

ORIGINAL RESEARCH

A New Master's Degree in Global Health: Reflections on a 5-year Experience



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Abstract

BACKGROUND The University of California—San Francisco's (UCSF) Master of Science (MS) degree in global health sciences, a 1-year degree program started in 2008, is the first accredited master's degree in global health in the country.

OBJECTIVE The aim of this study was to review the genesis and structure of the MS degree program, and describe its progress over its first 5 years.

METHODS We reviewed the program's teaching methods, academic curriculum, course evaluations, and backgrounds and outcomes of the first 127 graduates. Student opinions were gathered from anonymous course evaluations. Student outcome data and graduates' perspectives were gathered through a voluntary, anonymous, online survey. We reflect on student demand, program strengths and weaknesses, and future academic directions.

FINDINGS The program's structure arose from three learning objectives identified by the Curriculum Committee: a multidisciplinary approach to the foundations of global health, an emphasis on research design and methods, and an application of theory to international fieldwork. The resulting broad curriculum has attracted students of diverse backgrounds, which has enriched classroom discussions. Over the first 5 years, the program revised its fieldwork project criteria to allow more flexibility in design, leading to a higher rate of publication and enabling students to graduate with an academic portfolio. Students have reported that the high faculty-to-student ratio has fostered strong mentorship relationships; this is vital as 66% of graduates work in academics. Graduates have reflected that group work in the program appropriately prepared them for their work environment. The program's experience has guided its response to: pressure to focus on medical aspects of global health; students' needs for career skill-building; financial challenges; and trends toward online didactics.

CONCLUSIONS The recent surge in interest in global health careers has created demand for academic programs. UCSF has designed the MS degree program to balance breadth and depth of learning in a multidisciplinary curriculum, and combine career preparation and theoretical learning in a one-year academic degree. The challenges of balancing breadth and depth of learning in a multidisciplinary program, and combining career preparation and theoretical learning in a one-year academic degree, have informed UCSF's MS program design.

KEY WORDS education, masters, MS, degree, students, fieldwork, research

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INTRODUCTION

In the past decade, faculty and trainees at universities in the United States and abroad have exhibited a rapidly growing interest in global health as an independent academic pursuit.^{1,2} The Consortium of Universities in Global Health (CUGH), established in 2008 with 20 members, now has >120 members globally, and a number of prominent US institutions have begun formal undergraduate and graduate programs in global health (eg, Duke, Notre Dame, Harvard).³ In 2013, the CUGH Global Health Programs Database catalogued 4 undergraduate degrees (BA, BS, minor); 20 undergraduate concentrations, tracks, specializations, or equivalent; 11 graduate academic degrees (MA, MS, MSc, PhD), 6 graduate academic concentrations; and 22 professional degree concentrations (MD, NP, residency, MPH, LLM, MBBS).³

This surging academic interest has created demand for improved program collaboration and oversight, including a consensus framework for global health education at the master's level.⁴⁻⁷ In November 2011, the Association of Schools and Programs of Public Health Global Health Competency Development Project published core competencies, comprising knowledge, skills, and attitudes that serve as educational benchmarks for careers in global health.^{8,9}

The University of California San Francisco (UCSF) established Global Health Sciences (GHS) in July 2003 as an umbrella organization to harmonize campus programs relevant to global health. With the chancellor's support, representatives of the 4 UCSF professional schools and the Graduate Division formed a Global Health Graduate Group to craft and govern a master's (MS) degree program. In 2008, the MS in global health sciences admitted its inaugural class of 7.

As the first MS degree in global health in the country, the GHS MS was conceived as an academic program with a comprehensive core curriculum and a multidisciplinary approach to public health in a globalized world, with particular emphasis on low-income, marginalized, and underserved populations. UCSF review bodies approved a 1-year, 4-quarter MS degree comprising at least 36 course units and a capstone work product.¹⁰

In this study, we review the genesis, structure, and progress of the degree program over its first 5 years: 2008 to 2013. We summarize the teaching methods, academic curriculum, course evaluation, and student backgrounds. We discuss the program's evolving student demand, strengths and weaknesses, future

academic direction, and career outcomes for its 127 graduates during this 5 year period. We also focus on the evolving student demand, future academic directions of the program, an assessment of its strengths and weaknesses, and career outcomes of the 127 graduates during this 5-year period.

DEGREE PROGRAM DEVELOPMENT AND EVOLUTION

Curriculum Development and Requirements. In 2007, in conjunction with the director of the GHS MS, curriculum committee of representatives from the 4 UCSF schools (Medicine, Pharmacy, Dentistry, and Nursing) and the Graduate Division, defined the main objectives, learning competencies and requirements of the degree. The committee agreed that the curriculum should emphasize 3 essential themes:

1. Mastery of the multidisciplinary foundations of global health (social, economic, policy, environment, and health systems);
2. Quantitative and qualitative research methods; and
3. An experiential capstone project that would fully occupy one academic quarter.

The university governance approved the degree in April 2008.

As a University of California Health Science campus, new UCSF degree programs and curricula must undergo an extensive review and sequential approval by the Graduate Council, Academic Senate, and the Campus-wide Coordinating Committee of Graduate Academic Affairs. Further, the Western Association of Accredited Schools must periodically review and certify established academic programs.

Recruitment and Admission of Students. The majority of students learn of the program via the UCSF GHS master's degree website or by word of mouth. Applications are received online and eligible candidates are interviewed in person or by Skype. We examine academic transcripts, letters of recommendation, a resume, and personal statement for evidence of academic accomplishment, global health experience, motivation, leadership potential, and program "fit."

One of the strengths of the program is the wide range of student origins, interests, and experience. The learning environment is greatly enlivened by student diversity, and students are encouraged to share their personal experiences in a supportive and non-threatening atmosphere. Thus, for each class, the Admissions Committee is attentive to the overall

balance of experience, background, and potential for contribution to the learning environment, and potential for contribution to the field of global health.

The Admissions Committee is composed of GHS faculty, faculty from other schools (Nursing, Pharmacy, Medicine, and Dentistry), and MS alumni. Selected applicants are interviewed by the Admissions Committee in a panel-style interview for approximately 20 minutes.

Overall, the matriculation rate averages 2 enrollees for every 3 offers (Table 1). The main reasons students decline our offer of admission include receiving scholarships from other institutions, financial hardship, change of plans, or family matters. On average, about 1 student withdraws from the course each year, usually for personal reasons.

Coursework. The faculty embraces a holistic approach to global public health that teaches the foundations of global health (including architecture, major players, themes, goals, and declarations) and global policy and development. The Millennium Development Goals provided a useful framework. Two separate courses cover the major communicable and noncommunicable diseases of global importance, respectively. These courses also incorporate topics such as complex humanitarian emergencies, tobacco control, injuries, and environmental health. Two courses analyze the social, cultural, and behavioral determinants of health and teach students about the health policy landscape. Several electives (eg, women's health, epidemiologic surveillance, implementation science) were instituted in 2011 (Appendix A).

A capstone seminar runs throughout the year in which students select and develop their spring quarter capstone projects. This seminar is codirected by the program directors and focuses on scientific writing, oral presentation skills, and professional development. These seminars also address the ethical aspects of research and health interventions using case studies of student experiences.

Successful completion of the degree requires a cumulative grade point average of 3.0 as well as

passing a qualifying examination (advancement to MS candidacy), completion of the capstone project, and passing the final comprehensive examination.

Pedagogy: Student-directed Learning. Overall, the curriculum situates population health and health systems in the context of economic, sociocultural, and environmental sectors. In most cases, 2 faculty members from different disciplines direct and teach each class with occasional guest lecturers. Classes generally comprise a 1-hour lecture followed by a 2-hour student-led small group seminar. Lectures emphasize a synthesis of many sources of content, and seminars examine case studies and debates via problem solving or in-depth discussion of selected readings in a small-group format. Initially, faculty members facilitate the seminars, but students quickly learn how to manage team learning themselves and seminars soon become self-directed. An important objective of the degree is to help students develop leadership skills. Students gain practical experience leading seminars, debating controversial topics under faculty supervision, and delivering oral presentations to faculty and peers with associated immediate constructive feedback.

The Capstone Project. Student capstone projects have varied widely in topic and location, with countries and projects directed by student interest, alignment with specific skills they wish to acquire, and the presence of UCSF or affiliated faculty on the project (Fig. 1). Approximately one-third of students stay in the United States to work on projects with existing data collected abroad or on projects with direct relevance to underserved populations in the United States. A number of students work at established UCSF collaborative sites in Uganda, Tanzania, Kenya, Malawi, and Guatemala. Our students have conducted fieldwork in Afghanistan, Myanmar, Peru, Brazil, Nicaragua, Benin, Senegal, South Africa, and the Middle East.

Selection of the capstone project takes place during the fall academic quarter. All research methods courses (epidemiology, biostatistics, and mixed methods) are held in the fall to enable students to

Table 1. MS Application and Enrollment Data

Year	Applied	Interviewed	Accepted (% total applicants)	Enrolled (% accepted applicants)
2008–9	11	10	8 (72)	7 (88)
2009–10	35	35	28 (80)	18 (64)
2010–11	74	59	47 (64)	29 (62)
2011–12	186	72	50 (27)	36 (72)
2012–13	181	119	60 (33)	38 (63)

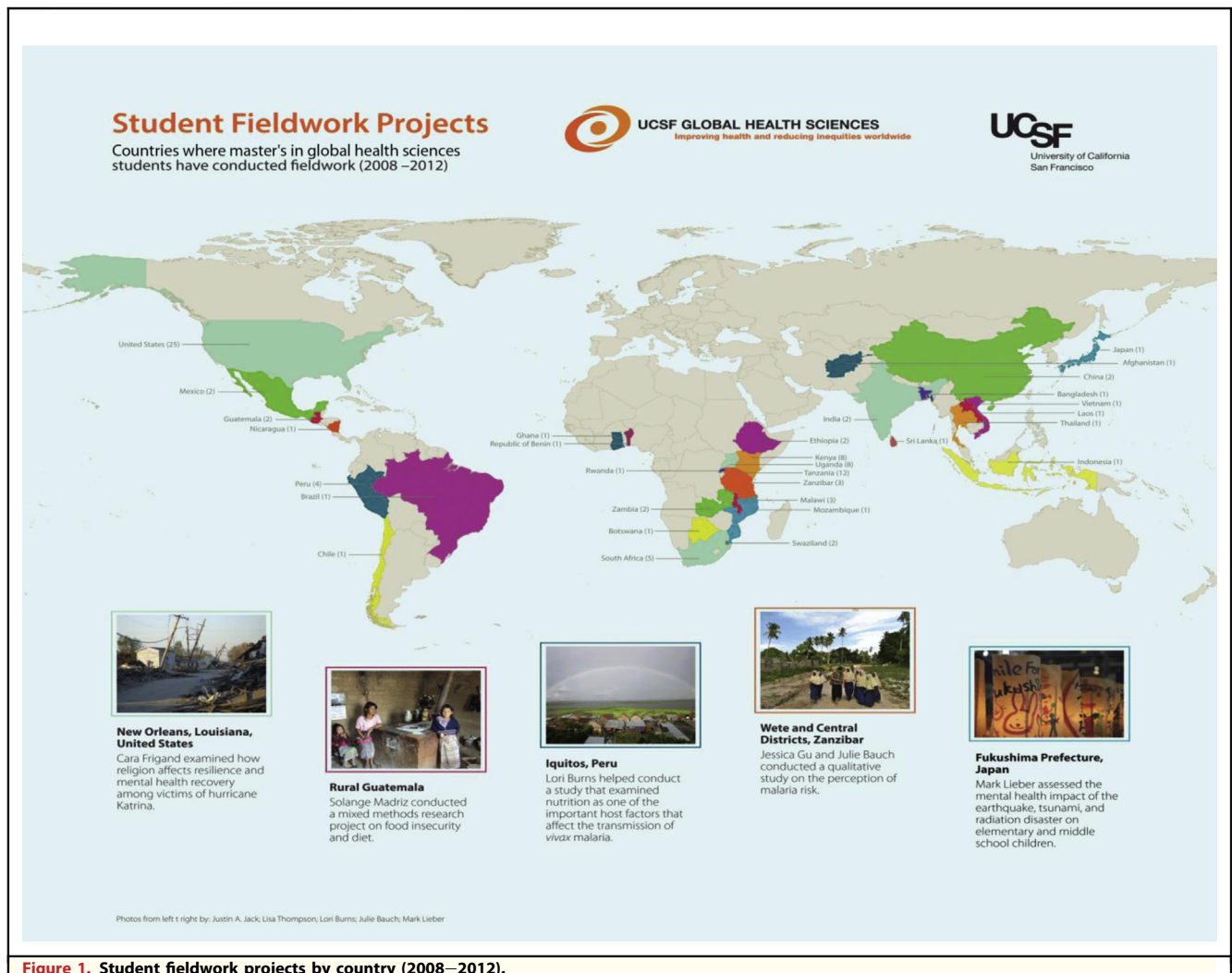


Figure 1. Student fieldwork projects by country (2008–2012).

master the requisite skills for their projects. The capstone project must be accomplished in a 10-week period, must be of value to the host institution, and must be selected expeditiously to allow research ethics (institutional review board [IRB]) approval both at UCSF and the host country if relevant. Additionally, the field environment must be safe and provide supervised mentorship. We rely on a culture of faculty goodwill and collegiality to assign student placements, and no stipend or compensation is offered for mentorship.

Over time, we learned that a research endeavor (and attendant IRB approvals) is not feasible for all students. After a May 2013 external program review, we revised the capstone criteria to allow more flexibility in project design to achieve an intensive field experience that incorporates student

learning goals. Our large database “menu” of capstone options, some of which can accommodate a team of students, now includes qualitative analysis, quantitative analysis, policy analysis, meta-analysis or scholarly review, monitoring and evaluation, and cost-effectiveness analysis.

The capstone practicum has been one of the most successful innovations of the curriculum, a challenge that students uniformly describe as highly important to their education and training. The practical application of methods and skills learned during the capstone becomes a critical part of a student’s academic global health portfolio, and to date 11% of capstones (14 of 127) have been published in formal peer-reviewed publications, abstracts and posters at professional meetings, in blogs, and on foundation websites.

Advancement to Candidacy and Comprehensive Exam. The UCSF Graduate Division prescribes the process for advancement to MS candidacy and award of the MS degree. For the qualifying examination, students must submit their written capstone proposal, and deliver a formal oral presentation to faculty and peers at the end of winter quarter, in a format that simulates a major scientific meeting. A committee of faculty advisors, capstone mentors, and an ad hoc member of the graduate group read and evaluate each proposal. The same process is repeated at the end of summer quarter for the comprehensive examination and award of the MS degree. The capstone project is graded pass/fail. Thus far, 2 of 127 students did not complete the program because their capstone project did not meet the academic standard after the revision period.

Evaluation of Students. Individual course directors choose the methods of evaluating student performance within the parameters of UCSF Academic Senate guidelines. Grades are a weighted composite of class participation, assigned papers, quizzes, mid-term examinations, and final examinations. Because the terms are relatively short (10 weeks), faculty distribute papers and examinations throughout the term to minimize excessive student stress, and improve their ability to evaluate student progress.

In the early years of the program, classes did not emphasize traditional examinations, and more effort was devoted to discussion, debates, and presentations related to the course content. However, students felt that their content retention was lacking; one student remarked in his course evaluation that without examinations, “we don’t know what we don’t know.” After discussion, the faculty instituted weekly quizzes, mid-term and final exams, and 1-page reflection papers on the readings to support learning retention. Remarkably, this change met with student approbation. Students reported that with benchmarks for learning and grades to track progress, they came to class better prepared. Faculty also reported noticeable improvement in class participation and discussion. Quizzes and examinations are now the norm.

Evaluation of Courses and Overall Program. Students are asked each quarter to complete an anonymous online questionnaire that solicits a Likert-scale course and instructor assessment and includes an opportunity to write constructive critiques. The volunteer student council also represents a forum for student feedback on courses, content, visiting lecturers, and ad hoc improvements to the curriculum. Additionally, the program forms selected student focus

groups each year to review coursework and make recommendations for improvement. At year-end, the program directors systematically conduct 30-minute exit interviews with each student for critical feedback. Finally, quarterly faculty retreats are held to evaluate each course to coordinate and update content and readings, harmonize evaluations across courses, and eliminate redundancies. The UCSF Graduate Division conducts a formal program review every 5 years.

Student Backgrounds. To place student outcomes after graduation in context it is important to consider the diversity of the student body. The program intentionally seeks a wide range of student education levels, interests, and backgrounds. Undergraduate, graduate, and professional training and experience include medicine, surgery, pathology, nursing, dentistry, pharmacy, basic research, finance, geography, journalism, psychology, sociology, anthropology, film, international studies, health systems and administration, management consulting, English literature, political science, and economics.

Student ethnic and cultural backgrounds are shown in [Table 2](#). Language fluency includes Spanish, French, Portuguese, Hindi, Farsi, Mandarin, Korean, Czech, Amharic, Arabic, Swahili, Tagalog, German, and Italian. International students comprise 9.3% of the total, and students whose country of origin is outside the United States is 30% of total enrollment. In terms of gender, the program has been predominately female, representing 74% of total enrollment.

In the future, with more global health programs being developed nationally, we will need to enhance recruitment efforts to increase the representation of international students, continue to attract domestic underrepresented students, and enhance gender diversity in the program. Student scholarships will be essential to this effort.

Data show that 63 (71%) of all graduates entered the GHS MS program with a bachelor’s degree, 3 in nursing ([Fig. 2](#)). Nineteen of these were pre-med majors and 10 were current medical students taking a gap year to complete the MS. Twenty-six (29%) had already earned master’s or terminal degrees (MD, DDS, PhD) in a related field upon matriculation.

Student Outcomes. We have successfully tracked the education and career outcomes of 89 graduates from the classes of 2009 to 2012. Of the 89 graduates, 17 entered the MS with a terminal degree. Their outcomes follow the paths of their original

Table 2. Race/Ethnicity of Enrolled Students

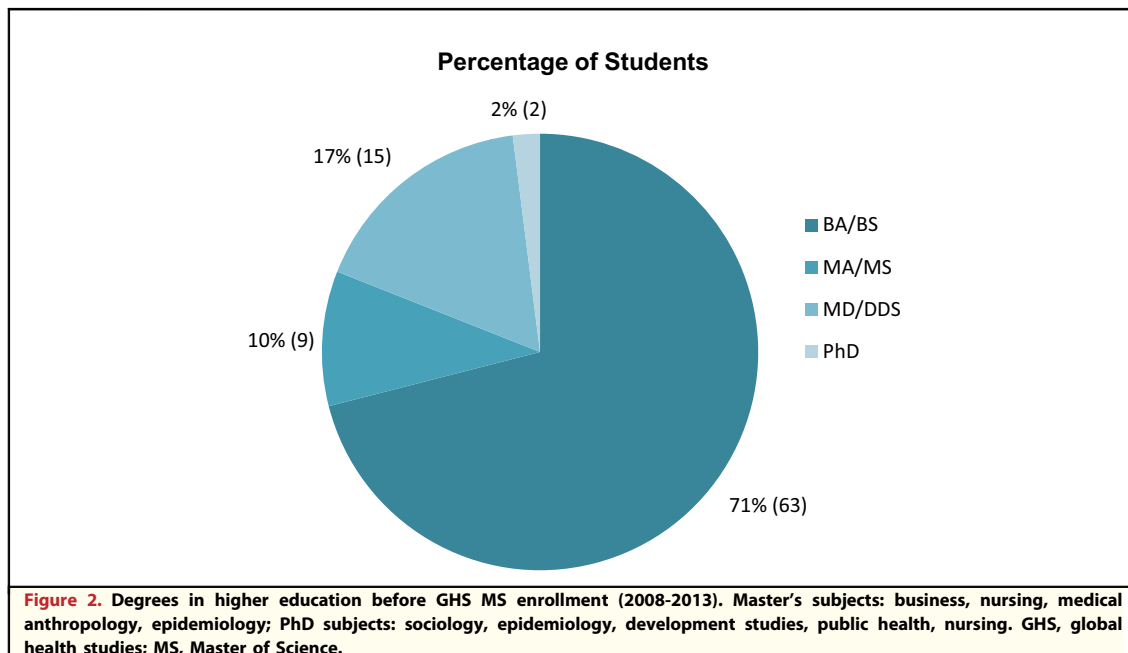
Category	2008	2009	2010	2011	2012	Total	Percent (%)
African/African American			3	2	8	13	10.2
Chinese/Chinese American		3	2	3	1	9	7.1
East Indian/Pakistani	2	3	2	1	1	9	7.1
Filipino/Filipino American				1	2	3	2.4
Korean/Korean American	1			1		2	1.6
Vietnamese/Vietnamese American				1		1	0.8
Other Asian/Asian American					4	4	3.1
Mexican/Mexican American/Chicano			1	1	3	5	3.9
Other Hispanic/Latino			3	1	2	6	4.7
White/Caucasian	4	8	15	16	7	50	39.4
Multiple			1	5	3	9	7.1
Other		3		2	3	8	6.3
Declined to state		1	2	1	4	8	6.3
TOTAL	7	18	30	36	38	129	100
International Students with Visa	1	2	2	6	1	12	9.3

professional orientations, with a new focus in global health. Of the remaining 72 without terminal degrees, 64 (89%) have enrolled in or plan to enroll in graduate education: 33 (46%) have enrolled, and 31 (43%) indicated that they intend to enroll in the future (Fig. 3).

Seventy students (79% of 89 graduates) reported paid employment after graduation, some during a gap year before graduate education; some while pursuing a higher degree; and others pursuing a career in the health professions, academia, or related

sectors. The majority of graduates (66%) who have held paid employment since graduating fall within the academic sector—clinical residency, fellowship, teaching, and research. The remaining 34% work for government, nongovernmental organizations, private groups, and in other capacities. Ten students (11% of 89 graduates) indicate that they are taking time off, traveling, or are currently looking for work (Fig. 4).

Fees and Tuition. After the program’s first year, financial support for the MS candidates has been



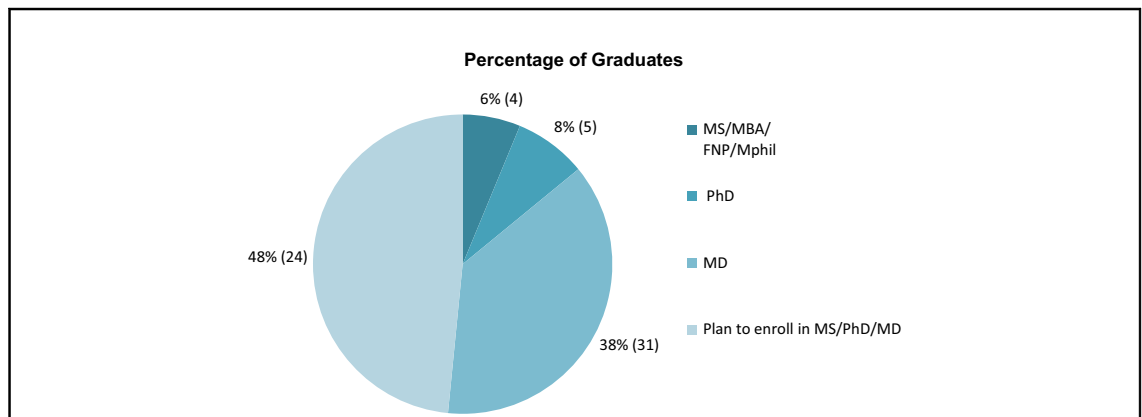


Figure 3. Enrolled or plan to enroll in graduate or professional programs after receiving GHS MS degree (2009–2012, N = 70). GHS, global health studies; MS, Master of Science.

sporadic and insufficient. For the inaugural year (2008–2009), the 7 students who enrolled in the program were provided full scholarships that covered tuition, all campus fees, and fieldwork expenses. These costs were provided from internal GHS funds as a way to “jump start” the program.

From 2009 to 2013, approximately \$123,000 has been awarded for fee and tuition scholarships in the form of need-based aid from gifts and foundation support. Additionally, the program has received gifts in the amount of approximately \$75,000 to help with the expenses associated with fieldwork and internships. These funds have been used over the years to cover transportation costs and research expenses.

Budget. The MS degree is self-supporting and cost-neutral to the university. A portion of the

program fee is allocated to university support (eg, library, student health) and the remainder pays for faculty, administrative staff, and other expenses (eg, student fieldwork, office supplies).

DISCUSSION

By all measures, including student evaluations, faculty evaluations, institutional discussions, increased applications, and the formal 5-year program review, the GHS MS has experienced overwhelming success. We have successfully recruited highly diverse and well-qualified students and the majority has gone on to careers or further education related to global health.

The diversity of the class composition creates both challenges and opportunities. The challenge

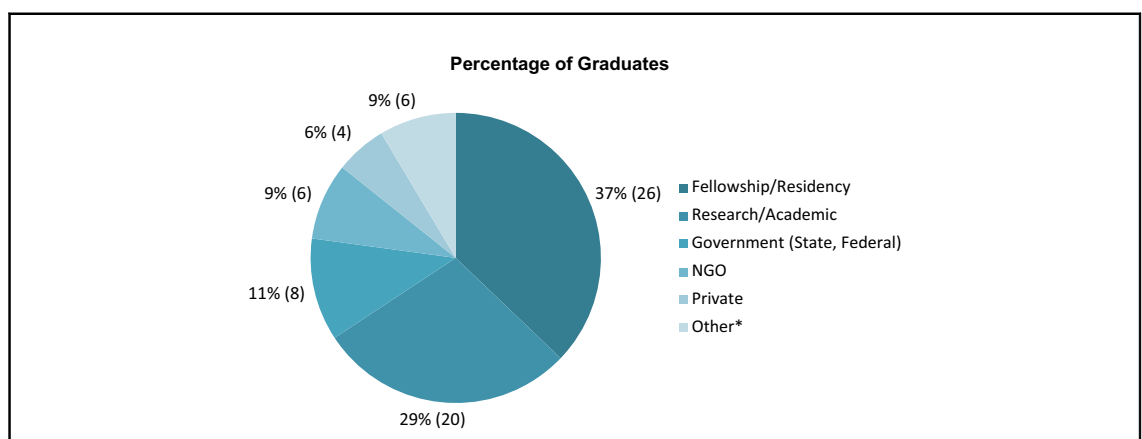


Figure 4. Employment sectors of graduates after receiving MS degree (2009–2012, N = 70). NGO, nongovernmental organization. *Administration (grants, hospital), film-making project.

lies in crafting a curriculum that meets expectations, is sufficiently rigorous, and accommodates the varied backgrounds of the student body. The opportunity is the energized learning environment that captures the best of student diversity and peer learning.

At their exit interviews, students say that they value most the relationships with classmates, the high faculty-to-student ratio, and the capstone experience in equal measure. Additionally, students uniformly value the high academic standards of the program and the quality of faculty and visiting lecturers. Approximately 20% of each class remains employed with GHS or its affiliates after graduation.

As the program has grown, we have considered questions about additional necessary competencies, changes in pedagogical structure, as well as the appropriate infrastructure to support the high-touch learning environment for the program.

As the Millennium Development Goals transition to the sustainable development goals, understanding health systems and human resource management will be necessary. To that end, in 2014 we introduced a new required course in health systems. We continue to create new elective opportunities and are considering the addition of a global health law course.

Although the intimacy of the classroom remains a major contributor to the satisfaction of our faculty and students, program growth as well as increasing pressure to consider digital pedagogies has forced us to consider alternative coursework options.¹¹ Although we are exploring digital pedagogical methods for portions of our curriculum, we have not yet fully embraced this trend for the following reasons:

1. Students greatly favor interaction between classmates and faculty in the classroom and informal gatherings.
2. Alumni consistently laud the high quality of the lectures and seminar learning environment.
3. Students uniformly appreciate the opportunity to network directly with colleagues, mentors, and visitors.

Furthermore, “real-world” decisions often are made by working groups and teams that we simulate in seminars.

Given the high rate of unemployment among college graduates in general, there is pressure toward “mission creep”—that toward converting an academic degree to a professional degree. We tread a

fine line between academic rigor and job-oriented skill building in the MS degree, acknowledging that a 1-year program is barely sufficient for mastery in a field as vast as global health. To this end, we hold a series of career development seminars to help students craft a competitive resume, network with faculty, and learn how to optimize their chances for a job interview and hire. As our alumni body increases we are cultivating a broader community for current and graduating students to network with.

The most obvious challenge with contemporary graduate education is cost, and our program must be fully self-supporting. Also, with rising competition, the student market for global health graduate degrees may now have peaked and stabilized. Additionally, although academic in our mission, global health necessitates a focus on training individuals who intend to serve in underserved communities or with underserved populations. We continue to search for innovative solutions to cost as well as opportunities to garner scholarships from foundations and the private sector.

CONCLUSIONS

Over the first 5 years of the GHS MS program we have learned to modify the curriculum and structure to improve the quality and experience of student learning. Based on student feedback and applicants’ comments, we have found that the program is widely praised for its class diversity and stimulating learning environment; the capstone experience; close faculty interaction and dedicated mentorship; a rigorous and comprehensive curriculum; the quality of the faculty and invited guests; and the willingness of program leadership and faculty to welcome critical feedback and innovation. These strengths are echoed in the reflections of alumni, who value the individual attention they received from leadership and faculty, describe their experience as “life changing,” and maintain contact with classmates and faculty long after graduation. Virtually all graduates have remained in the global health sector and have networked successfully with each other after graduation.

SUPPLEMENTARY DATA

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.aogh.2015.10.006>.

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