

## STUDENT AND FACULTY OUTCOMES OF THE FIRST THREE YEARS OF THE DUKE MASTER OF BIOMEDICAL SCIENCES PROGRAM

Kathryn M. Andolsek MD MPH; Duke School of Medicine; Leonor Corsino, MD MHS: Duke School of Medicine; Maureen Cullins, AM; Duke School of Medicine; Christie T. McCray BS.Duke School of Medicine; Leonard E. White, Ph.D. Duke School of Medicine

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**Background:** Pathways to health professions careers are increasingly competitive with a widening scope of competencies for aspiring applicants. More students are pursuing pathways previously considered “nontraditional.” Approximately 15% of medical students report enrolling in a post-baccalaureate program prior to medical school. (1) Few systematic outcomes have been reported (2-5). Students tend to be older, minority (6) not children of health clinicians (7), more likely to enter primary care and serve the underserved. (8-11) We designed a special master’s program within the School of Medicine to address the existing gap in Duke’s participation in the health professions, biomedical sciences, and health-related workforce pipeline: The Master of Biomedical Sciences (MBS). We aimed to 1) prepare students to be highly competitive candidates for admission into health professions schools, biomedical careers, and other health-related professions; 2) increase integration of biomedical content and professional formation through experiential learning ; 3) promote efforts to create and sustain workforce diversity; and 4) enhance educational innovation.

**Objectives:** The objective of this study is to report the outcomes of the MBS’ first 3 cohorts, with special emphasis on enrollment to health professions and other graduate and professional schools.

**Methods:** The 11-month curriculum comprises 38 credits representing approximately 75% of Duke’s first year MD curriculum. Faculty members include Ph.D., MD, DPT, PA, DNP, PharmD, and Nutrition, representing one School of Medicine basic science and 8 clinical science departments, the School of Nursing, and Arts and Sciences . We tracked student success through postgraduate surveys and contacts through email, telephone, and in-person. We tracked faculty experience through surveys and informal communication. The study was reviewed and exempted by the Duke SoM Institutional Review Board.

**Outcomes:** To date, we have had 160 matriculants with one hundred fifteen graduates. There have been 49% women and 51% men. 39% have been non-Hispanic Whites, 28% black/African American, 11% Hispanic, 19% Asian (3% Native American and 0.6 Native Hawaiian). The average MCAT of those who took the MCAT before and after the MBS dramatically improved. Sixty-four (90.1%) of the seventy-one who applied to health profession/graduate schools were accepted and have matriculated at 28 institutions: 53 MD, 2 DO, 3 DDS, 2 PA, 1 DPT, 1 BSN/NP, 1 MBA and 1 JD. Nearly all graduates not in school are employed; over three fourths through connections established specifically for MBS. Faculty report opportunities for interprofessional collaboration, educational innovations, and scholarship.

**Significance:** The Duke MBS program has been successful at providing students with tools and guidance necessary to successfully matriculate to health professions schools. Further, our program, has been able to fill an existent gap in health professions education by enrolling a diverse cohort of students pursuing diverse interests in health careers. Graduates have found gap year employment through the Duke Office of Clinical Research, Duke Employee and Occupational Health, and Duke Primary Care. Faculty have collaborated across disciplines, producing educational innovation with enhanced professional resiliency. Duke MBS illustrates the value for learners and faculty in integrating biomedical science and professional development in an interdisciplinary and interprofessional educational setting.

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