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## Training Competent Public Health Informaticians



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The primary focus of public health is prevention, with a key focus on responding to the health needs of individuals as well as populations. Meanwhile, public health informatics (PHI) is the field in which today's information revolution meets the specific needs of public health. It is also defined as information, computer science, and technology systematically applied to public health practice, research, and learning. Computers and mobile devices—from cell phones to handheld personal digital assistants—are commonly used by today's health workers and policy makers. These tools are essential to health informatics.

Improvements in the quality of health services through health informatics have been achieved in developed and developing countries alike. Currently, health providers can deliver good-quality medical service even in remote locations. Telehealth programmes, for example, make use of satellite communications. Still, the need for public health informaticians in developing nations has been identified in many different studies and reports.

### Public Health Informatics as a Solid Discipline

The information revolution that has occurred since the beginning of the 21st century has laid the foundation for the development of PHI as a solid discipline. In 2002, the Public Health Informatics Competencies Working Group firmly established that public health professionals should have informatics competencies, which are defined as “a public health worker's measurable performance, skill, or knowledge related to the systematic application of information and computer science and technology to public health.”

According to the Centers for Disease Control and Prevention (CDC), public health agencies employ two categories of public health informaticians: the first includes researchers, scientists, project managers, and programme advisors, while the second is made up of chief information officers and other senior agency personnel. The high level of competency required by these senior professionals in the 21st century can be ensured by qualifying public health informaticians with the best knowledge and methods available.

A prior study analysed existing biomedical and health information programmes. As no similar work has been done to examine PHI programmes, it is important therefore to determine the current availability of PHI programmes and what they have to offer. The primary objective of this study was to explore PHI training programmes that currently exist in order to meet the growing demand for a trained PHI workforce. The goal is to examine, from the perspective of a possible stakeholder, what information is readily available online.

### Study Methods and Statistical Analysis

Researchers used several search engines, scientific databases, and the websites of informatics organisations; sources included PubMed, Google, the American Medical Informatics Association, and the International Medical Informatics Association. The search was conducted from May to July 2011 and from January to February 2012 using key words such as *informatics*, *public health informatics*, or *biomedical informatics* along with *academic programmes*, *training*, *certificate*, *graduate programmes*, or *postgraduate programmes*. Course titles and catalogue descriptions were gathered from the programme or institution websites.

Variables included PHI programme categories (short-term, certificate, master's or PhD, and fellowship programmes), location (within the United States and outside the US), mode of delivery (face-to-face, online, and both), programme credits, and costs. Each course was then categorised based on its title and description as available on the Internet. Finally, the investigators matched course titles and descriptions with the competencies for PHIs determined by Centers for Disease Control and Prevention (CDC).

Descriptive analysis was performed to report means and frequency distributions for continuous and categorical variables. Stratified analysis was performed to explore average credits and cost per credit among both the public and private institutions.

### 15 PHI Programmes Offered by 13 Different Institutions

The authors identified 15 programmes across 13 institutions offering some kind of PHI training. Fourteen programmes were US-based, and one was offered by an institution outside the United States (see [Table 1](#)). Eleven (73 percent) of the programmes were certificate programmes. None of the institutions offered a PhD programme specialising in PHI. Of the 13 institutions, eight (62 percent) were public, and five (38 percent) were private.

Of the PHI training programmes offered by the public institutions, 67 percent (six of nine programmes) were certificate programmes, compared to 83 percent (five of six) of the programmes that were offered by the private institutions. Of all the PHI training programmes, seven were offered

completely online, and six used a face-to-face approach. In two programmes, online and in-person classes complemented each other.

The average number of credits and the associated costs required to obtain PHI training were much higher in private as compared to public institutions. Also, the authors found 125 courses across the 15 PHI programmes. They specifically matched the courses to the established CDC competencies for public health informaticians, all programmes addressed at least some of the components. The predominant themes were strategy development, knowledge and project management, interoperability, and integration with clinical and population health. However, in their analysis based on the titles and descriptions of the courses offered, no PHI programme completely covered all of the CDC competencies.

#### Addressing the Growing Needs of Public Health Informaticians

The study results suggest that a need for online contextual and cost-effective PHI training programmes exists to address the growing needs of professionals worldwide who are using technology to improve public health in their respective countries. Online programmes have a higher potential for reaching larger audiences on an international level, as long-distance and web-based classes are not limited by physical or national boundaries.

An assessment of the English workforce estimated that 25,000 full-time equivalents (FTEs) out of 1.3 million workers in the English National Health Services were employed in health informatics. A study in the United States focusing on the Nationwide Health Information Network (NHIN) "estimated [a] need for 7,600 FTE for installation of [electronic health records (EHRs)]..., 28,600 FTE for the...hospitals that do not have EHRs, and 420 FTE to implement the infrastructure to connect the network. Similarly, the Office of the National Coordinator for HIT (ONC) has estimated that the goals for EHR adoption...would require 50,000 new personnel."

The existing training programmes are not sufficient enough to adequately address the growing global demand for professionals in the field of PHI, given the challenges that already exist. The programmes are not adequately standardised, and at times the authors had difficulty finding the necessary information about the PHI courses and the competencies covered in these courses.

Good quality must be ensured, while programmes must also be accessible to the individuals who have the greatest need for such training to meet the healthcare needs of their populations through the successful adoption of technology. The currently available training has yet to meet the needs of the global workplace, providing individuals who have PHI training within specific competency domains.

Image Credit: Centers for Disease Control and Prevention

Published on : Mon, 20 Oct 2014