

Medical University of South Carolina
Department of Public Health Sciences



Program Planning Summary

MPH in Biostatistics

A handwritten signature in black ink, appearing to read "Mark S. Sothmann", written over a horizontal line.

Mark S. Sothmann, Ph.D.
Interim President

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Date

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Program Planning Summary

New Program Institution: Medical University of South Carolina

Academic Unit: Department of Public Health Sciences (DPHS)

Name of Program: Master of Public Health in Biostatistics

CIP Code: 26.1102

Proposed date of implementation: Fall 2015

Qualification for Palmetto Fellows Scholarship or LIFE Scholarship: No

Delivery mode: Traditional

Justification of the Need for the Proposed Program

The proposed Master of Public Health in Biostatistics, to be housed in the Department of Public Health Sciences (DPHS) in MUSC's College of Medicine (COM), will fill a growing need in the state and the country for public health professionals. A 2002 Institute of Medicine report¹ highlights the critical role that disease prevention and community-based participatory research will play in the nation's healthcare future. Both of these areas are the foundations of graduate training in public health sciences. Importantly, MPH graduates are specifically trained in prevention efforts, whereas the medical model of care focuses primarily on treatment. The nation's transition to a new healthcare delivery model means that professionals with expertise in prevention and community-based research will be critical to ensuring adequate availability of healthcare for all and for improving the health of the nation. The proposed MPH in Biostatistics helps to fill the need for well-trained professionals by providing integrated public health training for students seeking the MPH degree, as well as an opportunity for nurses, doctors, dentists, pharmacists, and allied health professionals to bolster their credentials and enhance their understanding of how their practice can best meet the public health needs in the future.

Relationship with Existing Programs within MUSC: The proposed MPH in Biostatistics does not duplicate any other programs at MUSC. It complements existing programs in the College of Graduate Studies (CGS), specifically, the PhD in Biometry and Epidemiology and the Master of Science in Clinical Research, by providing breadth of knowledge across the disciplines in public health while providing rigor in health behavior and health promotion. In contrast to the MSCR and PhD degrees, which focus on teaching students the research skills needed to conduct clinical and population based studies, an MPH in Biostatistics is a professional degree and prepares students for roles in biostatistics in all the public health sectors. Currently, no MPH degree programs exist at MUSC. MUSC's Research Strategic Plan has identified public health and population sciences as critical areas for development.

Relationship with Existing Programs at Other Institutions: The only other MPH degrees in the state are offered by the University of South Carolina's (USC) Arnold School of Public Health. The proposed MPH curriculum will be developed to ensure our program is complementary to the USC program. As explained below, while both degree programs will offer core competencies in the public health sciences, MUSC's program will differ from USC's in two ways— (1) we will target our enrollment to a different pool of students, ours consisting largely of current healthcare professionals, current healthcare students, and individuals who are especially interested in applied public health using our medical informatics resources, as MUSC is home to a SmartState Endowed Chair in Medical Bioinformatics; and (2) MUSC includes electives (see coursework table) that focus on inter-professional collaboration with healthcare providers and which address public health issues in the Lowcountry, especially Coastal Carolina.

Due to the increasing workforce demand for public health professionals and the recent expansion of undergraduate programs to include degrees in public health, there is a growing need for an additional MPH program in Biostatistics in the state and specifically in the Lowcountry.² In 2012 the College of Charleston received approval to offer BS and BA degrees in Public Health. These degree programs have grown quickly and currently have over 250 enrolled students with a declared Public Health major. The proposed MPH in Biostatistics at MUSC provides a natural extension to the College of Charleston's undergraduate program. Moreover, once an MPH program is developed at MUSC, dual degree programs could be developed including BS/MPH and BA/MPH (with the College of Charleston), and MD/MPH, PhD/MPH, DMD/MPH,

PharmD/MPH and DPT/MPH with other colleges at MUSC.

In summary, the demand for MPH-trained graduates in the state is expected to exceed the number of graduates that will be produced by our program and USC's program (as shown by BLS statistics below), so the state is well-served to have two institutions conferring these degrees.

Program Demand and Productivity

There is a wide variety of students and professionals who are expected to pursue an MPH degree, reflecting the national trend of growth in fields related to Public Health, according to the National Bureau of Labor Statistics. Typically, MPH programs at medical schools draw students from professionals employed at their institution in health-related fields, such as Medicine, Nursing, Health Administration, Dental Medicine and Pharmacy. Our program is also expected to draw from our own employee pool. In addition, recent graduates from undergraduate degree programs around the state will apply. We anticipate recruiting 5 – 10 students in year 1 and expect that within 5 years, the enrollment will increase to 20 – 30.

Employment Opportunities for Graduates

The proposed MPH in Biostatistics is a broad professional degree that will provide graduates marketable skills for careers in biostatistics and public health in a wide range of settings, including public health agencies, local and regional health departments, hospitals and other healthcare organizations, government regulatory agencies, not-for-profit agencies, academic institutions, and industry (specifically health services and pharmaceutical industries, both of which are growth industries). Graduates with MPH training are equipped to enter careers in current and projected growth areas, as shown below².

United States	Employment		Percent Change	Projected annual job openings	Median Salary (\$K)
	2012	2022			
Statisticians	27,600	34,900	+27%	1,610	\$79.3
Health Technologists and Technicians, All Other	90,000	114,600	+27%	3,310	\$40.9
Medical Scientists, Except Epidemiologists	103,100	116,800	+13%	3,550	\$79.9

South Carolina	Employment		Percent Change	Projected annual job openings	Median Salary (\$K)
	2012	2022			
Statisticians	27,600	34,900	+27%	1,610	\$46.8
Health Technologists and Technicians, All Other	90,000	114,600	+27%	3,310	\$38.1
Medical Scientists, Except Epidemiologists	103,100	116,800	+13%	3,550	\$80.9

National Data Source: Bureau of Labor Statistics
State Data Source: SC Employment Security Commission

This program will also provide students with the necessary foundation to continue in Epidemiology and Biostatistics PhD programs, or to obtain additional professional degrees in healthcare occupations. There is a high demand for public health physicians (MD/MPH) for health care management and planning³. MUSC's proposed MPH program is particularly well suited to help fill these needs.

Course Content and Administration

With 21 faculty and extensive extramural funding, DPHS will provide a rich learning environment for students. The MPH in Biostatistics will require a total of 45 hours of course work, including fifteen credit hours in five core courses required by the Council of Education for Public Health: biostatistics, epidemiology, environmental health science, health services administration, and social and behavioral sciences. During their second year, students will complete an internship (for 6 credit hours) and demonstrate their knowledge in a capstone project (3 credit hours).

MPH Biostatistics, Year 1 *Denotes required core public health coursework	Year 2
<p><i>Fall Semester, Year 1</i></p> <ul style="list-style-type: none"> • Principles of Epidemiology I (3)* • Biostatistics Methods I (3)* • Social and Behavioral Sciences (3)* <p><i>Spring Semester, Year 1</i></p> <ul style="list-style-type: none"> • Principals of Epidemiology II (3) • Biostatistics Methods II (3) • Environmental Health Sciences (3)* <p><i>Summer Semester, Year 1</i></p> <ul style="list-style-type: none"> • Public Health Policy and Health Services Research* (3) • Analysis of Biomedical Data (3) • Computing for Biostatistics (2) • Elective Coursework (3) 	<p><i>Fall Semester, Year 2</i></p> <ul style="list-style-type: none"> • Elective Coursework (6) • Design and Analysis of Survey Data (3) • Public Health Seminar (1) <p><i>Spring Semester, Year 2</i></p> <ul style="list-style-type: none"> • Internship (6) • Capstone Project (3)

Articulation and Inter-institutional Cooperation

MUSC would seek to strengthen the current collaborative relationships with the College of Charleston, Clemson University, and USC’s Arnold School of Public Health. We will also reach out to USC-Beaufort to examine how graduates of its recently approved B.S. in Health Promotion may be served by our MPH programs. MUSC and USC will maintain their Memorandum of Understanding for a dual MD/MPH degree (established in 2004). Although this program has not been widely used by MUSC's MD students, primarily due to lack of interest in relocating in order to complete the MPH degree, it does offer the opportunity for interested medical students to complete an MPH degree at USC within one year (vs. two years as currently designed at MUSC), so this option will remain available. With the MPH degree, MUSC will be able to offer a dual degree on its own campus (e.g., MD/MPH, DMD/MPH; PharmD/MPH). Informal discussions with the College of Charleston and USC have identified several potential avenues for collaboration. For example, with the maturity of the MPH program, it may be possible for College of Charleston students to take courses during their undergraduate training so that they can complete the requirement of the MPH degree at an accelerated pace (thus reducing their cost).

Estimate of Costs

The DPHS already offers courses meeting core requirements in biostatistics and environmental health sciences and all of the required courses and electives in epidemiology, so no new expenses are incurred to provide these courses. Faculty with the expertise to teach core courses on social and behavioral sciences and health services administration and policy currently reside within DPHS or hold adjunct appointments in DPHS. These faculty will be granted protected time, funded by tuition, to develop and teach these new MPH courses. Additional teaching assistants will be hired as necessary and will also be funded from tuition. Additional faculty effort will be needed to supervise the MPH Capstone projects, and additional space and computer support services (e.g., software and hardware support and instruction in statistical and business software) are also needed to support students. The total new costs for this program—not supported by tuition—are estimated to be less than \$50,000 annually; these will be subsumed by the College of Medicine’s annual budget.

Sources

1. Institute of Medicine. *The Future of the Public’s Health in the 21st Century*. 2002. The National Academies Press.
2. National Data Source: Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections Bureau of Labor StatSouth Carolina Employment Security Commission
3. *Training Physicians for Public Health Careers*. 2007. The National Academies Press.