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MPH Program at Manipal University, India - Experiences, Challenges and Lessons Learned

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Abstract

Background—The UAB-ITREOH program has initiated a skill-based MPH program at Manipal University (MU), India, in 2009, to address the critical need for trained public health professionals and build institutional public health training capacity in the country.

Methods—Funds from Fogarty have supported the curriculum development and specialized training of MU faculty to teach in the MPH program.

Results—The program has been successfully launched and is gaining momentum. The lessons learned from our experiences as well as several challenges faced from the initialization to execution of the program are described in the paper.

Conclusions—Government support is crucial for raising the profile of this program by accreditation, creating job opportunities and by recognizing these professionals as leaders in the public health sector.

Keywords

MPH; Manipal; UAB; Inter-professional practice; skill-based; ITREOH; Public Health training; curriculum

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INTRODUCTION

Globally, public health priorities such as reducing child and maternal mortality, disease control and prevention are challenged by a worldwide shortage of doctors and a disproportionate concentration of health workers in the developed nations and rural areas (Kuehn, 2007). The World Health Organization (WHO) estimates a global shortage of 2.4 million health workers including doctors, nurses and midwives, a shortage that would require policy changes in the approach to creating vital human resources in healthcare (Kuehn, 2007). In 2006, India was one of the many Asian, African and South American countries identified by the WHO as having a critical shortage of necessary healthcare workers (WHO, 2006).

Rapid economic growth and development over the last two decades in India have brought to the forefront several challenges for its 1.21 billion people. Concomitantly, India is experiencing a rapid health transition, faced both by the challenges of eliminating infectious diseases, nutritional deficiencies, unsafe pregnancies and by the challenge of reducing the escalating burden of non-communicable diseases such as diabetes, cardiovascular disease, cancer and mental disorders. This composite threat to the nation's health needs a multi-disciplinary public health response that can provide delivery of cost-effective interventions for health promotion, disease prevention and affordable diagnostic and the therapeutic health care. However, India does not have the critical mass of public health workforce to address its emerging public health challenges. Presently, institutional capacity in India is limited for training, research and policy development in the area of public health.

This current situation reflects the vital need to create human resources well trained in the precept and practice of public health. Further, a multipronged effort to bring in inter-professional practice discharged by trained public health practitioners is required. A step in this direction would be to develop in-country training programs in public health, such as the master's degree in public health (MPH).

BACKGROUND

A vital disconnect exists between curative and preventive services, i.e. between medical care and public health practice in India. Historically, as India gained its independence, the Bhore Committee was set up to plan a blueprint for Indian healthcare. The committee envisioned an integration of curative and preventive services and clearly defined two broad categories of the health workforce: one for the delivery of personal care and the other for the delivery of public health. Recommendations of successive health committees, however, lead to amalgamation of personal care and public health initiatives (Ahmed, 2010). The intellectual cutting edge shifted from improving public health systems, to improving curative technologies and methods of health care financing. Consequently health professionals involved in curative medical services were better rewarded than public health qualifications and thus, attracted best talent. The demand for as well as the supply of public health training atrophied.

In India, the term 'public health,' often reflects health services delivered by the federal or state government. Public health education traditionally has been part of graduate education in medicine referred to as 'Social and Preventive Medicine' or 'Community Medicine.' The focus of this discipline has been mainly on controlling infectious diseases. It is only in the last decade that a change in outlook towards preventive health services has taken place.

With the globalization and economic development in the country, public health is receiving more attention at the national level. Successful implementation of national health programs

has resulted in renewed interest in fostering public health activities and building human resource capacity to support these activities. There is an increased thrust at the national level to increase institutional support for public health resulting in establishment of some public health degree programs. In 1997, one of the earliest degree programs in public health to begin in India was at the Achutha Menon Centre for Health Science Studies in Kerala, a branch of the Sree Chitra Tirunal Institute for Medical Sciences and Technology. The latter is institution funded and governed by Government of India's Department of Science and Technology and the Indian Council of Medical Research (ICMR). As of 2007, it offered only 15 seats each year in its MPH Program for physicians (MBBS) aged above 40 years (Thankappan, 2007).

In 2006, experts from the Harvard School of Public Health and experts in healthcare from the Ministry of Health, Government of India, came together to discuss potential for public health in India. This interaction led to the establishment of a public-private initiative for research and training in public health called the 'Public Health Foundation of India (PHFI)' (HSPH, 2006). This innovative public–private partnership draws upon the financial resources of the government, Gates Foundation and private philanthropic donors, and harnesses the technical expertise of Indian and international academia while actively engaging a wide variety of civil society partners. The aim of this initiative is to set up as many as 10 different public health institutes all over India. Three are launched so far and the fourth is expected to begin in July 2011. The PHFI reports that it is faced with several challenges (Anderson T, 2010). Although the initial goal was set to graduate 1000 students per year from each of its institute, only a total of 130 bachelor's students will graduate as of June 2010, the first batch since the program started in 2009. The PHFI is an autonomous body with a strong international support in terms of finances and teaching faculty. Thus, there have been concerns as to whether the curriculum and the research agenda are driven by the influence of the foreign institutions and not by in-country needs. In addition, being an autonomous body without a university status, it lacks institutional support and teaching capacity to start master's level programs. Faculty at PHFI have limited research track record which has made them ineligible to apply for national research grants. Thus, a long-term sustainability has been a major concern.

The new MPH program at Manipal University (MU) in India has managed to overcome several challenges faced by previous institutes in India to offer a strong and sustainable program in the country. As one of leading educational institutions in the India, MU recognized the excellent opportunity to expand its scope in the area of public health education and contribute trained manpower for the nation's cause. The two year skill-based MPH program in applied epidemiology is the product of MU's collaboration with the University of Alabama at Birmingham (UAB), Alabama, United States (US), supported by the International Training and Research Program in Environmental and Occupational Health (ITREOH), an initiative of the Fogarty International Center, National Institutes of Health (NIH-FIC).

INCEPTION OF THE MPH PROGRAM

Manipal University

MU is amongst the pioneering institutions in the private sector to be recognized as a deemed university by the Government of India. It has over 20 constituent institutions that provide over 300 courses across 14 streams viz medicine, dentistry, engineering, nursing, allied health, pharmacy, life sciences, management, mass communication, information sciences, hotel management, regenerative medicine etc. Providing healthcare and education is a founding forte of the Manipal Education and Medical Group (MEMG). MEMG is the guiding body for three universities (India, Malaysia and Antigua), six medical schools (3 in

India, one each in Nepal, Malaysia and Antigua) and a network of 18 primary, secondary and tertiary care and teaching hospitals in India. Manipal's campus and online programs combined have over 250,000 students enrolled at any point of time. Established 58 years ago with one of the main aims to build and provide rural healthcare, MU's Kasturba Medical College (KMC), set the platform for global education in India. This flagship institution is consistently rated as one of the best five among 300 medical schools in India since many years. KMC has a strong rural presence in the Southern Indian state of Karnataka by way of three rural hospitals and seven centers (clinics) for maternal and child health services.

The UAB-ITREOH program

Beginning in 2001, the UAB-ITREOH program has focused on capacity building in environmental and occupational health (EOH) in Southeast Asia. In the first five-year cycle, the UAB-ITREOH working with Aga Khan University concentrated on building EOH capacity in Pakistan. In the second five-year cycle, beginning in 2006, the UAB-ITREOH expanded to include Manipal University (MU) in India and the University of Kelaniya (UKe) in Sri Lanka. From our preliminary needs assessment in the region, building of institutional capacity to train public health professionals was identified as an urgent need along with enhancing in-country research skills and expanding research capacity. Building health research expertise in developing countries often requires personnel to receive training beyond national borders. However, it can be difficult to ensure that trainees return to their country of origin after completion of their degrees. Furthermore, education when carried out in developed countries makes the trainees more suitable to cope with public health situations in the developed countries and possibly encourages them to migrate from their country of origin.

Coupled with need to strengthen in-country research capacity and build sustained teaching capabilities, we found that initiation of MPH programs with competency-based curricula adapted to local settings to be the most effective way of addressing gaps in the area of public health. Our year-long curriculum development process focused on identifying skills that would be optimal in the South Asian setting. We reviewed competencies developed by the Council for Education on Public Health (CEPH), Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO), incorporated core elements from all of these sources, and adapted a locally-relevant competency-based education system that emphasized applied practice and research. We found that our curricula provide greater accountability for alining theory with practice.

Funds from Fogarty have supported the curriculum development and specialized training of MU faculty to teach in the MPH program. Also, it has enabled a research agenda that serves as a training base for the program.

Results of our efforts led to the commencement of MPH program in applied epidemiology at MU in 2009 with creation of an independent department of Public Health. Taking a more theory- meets-practice approach, the innovative features of the MPH programs aim to address the unmet needs in each country and build institutional capacity for research and training in public health.

Description of MU-MPH Program

The MPH program in applied epidemiology provides graduate-level training in the causes, distribution, and control of disease in populations, with an emphasis on practice. The goal of the program is to create a pool of public health professionals capable of identifying and understanding global and local health issues, providing practical and implementable solutions and contributing to health of the community.

The program requires a total of 100 semester credit hours. The time to completion of the program is two years. The credit hours are distributed among required and elective courses and project work. They include epidemiology core courses (25 credits); biostatistics (15credits); epidemiology track courses (21credits); health administrations (10 credits); public health core courses in public health intervention, program monitoring and evaluation and principles of communication (9 credits) and research project (25 credits). Most of the courses listed in the program have a theory and practical component which may include computer-based laboratory training and/or field work. Students will also have opportunities to take elective courses in epidemiology and public health. The culmination of this degree program is a project in the form of a research study or a practice project. At the end of completion of the degree program students will have an option to pursue a career in either the practice or the research of the chosen public health field.

Applicant pool—Eligible students are those with a minimum bachelor-level education in biology, public health, analytical sciences or other health-related fields, and an interest in a career in public health. Additionally, applicant students include professionals with degrees in medicine, Ayurveda, veterinary medicine, nursing, dentistry, physiotherapy or other related fields.

Student recruitment—Student recruitment is done using the resources of the professional Admissions wing of MU which undertakes massive annual drives for over 300 courses in 14 streams both for national and international students. The program is announced in the mass media at the national and regional levels in form of press releases, articles and announcements. Special course awareness drives are taken at the several health sciences schools of the Manipal group.

Current Student Admission—For the present, admission to the MPH program has been limited to 20 per year based on faculty resources. In 2009, 13 students of 19 applicants were selected. In 2010, with the program gaining visibility both nationally and internationally there was a substantial increase in the applicant pool. We strengthened our admission criteria and selected 18 of 71 applicants. Table 1 provides the demographic characteristics of the currently enrolled students. Students are in the age range of 20 and 34 years. The male to female ratio is 4:1. The distribution of the students in terms of religious backgrounds (Hindus, n= 22; Muslims, n = 3; Christians: n=4 and Buddhist, n = 1) represents the national demographics. There are almost equal numbers of the students from different parts of India. Educational background of the students who joined the program include a bachelors in physiotherapy (n=10) or homeopathy/ayurveda (n=8). Students from other disciplines included dentistry (n=3), nursing (n=2), medicine (n=1), speech therapy (n=1), biomedical science (n=1), technology (n=1), health information system (n=1) and pathology (n=1). Of the 31 students enrolled in 2009 and 2010, three students were international students from Tanzania (n=1) and Nepal (n=2).

Student assessment—The student assessment plan is based on two levels of epidemiologic competencies; learning/ theoretical competencies and practice based/ skill-based competencies. The student assessment plan is comprised of several tools, which includes:

1. Theory examination: Tests student's knowledge of their chosen area of focus (epidemiology or maternal and child health), the broader fields of epidemiology and public health, the program competencies and the development of study design/ practice projects and analytic skills are assessed. These exams are conducted at the end of each semester of didactic course work. The theory paper includes multiple choice questions, short answers and a long essay.

2. Comprehensive practical examination: The ability to analyze public health problems and develop successful approaches to solve them is assessed during the practical examination. The exam is comprised of case studies, public health spotters, epidemiological exercises and statistical applications followed by viva voce at the end of each semester. An external examiner is invited for this component.

3. Project work: Students are required to identify a public health problem of significance to the community, develop a research hypothesis/practice project, conduct the study, analyze and interpret the study results. The students submit their internship project work at the end of the course. The project is then presented to the panel of experts as a part of evaluation. Table II provides the list of ongoing projects of the student graduating in August 2011. The topics range from infectious and chronic diseases, nutrition, environmental and occupational health and health behavior.

Program faculty—All of the teaching faculty have graduate-level teaching experience and graduate degrees (primarily terminal degrees) in their field of expertise. The faculty are educators, and public health practitioners who are currently teaching or practicing in public health-related fields. Primary faculty listed in Table III has enhanced background in community medicine, public health, biostatistics, social and behavioral sciences, hospital administration, communications, health economics, health management, health administration and microbiology. Secondary or adjunct faculties are from various international organizations, mainly WHO. United Nations International Children's Fund (UNICEF), United Nations Population Fund (UNFPA). Public health professionals from the Ministry of Health and Family Welfare, Government of India are also involved in teaching the MPH course.

Program monitoring and evaluation

Program assessment is accomplished through student evaluations of individual courses and of the program in its entirety. Regular program review is conducted by the curriculum committee and includes an evaluation of how well the curriculum addresses the required competencies. In addition, input is sought continuously from current students, and the public health community about new issues that should be addressed by the curriculum. These indicators of program quality, in addition to periodic assessments, conducted by the curriculum committees are used to modify curriculum and program delivery as necessary. All efforts and rationale for changes are fully documented. Student placement or advancement in professional jobs following degree completion will be tracked as a measure of program outcomes, along with the long-term success of graduates.

Innovativeness of MPH program at MU

1. Inter-disciplinary University setting—Unlike few recent initiatives for public health training in India, this program at Manipal is not a standalone institute. Rather, it enjoys linkages to different medical and scientific disciplines at the University which offers 300 programs across 14 academic disciplines. Expanding awareness of epidemiology as a scientific discipline within other professions including dentistry, medicine, nursing, and pharmacy increases recognition of this field as an important component of biomedical education. Within the department and its partner schools, the public health students get to interact and work on projects along with graduates of community medicine, social work and life sciences, helping them to broaden their horizons. This uniqueness of the program enables it to bridge the gap between academia and public health practice.

2. Skill-based curriculum—The skill-based education system emphasizes applied practice and research. We believe that that our curriculum has an excellent plan that aligns theory with practice. In parallel, we have developed mechanisms for ongoing assessments of faculty and student training needs. In the program, every lecture is accompanied by a practicum. For example, in epidemiology, each lecture is followed by case studies and interactive discussion with the faculty and supervisors, in biostatistics, classes are followed by working with datasets in computer-based laboratories. The research projects have a multi-dimensional field work approach.

3. Sustainability—(a) Financial - The MPH program is self-supporting with tuition revenue from students in the program. Thus far, the plan has proven viable with an incoming class of students. (b) Tapping internal resources - Even though a separate department of public health is established, many of the resources including faculty, laboratory and infrastructure are shared with other schools and disciplines. Use of existing resources makes the program more cost-effective and sustainable.

4. Facilitate inter-professional practice as applied to public health—The program is designed to accommodate the requirements of health care professionals, administrators in government and non-government organizations, academia, physicians as well as other professionals from health sciences. The field practice approach promotes dialogue between public health practitioners and academic faculty, with students as the bridge. It will allow understanding of the inter-professional approach to solving public health problems and will promote multi-sectoral collaboration.

5. Research support for practical training—The existing collaboration with UAB and support from the UAB-ITREOH program continues to foster several research initiatives and training activities. The training program facilitated the implementation of a number of multi-institutional, inter-disciplinary, collaborative research projects with the teaching faculty of the program. These projects in turn facilitate practical training for the MPH students in the department. Manipal is home to state of the art laboratories which are also part of national disease surveillance networks. The Manipal Center of Virus Research of MU serves as the regional reference laboratory for influenza surveillance. Additionally, it hosts the prestigious ICMR virology network laboratory- Grade-I to conduct outbreak investigations, sero-surveillance of viral diseases, diagnostic virology services and training of laboratory personnel. This is the first laboratory became operational in a series of thirty such laboratories to be established by ICMR in the next five years in India. Manipal and the surrounding district of Udupi have several resources and sites to conduct the Field Practice Training. These sites include rural maternal and child care centers to tertiary care hospitals. Apart from the dedicated faculty, there are several research scientists from different disciplines who are ready to share their expertise and their laboratories with the Department of Public Health at MU.

6. Regional collaboration—The inception of the MPH program under the umbrella of the ITREOH program facilitates exchange of scientific and training resources amongst various regional institutions including ITREOH partners in Sri Lanka and Pakistan.

CHALLENGES AND LESSONS LEARNED

The MPH program at Manipal is in its second year with the first batch of students graduating in August 2011. The program faced several challenges from its inception to its execution.

InitialiZation

1. Establishing independent base—Drawing attention to an emerging professional field is not enough to allow its institutionalisation. The future promise it offers may not be a reason alone to start a course or establish a new department. Required infrastructure, physical space and a financial support are required to take an academic program from the drawing board to its actual offering. Regulatory and technical issues were faced while deciding how to initiate the program – whether it should be part of an existing department or school or should it be set up independently. Being a university, Manipal made the decision to provide the much needed incubation for public health by giving it a independent department status under the direct control of the Pro Vice Chancellor of the University with the hope that in coming years as the program expands, it could become a school or a centre in its own right.

> ***Lessons learned.*** It is imperative that the board of directors and academic advisors believe in the importance of offering public health education and envision creating a national public health workforce. Their belief in the vision needs to be backed by financial assistance. It would take many years before we can talk of profit motives and financial returns from establishing such a program. Sometimes budgets may just break even. This should not discourage administrative planners from supporting public health education and research initiatives. At Manipal, the bold step of putting faith and confidence in the basic tenets of public health paid off.

2. Diverse student backgrounds—One of the prime challenges is to expand public health education beyond medical professionals to students from other disciplines. Traditionally, students of science have been involved in specialities like epidemiology and statistics, but not under the umbrella of public health. The first few MPH programs supported by the Government of India were offered to medical doctors with an experience of 10 years in the field. Considering the multi-disciplinary nature of public health, at Manipal, we broadened the horizon and opened the admissions to students with different science backgrounds and a keen interest to pursue public health. Our current two batches demonstrate the diversity in the background of student ranging from nursing to technology to biomedical engineering.

> ***Lesson learned.*** Training in public health in developing countries should not be limited to the medical domain. Graduates from various other related disciplines have potential to contribute to public health and this makes a very strong case for inter professional practice and inter disciplinary research and collaborations in the academic world.

Implementation

3. Designing an interdisciplinary curriculum for students with diverse backgrounds—A major hurdle of the MPH program was ensuring a curriculum that offers students training opportunities in a multidisciplinary and collaborative environment. All the courses were designed with a combination of theoretical and practical competencies applied to the local settings. Mid- to- senior level faculty developed the required material while training under the ITREOH program under the guidance of academic collaborators at UAB. While developing the course material, care was taken to make it relevant to the local settings as well as to allow interactions with public health professionals in the field. The curricula as well as the course material, lectures and practical experiences had a common goal providing skill-based training applied to the local setting to these graduates.

> ***Lesson learned.*** Inclusion of local case-studies and field work would allow reiteration of the theoretical concepts. An MPH graduate in the US would typically

find a mentor for a job or higher research initiatives, but in India graduates of MPH will assume leadership roles wherever they work. The lack of a strong public health cadre or workforce in India puts an additional responsibility for this program to train students in practical aspects of public health work while pursuing their degrees itself.

4. Selection of specialization track—The decision to start the MPH program with the applied epidemiology track was a well planned effort. We realised that applied epidemiology is core to public health training and it addresses the basics of disease epidemiology, designing prevention and control techniques and planning interventions in a systematic manner. Effort has been taken to add other tracks to the MPH program. In 2010, we started MPH in maternal and child health. MPH in environmental and occupational health is set to begin in 2011.

Lesson learned. Identifying the national requirements and thrust areas in public health would allow introduction of unique and acceptable tracks. It is beneficial to start with a track where competencies are resident in the institution before introducing specialized and novel tracks.

5. Gaps in teaching resources in specific areas—Public health research has to span the spectrum of basic, clinical, social, economic, policy and programme research to be fully informative. Gaps were identified in training capacity in the areas of health economics and program monitoring and evaluation. To address this issue, mid-level faculty at Manipal having basic skills in these areas were identified for training in the deficient aspects. Bi-annual week long training of trainers (TOT) workshops in the region supported by the UAB-ITREOH program were conducted at Manipal and other locations to train the faculty as well as develop teaching materials as applied to local settings.

Lessons learned. It helps to train scholars motivated in public health, especially in areas where there is an established expertise in systems like the US. Transfer of knowledge and skill sets making it relevant to the local settings can empower motivated people trying to build a public health work force in the developing world.

Future of the Program and the Graduates

6. Achieving a status for MPH accreditation—There is currently no centralized body at the national level in India to provide accreditation to public health graduate programs. The Medical Council of India (MCI) is the regulatory body for all medical schools but its role in public health is not clear. It recognises a Diploma in Public Health in 39 different state and central universities but does not have clear cut provisions for recognising or accrediting an MPH Program. The MPH program at MU has been designed such that it can compete at an international level and seek accreditation from CEPH. The program competencies have been based on WHO, CDC and CEPH with a clearly defined skill building component.

Lesson learned. With changing trends and increased awareness about public health education in India, it is necessary to establish a centralized governing body which can accredit the public health schools. This would not only encourage higher standards of education but also provide an attractive image boost to a career in public health for young professionals. A body outside the medical education domain and at par with global public health agencies could be suitable for the need.

7. Funding opportunities for research—In India, the majority research funding is provided by ICMR and other central government agencies. In order to support and sustain

research based training for the MPH students, it is necessary to have institutional capacity to obtain national and international funding resources. The faculty needs to actively pursue international and national funding. Several of the mid- and senior level faculty trainees under the ITREOH program have successfully secured competitive funding at the national and international level.

Lessons learned. Motivation in training and building a public health workforce needs to be accompanied by innovative funding initiatives that focus on needs assessment, identifying local issues and developing policies for the same. Focused grant writing skills and sharing of expertise from global health experiences can help new faculty and students to seek competitive funding.

8. Creating job opportunities for new MPH graduates—Even though there is clear evidence for the need of public health professionals in India, it is important that the graduate students are directed in the right direction to seek employment. There is an increasing demand for individuals with this training locally, nationally, and internationally. Locally, we anticipate this program to fill a critical need for qualified personnel in the health departments.

Lessons learned. The true professional as well as academic value of the MPH degree needs to be driven up by the policy makers and academia of the country. MPH degree holders need to be recogniZed as a national public health force in the making rather than as technicians or researchers who could not find success in their health-related pursuits.

CONCLUSIONS

Underlying the design of the MPH program at Manipal is the recognition of needs and lack of requisite human capital and infrastructural capacity to deal with the challenges facing the public health system in India. Investment in capacity building in developing countries offers the greatest potential for developing dynamic and reliable systems that can deliver better health and equity, now and in the future. Incorporating a skill- based curriculum based on CEPH, WHO and CDC competencies, the MPH program is an innovative approach to build a public health workforce which can immediately take leadership roles at various levels of the system. Our practice-based orientation provides a novel approach to confront issues of inadequate local training. The program also exposes the academia and field workers to the concepts of interprofessional practices through public health field workers and student interactions.

Introducing new areas of learning and designing their curricula requires intensive discussion and re-orientation of educators. The UAB-ITREOH program has contributed significantly to the training of the local scientists, development of MPH course materials and providing technical knowledge in specialized areas where local expertise was not available. The program has been successfully launched and is gaining momentum. The lessons learned from our experiences can useful for current and future leadership to develop similar programs in the country.

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Table I

Selected characteristics of MPH Epidemiology Program participants by year

	2009*	2010*
	N	N
Total	13	18
Age (in Years)		
20–24	01	09
25–29	08	09
30–34	04	00
35–39	00	00
Gender		
Male	11	14
Female	2	4
Religion		
Hindu	11	12
Muslim	-	3
Christian	2	2
Buddhism	-	1
Geographic location		
India		
Karnataka	3	2
Kerala	-	2
Tamil Nadu	-	1
Maharashtra	2	2
Andhra Pradesh	1	1
Orissa	-	1
Assam	-	1
Punjab	-	1
Bihar	3	3
Rajasthan	1	1
Chhattisgarh	-	2
New Delhi	1	
International		
Nepal	1	1
Tanzania	1	-
Education (Bachelors)		
Homeopathy/Ayurveda Naturopathy	3	5
Medicine	1	-
Dentistry	-	3
Nursing	-	2
Pharmacy	1	-
Physiotherapy	5	5

	2009*	2010*
	N	N
Total	13	18
Speech therapy	1	-
Biomedical science	1	-
Technology	1	-
Health information system	-	1
Public health	-	1
BMLT (Pathology)		1

*Applicant pool: 2009, N=19; 2010, N=71

Table II

Research projects of MPH students, 2009

Vaccination coverage estimation through geo-location and child identity
Nutritional assessment of tribal children attending Anganwadi centers in Udupi taluk
Current status of JSY in Udupi district
Interface of ASHA with the community and the service providers in Udupi district
Factors influencing adherence to anti-retroviral therapy among adults living with HIV/AIDS at selected public health facility in Udupi district
Benefits of people living with HIV/AIDS attending retro-viral treatment centers
Indoor air pollution associated with household fuel use in rural villages of Udupi district
Factors associated with infant mortality in Udupi district
Prevalence of alcohol use in Udupi district
Prevalence of obesity among primary school children in Mangalore taluk
Factors associated with breast cancer in Udupi district
A study on life-style related risk factors of non-communicable diseases among adults in urban area of Udupi district
Noise pollution as an occupational hazard among the printing factory workers in Udupi taluk

Table III

Educational Profile of Program faculty

	Primary faculty	Secondary faculty
	N	N
Total	11	3
Educational Qualifications		
Terminal degree in Community Medicine (MD)	4	2
Terminal doctoral degree (PhD)		
Statistics	1	-
Sociology	1	-
Microbiology	1	-
Hospital Administration	1	-
Masters degree		
Public Health	1	1
Mass Communication	1	-
Business Management	1	-