational program development are as well in need of both the identification and specification of the essential skills and educational standards for enhancing their graduate program offerings and experiences. In addition, both informed educational policy and workforce advocates, as well as accrediting organizations, are committed to documented and accountable performance-based education directed by learning outcomes—or competencies.

Because of the changing national and global economic environments, employers both want and expect better-prepared graduates who can quickly adapt and contribute to the efficiency and productivity of their workforces. Hence, employers and today’s students as well will be making decisions based on proven outcomes among the many educational provider options. Students are seeking graduate educational experiences based on clear specification and behavioral operationalization of what they need to know and be able to do for advancement in their career progression and future work roles. They fully realize that knowledge alone is no longer a differentiator in terms of performance in today’s workplace because knowledge in one’s discipline is assumed of graduates with specific degrees or from certain professional programs. As pointed out by Karoly and Panis, behaviorally based and measurable skills that are transferable across a wide array of roles and settings will be preferred, used for employment, and more highly compensated.

To respond to the changing health professions’ educational landscapes, the recognized variability across current DrPH programs, and the need to promote quality and prestige for the DrPH degree, public health graduate education planners and faculty will need to rethink and reform current education paradigms and practices and shift curricula from faculty-centric to both learner- and practice-centered modes. Faculty across the multiple disciplines involved in DrPH education will increasingly be called upon to develop and enhance the educational programming in their respective specialties in line with evidence-based CBE, adult education, and life-long learning principles and methodologies. Clearly articulated behavioral and technical learning outcomes such as those in the DrPH Core Competency Model will be critical to the provision of quality educational programming.

Because the majority of faculty in higher education today is not well-grounded or comfortable with the newer CBE principles and learning methods in graduate settings, faculty will need to be formally prepared for the adoption and deployment of
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<th>Advocacy</th>
<th>Communication</th>
<th>Community–Cultural Orientation</th>
<th>Critical Analysis</th>
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<th>Management</th>
<th>Professionalism and Ethics</th>
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<td>The ability to influence decision-making regarding policies and practices that advance public health using scientific knowledge, analysis, communication, and consensus building.</td>
<td>The ability to assess and use communication strategies across diverse audiences to inform and influence individual, organization, community, and policy actions.</td>
<td>The ability to communicate and interact with people across diverse communities and cultures for development of programs, policies, and research.</td>
<td>The ability to synthesize and apply evidence-based research and theory from a broad range of disciplines and health-related data sources to advance programs, policies, and systems promoting population health.</td>
<td>The ability to create and communicate a shared vision for a positive future, inspire trust and motivate others, and use evidence-based strategies to enhance essential public health services.</td>
<td>The ability to provide fiscally responsible strategic and operational guidance within both public and private health organizations for achieving individual and community health and wellness.</td>
<td>The ability to identify and analyze an ethical issue, balance the claims of personal liberty with the responsibility to protect and improve the health of the population, and act on the ethical concepts of social justice and human rights in public health research and practice.</td>
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**Definitions**

**Present positions on health issues, law, and policy.**

- Discuss the interrelationships between health communication and marketing.
- Develop collaborative partnerships with communities, policy makers, and other relevant groups.
- Apply theoretical and evidence-based perspectives from multiple disciplines in the design and implementation of programs, policies, and systems.
- Communicate an organization’s mission, shared vision, and values to stakeholders.
- Implement strategic planning processes.
- Manage potential conflicts of interest encountered by practitioners, researchers, and organizations.

**Influence health policy and program decision-making based on scientific evidence, stakeholder input, and public opinion data.**

- Explain communication program proposals and evaluations to lay, professional, and policy audiences.
- Engage communities in creating evidence-based, culturally competent programs.
- Interpret quantitative and qualitative data following current scientific standards.
- Develop teams for implementing health initiatives.
- Apply principles of human resource management.
- Differentiate among the administrative, legal, ethical, and quality assurance dimensions of research and practice.

**Utilize consensus building, negotiation, and conflict avoidance and resolution techniques.**

- Employ evidence-based communication program models for disseminating research and evaluation outcomes.
- Conduct community-based participatory research and community development research projects.
- Design needs and resource assessments for communities and populations.
- Collaborate with diverse groups.
- Use informatics principles in the design and implementation of information systems.
- Design strategies for resolving ethical concerns in research, law, and regulations.

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<th>Educational Competencies</th>
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<td>Analyze the impact of legislation, judicial opinions, regulations, and policies on</td>
<td>Guide an organization in setting communication goals, objectives, and</td>
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<td>population health.</td>
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<td>Establish goals, timelines, funding alternatives, and strategies for influencing policy</td>
<td>Create informational and persuasive communications.</td>
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<td>initiatives.</td>
<td>Integrate health literacy concepts in all communication and marketing</td>
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<td>Design action plans for building public and political support for programs and policies.</td>
<td>initiatives.</td>
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<td>Develop evidence-based strategies for changing health law and policy.</td>
<td>Develop formative and outcome evaluation plans for communication and</td>
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<td>marketing efforts.</td>
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<td>Prepare dissemination plans for communication programs and evaluations.</td>
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performance-based educational outcomes and active, experiential learning methods. Because of the ASPH competency modeling initiative, DrPH programs will be better positioned to benefit from the evolving shift to outcome- or competency-based education. The test of the model will be the level of adoption and integration of both the model and the individual competencies into curricula at schools of public health. Curricula specialists working with graduate education institutions in relation to the deployment of competency-based education are fully aware of the many challenges in getting both the specific competencies and related educational processes fully integrated into curricula, as well as accepted and utilized by faculty.32

CONCLUSIONS

The DrPH Core Competency Model is the first national set of consensus-driven competencies for the DrPH degree. It highlights the transformative leadership role DrPH graduates play in public health research and practice, as well as in advancing the field. By identifying these core competencies, the ASPH aims to raise the bar for consistent quality DrPH education and highlight the credibility of the degree, for purposes of supporting greater opportunities for and acceptance of DrPH holders. It is not prescriptive to ASPH-member schools and is offered as a benchmark for schools to use in creating or rethinking DrPH programs.

Competency sets generally have a limited lifespan. Models should be examined and updated as new thinking and future challenges evolve in the field. Because a few cohorts should graduate before revisiting the model, the authors recommend evaluating the model in roughly 10 years. The ASPH Education Committee also recommends that input from DrPH employers, practitioners, alumni, and students be integrated into future thinking regarding the preparation of DrPH graduates.

ASPH is committed to ongoing study regarding the dissemination, adoption, and utilization of the DrPH core competencies and will continue to disseminate these results at internal meetings and with partners, via print and electronic means. The ASPH invites comments and input on the DrPH Core Competency Model for informing and improving future model development, informing continued DrPH program planning, and having an impact on education program quality for the pipeline of future leaders in the field of public health. ■

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Note. The contents of this article are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.

Human Participant Protection

All participants were national academic and practitioner leaders serving as voluntary members of workgroups and task forces for the purpose of providing advice and counsel, as well as their opinions for the study. They were fully informed of all of the methods both verbally and in writing. For each survey round, they had the option to participate or not. Data were collected anonymously and were reported on a cohort basis only. No protocol approval was needed for this study.

References


