Design and Development of an MPH Program for Distance Education Delivery

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Abstract—The Master's of Public Health (MPH) degree is growing in popularity among a number of higher education institutions throughout the world as a distance education graduate program. This paper offers an overview of program design and development strategies that promote successful distance delivery of MPH programs. Design and development challenges are discussed in terms of type of distance delivery, accreditation, student demand, faculty development, user needs, course content, and marketing strategies. The ongoing development of a distance education MPH program at Utah State University will be used to highlight and consider various aspects of this important but challenging process.

Keywords—Public health, course content, distance education, higher education, graduate students.

I. INTRODUCTION

THE Master's of Public Health (MPH) degree is experiencing increased demand throughout the world as the need and expectation for high quality public health services continues to grow.[1] Public health services in many countries, however, are experiencing these greater demands even as resources for public health are diminishing.[2] As such, it is important to find more effective educational strategies that can reach a broader audience in raising the competence levels of public health workers.

In many public health disciplines, new methods that go beyond traditional classroom experiences are needed to help current practitioners and new students carry out core public health functions, update skill areas, and perform surveillance of health objectives.[3] Distance education delivery methods are accordingly being evaluated as possible avenues for brining MPH training to diverse populations of public health workers (targeting both pre-service and in-service students) who may otherwise not have access to training.[4-7]

Distance education strategies have been evaluated for content delivery in a large number of public health disciplines, including epidemiology,[8, 9] maternal and child health,[10, 11] public health nutrition,[3, 5] preventive medicine,[1, 12, 13] occupational hygiene,[14] and tobacco control.[15] These evaluations have taken place in culturally, economically, and geographically diverse settings, including countries such as Mexico,[16] Brazil,[17] and other Latin American countries;[18] Hungary,[19] Poland,[20] and other European countries;[18] and in the United States,[21] and Australia.[9]

Throughout the U.S., a large number of institutions are beginning to offer the MPH degree via distance education methods. While some of these programs are accredited through the Council on Education for Public Health (CEPH), many are not. The Health, Physical Education and Recreation (HPER) Department at Utah State University (USU) is currently in the early stages of developing an MPH program in community health education for distance education delivery through USU's Regional Campus and Distance Education division.[22] The goal of this paper is to review a meaningful process that USU might follow in designing and developing a distance education MPH program. Key points from this process will then be outlined for consideration by others who are involved with the design and delivery of MPH distance education programs.

II. EFFECTIVENESS OF MPH DISTANCE EDUCATION DELIVERY

In a 2000 publication, Birnbaum and Greenhalgh argued that we "should proceed with caution and systematic evaluation" as we move toward the delivery of distance education programs which offer both "rewards and pitfalls."[23] Perhaps in response to this call for caution and systematic evaluation, a number of rigorous evaluations have since demonstrated the effectiveness of distance education methods for delivering high quality MPH instruction in a number of disciplines, and in a variety of settings. Distance education MPH programs in particular have been shown to positively impact student academic achievement, career success, knowledge, attitudes, practices, and satisfaction.[21] In most cases the outcomes achieved through distance education are comparable to traditional face-to-face, on-campus, programs.[7, 9]

A. Student Achievement

A study that compared graduates from a traditional MPH program against students from a distance education MPH program found that course grades and grade point averages were similar for both programs.[5] The authors concluded that distance education strategies were suitable for delivering an MPH curriculum.[5] An Australian study of distance education instruction found that completion rates and grades did not differ between on- and off-campus programs. Qualitative data confirmed that distance education was as successful as on-

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campus teaching in providing clinical epidemiology programs at the postgraduate level.[9]

B. Career Success

One study found that 75% of graduates from a distance education MPH program in the U.S. had developed new professional affiliations and 31% experienced job promotions.[21] A similar study found that all graduates from a distance education MPH program experienced advancement in the workplace.[5]

C. Knowledge, Attitudes, and Practices

A study that evaluated the impact of a satellite training program for public health professionals concluded that the broadcast created a statistically significant gain in knowledge, improved attitudes about the importance of public health activities, and follow-up actions that were recommended in the broadcast.[24] Another study found that a year-long web-based program targeting maternal and child health workers resulted in higher levels of self-efficacy and perceived skill level in performing functions covered in the training module.[11] A third study concluded that a distance education MPH program led to strengthening of knowledge, perspective, skill, technical facility, confidence, and job performance.[7]

D. Student Satisfaction

A study conducted at the University of North Carolina, Chapel Hill, found that 97% of graduates from a distance education MPH program would recommend the program to others, and 75% said that their overall opinion about the program had increased since graduation.[21] Other studies have also reported high levels of student satisfaction for MPH programs delivered via distance education.[7, 24]

Different delivery modes for distance education MPH programs that have been evaluated include: web-based courses,[10] video courses,[15] satellite broadcast,[24] internet,[4] and computer conferencing.[19] In general, distance education MPH programs using these delivery modes have been found to be accessible, affordable, acceptable, and appropriate for working professionals, and in most respects equivalent to residential programs.[7] Based on these types of findings, several authors have argued that distance education will be a key component of MPH program delivery in the future, especially if we are to meet the demand for a more competent public health workforce in an age of diminishing resources.[1, 2, 7, 14, 15, 17]

III. THEORY AND DISTANCE EDUCATION

Equivalence theory represents an approach to distance education that is built on the concept of 'equivalence of learning experiences' between local learners and distant learners.[25] This theory posits that the more similar the learning experiences, the more similar the outcomes. Given advances in technology that provide various modes of distance learning, this theory may be an appropriate beginning point for considering the design and development of an MPH curriculum for distance delivery.

Equivalency theory has five key elements that can inform curriculum design: *Equivalency*—learning experiences should be designed that provide experiences with equal value for learners; *Learning Experience*—students in different locations at different times may require a different mix of learning experiences; *Appropriate Application*—availability of learning experiences should be proper and timely; *Students*—students should be defined by their enrollment in the course rather than their location; and *Outcomes*—outcomes should be similar for learners regardless of location.

TABLE I
DESIGN AND DEVELOPMENT OF THE MPH DISTANCE CURRICULUM

Equivalency Theory

1. Equivalency
2. Learning experiences
3. Appropriate application
4. Students
5. Outcomes

Curriculum Design Process

1. Market analysis
2. Student analysis
3. Program infrastructure
4. Faculty analysis
5. Plan of study

Plan of Study for MPH in Community Health Education

NCHEC Requirements	CEPH Requirements
1. Health needs assessment	1. Biostatistics
2. Program planning	2. Epidemiology
3. Program implementation	3. Environmental health
4. Program evaluation	4. Health administration
5. Administer health ed Programs	5. Social/Behavioral Sci.
6. Serve as a health ed Resource Person	
7. Communicate and advocate for health ed	

IV. CURRICULUM DESIGN PROCESS

A number of steps have been identified for the successful design of distance education MPH programs that have been evaluated and found to be effective.[3, 16] Common steps include: market analysis, student analysis, program infrastructure, faculty analysis, and the development of the plan of study.

A. Market Analysis

The first step in designing an MPH program is a thorough market analysis that identifies unmet public health training needs for a given geographic location, and the level of student demand for training that can address those unmet needs.[3] Data collection during this stage would likely include an assessment of public health workforce readiness, and an

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analysis of available training and educational programs already in place. Much of this data might be available through local public health departments. In the case of Utah State University's proposed MPH program, focus groups and student interest surveys will also be conducted at established distance education sites throughout the state.

B. Student Analysis

Once it has been determined that public health training needs can be met through a distance education MPH program, and that student demand is sufficient to support the program, a detailed analysis of student needs is warranted.[3, 16] It is the purpose of USU to establish a distance education MPH program that focuses on community health education. The challenge will be to identify student training needs (both in-service and pre-service) based on professional profiles and interests. Again, this will be accomplished through focus groups and student surveys at regional distance education sites.

C. Program Infrastructure

An important and challenging step is to assess and design an appropriate program infrastructure that takes into consideration available distance technologies, cost of delivery, availability of student support services (recruitment, registration, advising, mentoring, supervising, etc.), course scheduling and sequencing (that can accommodate student needs), faculty workloads, and other functions that will support the program. Utah State University already has a well established distance education infrastructure that utilizes web-based instruction and interactive video conferencing, and that has numerous student support systems already in place. Conceptualizing an appropriate infrastructure that solves course scheduling challenges, faculty workloads, and student mentoring and supervision will require close collaboration between the originating department (HPER) and the Regional Campus and Distance Education system at Utah State University.

D. Faculty Analysis

An important step in designing the program infrastructure is an analysis of faculty resources available to support the program.[16] Training will be required for faculty to successfully transition from teaching on campus to teaching via distance technologies. Distance education often is more time intensive for courses that require supervision and mentoring. Implications for travel requirements, travel time, and travel cost must be calculated and considered. As this process unfolds at USU, there is reluctance among some faculty to get involved with distance education, and there are uncertainties as to how faculty workloads will be impacted and equitably managed.

E. Plan of Study

The plan of study involves the establishment of specific courses, schedules, and timelines that meet program objectives within the constraints of distance delivery and student needs.[3, 16] The nature of the course content will often be guided by professional standards and accrediting bodies as discussed below.

V. PLAN OF STUDY FOR PUBLIC HEALTH

The accrediting body for public health schools and programs in the U.S. is the Council on Education for Public Health (CEPH) (www.ceph.org). The credentialing body for individual certification in community health education is the National Commission for Health Education Credentialing (NCHEC) (www.nchec.org). In combination, these organizations provide an overview of curriculum expectations and desired learner skills that can guide the development of a plan of study for graduate education in public health. Based on CEPH criteria, all MPH programs, regardless of discipline, are expected to cover five core areas of knowledge and practice: epidemiology, biostatistics, environmental health sciences, health services administration, and social and behavioral sciences. Additionally, students specializing in health education must be able to demonstrate proficiency in seven core responsibility areas: health needs assessment, program planning, program implementation, program evaluation research, program administration, health education resource, advocate for health education.

VI. CHALLENGES

Numerous challenges must be addressed in designing and successfully delivering a distance education MPH program. Specific challenges cited by MPH distance education planners include the potential difficulty in attracting sufficient enrollment numbers over time to justify the initial and ongoing expense of developing and initiating a program.[17] Others have found that distance education delivery demands intensive resources to sustain and support.[8] It has been found that not all students are well suited for distance learning, which may require a higher level of motivation, and that field support of students is a key to success which places high demands on academic staff.[8] Many of these challenges can be anticipated and addressed in the design process.

VII. CONCLUSION

It seems clear that distance delivery of MPH programs represents an important avenue for addressing workforce training needs in public health. While such programs require careful planning and may incur higher resource costs, the end result is a broader dissemination of training that will help support the growth and development of public health professionals that would otherwise not have access to such training. This paper has attempted to outline some of the key considerations and strategies for designing and developing a successful distance education MPH program.

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