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# Foundations for the Health Care Workforce: The Future of Health Science Education

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## Abstract

Increasing demand for health sector jobs has resulted in unprecedented growth in health science undergraduate education. The rapid pace of growth in this area has left many unanswered questions about the requirements for educating tomorrow's health care workforce. In this study, 122 undergraduate health science programs in the United States are examined, providing information on basic aspects and current status of health science education, such as education delivery format (face-to-face or on-line), curriculum focus, and identified occupational targets. Program characteristics are also explored. This study illustrates the big picture regarding health sciences education. Critical issues are raised about how to better prepare members of the health science community.

The U.S. Bureau of Labor Statistics (2009) has projected that health care industry employment had the fastest and largest growth within a decade, suggesting a promising future filled with health-related career opportunities. With the health care job market expanding, the non-clinical health profession is getting the public's attention. The non-clinical health professions exclude any jobs directly related to diagnosis and treatment. Examples of the non-clinical health professions include: health information managers

and technicians, health care administrators, public health educators, medical social workers, medical equipment or pharmaceutical sales, and insurance processing and sales workers (Bureau of Labor Statistics, 2009; Lacey & Wright 2009). The employment growth rate for the non-clinical health professions is projected to be 34.5% from 2010 to 2020 and 1.4 million new jobs is projected to be added to the market during this time frame (Lockard & Wolf 2012). This change in the landscape has prompted the need for quality health

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care education that can cultivate skilled non-clinical health care workers to fill relatively diverse roles.

Current health science education has attempted to fulfill these requirements through the establishment of competencies in foundational knowledge. The National Center for Education Statistics describes a health sciences program as “a general, introductory, undifferentiated, or joint program in health services occupations that prepares individuals for either entry into specialized training programs or for a variety of concentrations in the allied health area. Includes instruction in the basic sciences, research and clinical procedures, and aspects of the subject matter related to various health occupations” (National Center for Education Statistics, n.d.). Due to increasing demand in the employment sector, health sciences undergraduate programs have grown rapidly. In 2005, health sciences were the most offered career programs among professional education (Levesque et al, 2008). During 2009 and 2010, health profession and related programs were the third most popular majors for postsecondary students (Snyder & Dillow 2012). However, competencies for health science education are difficult to identify and measure, in terms of proficiency (Lane 2010). Considering the fast changing healthcare field, what criteria are required of educators to prepare future non-clinic health care workforce? For educators as well as students, the pathway to becoming a certain non-clinical professional is often vague especially when compared to the paths followed by more highly specialized clinical professionals. For

example, reports addressing professional competencies are often targeted toward clinical, discipline-specific audiences, such as medicine, nursing, and rehabilitation professional education, or the blending of competencies in inter-professional education (Verma et al, 2009).

In the process of shaping the competencies within the health sciences, it is critical to explore emerging trends so core knowledge and curricula can be evaluated and ultimately the common foundations across programs can be identified. This preliminary study examined the current status and trends shaping undergraduate health sciences programs by examining departments or program web sites to identify program delivery methods, identified educational tracks, and unique program characteristics among health science programs.

### Methods

Information from health science program websites was collected and then evaluated via content analysis. University web sites have served as an information-distribution hub for academic departments or programs to communicate to the public, current and prospective students. With the advancement of Internet and web technology, the Internet has become one of the major communication channels to the public. Universities have set up their web sites to deliver important information and to maintain their public relationships (Ashcroft & Hoey 2001; Mo & Stanton 2010). These official web sites serve critical roles in not only reaching out to a broader audience and maintaining public relationships, but also

serve as a central hub designed to distribute information and fulfill the needs of current and prospective students. These web sites usually provide information to help the public understand who they are and what they do. Information such as department background, admission, curriculum, and potential graduate career path could contribute to prospective students' decision on choosing their schools and majors (Poock and Lefond, 2001).

Content analysis is a research method that has been known for decades within journalism, media, and communication fields. Weber (1990: 9) defines content analysis as "a research method that uses a set of procedures to make valid inferences from text..." and Krippendorff (2004:21) emphasizes that the goal of content analysis is to "make replicable and valid inferences from data to their context". Because content analysis offers systematic and yet flexible design, its application has been expanded to fields such as music, law, film, health care, and psychology and is used for topics such as searching public opinion, political propaganda, or understanding personal minds. In this study, McMillan's (2000; 2009) suggestions for analyzing the collected web content was adopted. The National Center for Education Statistics' College Navigator Web site (<http://nces.ed.gov/collegenavigator/>) was searched for programs that offered undergraduate health sciences degrees. Programs designed for mid-career clinical professionals or clinically focused, discipline-specific feeder programs for clinical certification were excluded. Among these 130 programs at colleges and

universities across the United States, eight (8) programs that did not offer sufficient information, or were not accepting new students were excluded, resulting in the analysis of 122 programs in total. Each individual researcher reviewed all the program web sites, and generated the initial codes and then met to discuss these codes and to find a common ground and agreement for the codes. In this study, the 3rd author independently coded the first 20 programs (about 16% of total web sites) on the list for testing reliability. The rest of the team met and discussed the coding, and agreed on the results. Microsoft Excel was used to manage these data and latter was imported to SPSS software for descriptive analysis. Pearson Chi-Square was used to test the differences in two areas: curriculum focus and occupational target, and occupational target and internship opportunity.

## Results

Study results revealed trends in non-clinical health science undergraduate education that included: a) methods of delivery, b) current state of curriculum offered, c) targeted employment areas d) the availability of an internship opportunities and e) features of existing programs.

### Program Delivery Method

Program delivery format data revealed that 91 programs examined offered traditional face-to face delivery format (74.6%). Twenty-seven programs (22.1%) offered blended format and only 4 programs (3.3%) were delivered in pure on-line format.

### **Current State of Curriculum Offered**

We found that 79 programs (64.8%) offered a general health-related curriculum without educational tracks. Forty-two programs (34.4%) offered tracks such as community health education, school health education, or health care.

### **Targeted Employment Areas**

Out of 122 programs, 76 programs (62.3%) listed specific occupational targets on department web sites and 15 programs (12.3%) self-identified as feeder programs to graduate education. However, 31 programs (25.4%) did not provide sufficient information on which careers their graduates may pursue. With further examination, the results of Pearson Chi-Square analysis (see Table 1.) indicated no statistically significant difference in the pattern of occupational targets among the programs that offered a general curriculum and programs that offered tracks,  $X^2(4, N=122) = 8.045, p > 0.05$ .

### **Internship Opportunities**

As for the internship opportunities, the results of Pearson Chi-Square analysis revealed statistically significant differences in the availability of an internship opportunity offered by the programs with specific occupational targets, programs considered as graduate school feeder programs and programs with insufficient information,  $X^2(2, N=122) = 17.408, p < 0.05$ . As Table 1 shows, programs with specific graduate employment targets were likely to provide internship opportunities.

### **Characteristics of Existing Programs**

Program characteristics, or the distinctive features of a particular program, were explored through course lists and descriptions. Course offerings were grouped into five main categories: health communication and education, significant populations, health administration and organization, public health and community advocacy, and pre-clinical and health and fitness professionals.

### **Discussion**

For this study, the researchers investigated publicly available profiles of health sciences education programs, to analyze if the websites communicate critical information to prospective students and to identify educational trends in the field. These preliminary findings revealed how the major programs are delivered, explored the curriculum focus, program characteristics, and allowed the researchers to contemplate whether specific student employment areas were identified. Despite the rapid growth of health science programs nationally, department web sites and recruitment materials indicated that very few of these programs offered online or hybrid courses. Increased flexibility in delivery format would create opportunities for non-clinical working professionals and distance learners in pursuit of degree completion or professional development.

Approximately two-thirds of the programs examined offered general health-related curricula without educational tracks guiding students toward specific disciplines. It is not known whether these programs are in the

process of developing tracks or plan to pursue educational tracks at some point in the future. It is worth noting that the vast number of programs advertising specific occupational targets and employment opportunities did not seem to be consistent since there is no statistically significant difference in the educational tracks and employment targets. One possible interpretation for this discrepancy is that the general health-related curriculum has adequately contributed to the core knowledge shared by the health professions at large. It is possible that the calls for more health-related specialized knowledge in the employment sector cannot be answered in undergraduate education and will require graduate level education or extensive experience in the workforce via on-the-job learning.

Five basic categories of courses emerged from these data to illustrate the impressive scope of health science education: health communication and education, significant and often vulnerable populations, health administration and organization, public health and community advocacy, and pre-clinical, health and fitness professionals. In general, the health communication and education courses were widely applicable to many career paths within the health care workforce, while three others (health administration and organization, public health and community advocacy, and pre-clinical and health and fitness) formed the basis of tracks, leading to a more distinct range of occupations. One characteristic in particular, "significant populations," carried a special weight, as these courses exemplified the opportunities

available for health science students to study health-related issues in surrounding communities or regions. Programs offering courses that addressed the specific needs of the communities in which they are housed, such as border health, added a unique dimension to the student experience as well as raised awareness about community health advocacy.

### **Limitations**

These findings result from publicly available web sites, and reflect the status right at this moment. These data may not reflect recent changes in requirements, delivery formats or curriculum implemented after we accessed the web sites. This preliminary study took a glimpse at only the surface of current health science education practice; further studies need to be conducted to fully understand the complex issues of health sciences education.

### **Implications and future studies**

The small number of programs offering flexible learning environments (online and hybrid courses) suggests that programs have underutilized advanced learning technology, especially considering the high priority placed on these technologies in other health related programs such as nursing (Ali, Hodson-Carton & Ryan 2004; Mancuso-Murphy 2006). Unfortunately, many of the program web sites examined in this study lacked user-friendly interface design features and contained barriers that were difficult to navigate. The rising demand for non-clinical members of the health care workforce calls for the education sector to examine whether

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it can fulfill the increasing demand with this limited approach.

Table 1: *Frequency Counts and Percentages for Curriculum Focus, Occupational Targets and Internship Opportunity*

Occupational Target							
	Specific Careers		Graduate School		Insufficient Info.		$X^2$
	Freq.	%	Freq.	%	Freq.	%	
<u>Curriculum</u>							8.045
General	49	64.5	8	53.3	22	71.0	
Tracks	27	35.5	6	40.0	9	29.0	
Insufficient Info.	0	0.0	1	6.7	0	0	
Total	76	100	15	100	31	100	
<u>Internship</u>							17.408*
Yes	58	76.3	7	46.7	11	35.5	
No	18	23.7	8	53.3	20	64.5	
Total	76	100	15	100	31	100	

\* $p = 0.000 < 0.05$

Table 2: *Course Categories of Existing Programs*

<u>Category</u>	<u>Examples of Courses</u>
Health communication and education	Individual health promotion, health literacy, healthy lifestyles, nutrition, wellness management, disease prevention and health education.
Significant populations	Courses on vulnerable populations like children, people with disabilities, and the elderly. Also, populations unique to the program location such as Native and indigenous peoples, Judaic studies, particular immigrant groups, and courses on health issues experienced along national borders.
Health administration and organization	Health care management, health systems management, leadership, laws, ethics and regulations in health care, grant writing and fundraising, and professional standards.
Public health and community advocacy	Promoting health in community settings, epidemiology, substance abuse, human sexuality, family violence, public health administration, social justice, environmental health, consumer health, community health, global health, nutrition and food sciences and occupational health and safety.
Pre-clinical and health and fitness professional	Exercise and sport sciences, research methods, gerontology, stress management, first aid and safety, kinesiology, recreation, parks and tourism management, health behavior, statistics for the health sciences, social work speech pathology and audiology.

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