

POLICY FORUM

How Should Public Health Schools Help Meet Millennium Development Goals in Latin America?

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Abstract

The Millennium Development Goals (MDGs) are a set of 8 aims adopted by the United Nations to create a more peaceful, prosperous, and just world. Four MDGs directly concern public health, and public health schools should be involved in meeting them. The Johns Hopkins University-directed Fogarty Global Infectious Disease Research Training Program in Peru and Bolivia, funded by the Fogarty International Center of the National Institutes of Health, has spanned nearly 3 decades and provides a case study of how low-resource interventions can help meet MDGs.

Millennium Development Goals

The Millennium Development Goals (MDGs) are a set of 8 international goals outlined in the United Nations (UN) Millennium Declaration of September 2000,¹ which all UN member states and over 20 international organizations have agreed on.² They are a coordinated effort to embrace a shared global vision of “a more peaceful, prosperous and just world”^{1,3} and are designed as a “pledge to uphold the principles of human dignity, equality and equity, and free the world from extreme poverty” by 2015.³ The goals are broad and range from promoting gender equality by empowering women to fighting communicable diseases such as HIV/AIDS and tuberculosis.⁴ While some of the MDG targets had been met by 2014, others were far behind, especially in low- and middle-income countries (LMICs).³

Public health plays a direct role in 4 of the MDGs: eradicating extreme hunger and poverty, reducing child mortality, improving maternal health, and combating HIV/AIDS, malaria, and other diseases.⁴ It also plays a supporting role in the remaining 4 goals. However, public health professionals were not heavily involved in the creation of the MDGs,⁵ and the role of public health institutions and schools in actually meeting the MDGs has not been well defined.⁵ The First International Conference on Sustainable Health Development, held at Tehran University of Medical Sciences in 2016, found a “great need of reconsidering the role of academic public health institutes in the context of low-middle income countries to respond to the emerging challenges of public health.”⁶

Public health schools have a large role to play in meeting MDGs, and many are helping LMICs improve their responses to extreme hunger, maternal health, childhood mortality, and [infectious diseases](#). However, we know of no comprehensive review of how global health programs at public health institutions are working towards the MDGs. Based on our experience in public health, we are aware that upper-income countries' public health schools often devote educational resources to their own students and perform small-scale projects or support modest capacity building in LMICs. Anecdotally, these interventions are common, and they are not very effective in helping LMICs meet the MDGs, given their limited scope.

There are effective alternatives, however. As a case study, we will explore the Johns Hopkins University (JHU)-directed Fogarty Global Infectious Disease Research Training Program in Peru and Bolivia, with which the authors are affiliated. This program has had a significant impact on the public health networks of these countries, enabling them to better meet MDG targets.

Case

The JHU-directed Fogarty Global Infectious Disease Research Training Program in Peru and, more recently, in Bolivia, funded by the Fogarty International Center of the National Institutes of Health (NIH), provides a nearly 30-year case study of how public health schools contribute to the realization of MDGs. It demonstrates how relatively low-resource interventions can make large changes in a country's public health network and its ability to meet the MDGs. The JHU Fogarty program began working in Peru in the 1990s; at the time, the country was locked in an internal conflict with a Maoist terrorist group, Shining Path, which hampered both educational and outreach projects and caused a huge internal refugee problem.⁷ Here, we describe the program's focus on training, empowerment, and shared knowledge.

Training. The program first focuses on training, which has grown in scope and reach over the past decades. It began by recruiting passionate researchers in the field of neglected tropical diseases, with a specific emphasis on women and minorities in Peru and Bolivia. Later, the program decided to send select researchers to the United States to receive their PhDs, deliberately offering the opportunity to those who had a vested interest in returning to their communities in an effort to limit [brain drain](#). About 95% of the Peruvian and Bolivian researchers who trained with the program still work primarily in Peru or Bolivia as prominent, internationally recognized public health researchers. The network associated with the JHU Fogarty program has grown exponentially. Trainees are now studying for MPH and PhD degrees at the Universidad Peruana Cayetano Heredia in Peru (UPCH), one of the JHU Fogarty program's partner institutions. They are under the supervision of scientists who trained in the program decades ago. In addition, associated faculty have administered 5 NIH training grants in Peru and Bolivia in collaboration with local universities. These grants have allowed training to take place where it is most

sorely needed, including in tuberculosis-testing laboratories in Bolivia and in neurocysticercosis clinical trials in Peru.

The program has also developed capacity-building initiatives, ethics training, and review boards. Four years ago, the program was instituted in Bolivia, using a south-to-south approach. Bolivians are learning laboratory techniques and pursuing graduate degrees at UPCH. The south-to-south approach keeps researchers and activists in their communities, which helps to build local technical and institutional capacity at home as well as to address the disparities between rural and urban health that are more prominent in LMICs. In addition, training in ethics resulted in the development of 4 institutional review board committees, 2 at the university level and 2 in hospitals. Before the program's engagement in Bolivia, there was no such ethics board in Santa Cruz, the largest city in Bolivia.

Empowerment. The JHU Fogarty program empowers new researchers by giving responsibility to young and talented trainees at the beginning of their careers. This delegation of responsibility encourages researchers to rise to the occasion and inspires them to develop their own ideas. Scientists come away from the program with self-confidence and a sense of independence that augments their own projects. Eventually they become proficient researchers with labs and research groups of their own. They then continue the mission of training curious and passionate researchers, influencing generations of scientists and facilitating the growth of the program. There are now at least 8 laboratories in Peru headed by graduates of the program.

Shared knowledge. Finally, the JHU Fogarty program focuses heavily on information sharing. It believes and teaches that research is shared curiosity and encourages the free and generous exchange of ideas, information, and data, even in today's cutthroat world of publications and grant applications. For example, faculty members hold monthly laboratory meetings that are open to any interested party and regularly attended by researchers from around the world. This value of openness has taken root in many of the trainees, who continue to collaborate freely in an unusually collegial public health network. Sharing information and supporting other labs allows cutting-edge technology and information to be brought to those who need it most.

Additional factors. The JHU Fogarty program's approach to training, empowerment, and shared knowledge has been bolstered by 2 concrete principles: dedication to place and interaction between trainees from the United States, Europe, and Latin America. In-country buy-in of projects is augmented by faculty dedication to the local community. Most faculty members live and work in Peru or Bolivia, which allows them to be not only physically but also emotionally available for mentorship.⁸ American and European trainees are generally asked to spend a year or more in Peru and Bolivia, and Peruvians and Bolivians training in the United States are similarly asked to spend a significant period of time there. These long-term interactions, facilitated by many trainees living

together in dedicated housing, provide a unique advantage: because the scientists who compose the research teams are from multiple countries, they contribute diverse knowledge to the program. Several US and European scientists now do research permanently in Peru and Bolivia following their early-career training experiences, while one Peruvian has a US-based research career. In short, the interactions between Bolivian, Peruvian, European, and US scientists is synergistic. Relationships built in training last for years, strengthening international public health networks.

One reason the JHU Fogarty program focuses on training, empowerment, and shared knowledge is that it is making a conscious effort to address the structural inequities within a public health network that can otherwise marginalize researchers based on their race, gender, or class. This focus is in line with the UN [Sustainable Development Goals](#), which expand on the MDGs by addressing underlying structural inequities.^{9,10} This focus also provides an additional framework for addressing public health problems and, along with the research undertaken by the program, recognizes the need to address social determinants of health and injustices within public health systems. Such interventions and research can help mitigate social determinants of health.¹¹

The development of a strong public health network is integral to meeting MDGs. Biomedical research, pilot projects, and implementation and assessment of programs are key to addressing the public health crises behind many of the MDGs, including the reduction of communicable diseases and improvement in childhood mortality. The JHU Fogarty program has demonstrated the efficacy of this approach multiple times in Peru and Bolivia. Over the past 30 years, it has had many notable successes. Colleagues developed a new, rapid test for multidrug resistant tuberculosis; discovered new disease-causing organisms, including *Cyclospora cayetanensis*^{12,13}; and started the first high-level tuberculosis testing lab in Santa Cruz, Bolivia. One of the program's first trainees, Hector Garcia, led a team to eliminate cysticercosis, a parasitic disease which can cause seizures, from an entire Peruvian region; he is one of the world's foremost experts on cysticercosis and is the recipient of multiple NIH grants.¹⁴ Another former trainee, Manuela Verastegui, is part of a team testing novel drug compounds and a diagnostic test for Chagas disease, a parasitic cause of heart failure.¹⁵ Other projects have included childhood nutrition, water safety, HIV treatment, early autism diagnosis, climate change effects on glacier-dependent watersheds, and lung diseases caused by open fires. These research projects and the capacity building associated with them have strengthened Peru's ability to meet MDGs.

Similar Approaches

The JHU Fogarty program is not unique. Within Peru, a similar Fogarty program in collaboration with the University of Washington has also made a significant and lasting impact on the Peruvian public health network¹⁶—including by training the current head of the public health school, Patricia Garcia, at one of the top medical schools in the country. These 2 long-standing Fogarty-funded training programs have had a significant

impact on the research environment in Peru, resulting in a more than 9-fold increase in published papers over the last 2 decades.⁸

Governmental and private sectors in Peru have also taken measures to improve public health training. In the last year, an independent PhD program was started at UPCH in order to extend the benefits of training to those who do not have strong English skills or the resources to go outside the country to train. In addition, the Peruvian government has now instituted its own funding for both in-country and external training. At the JHU Bloomberg School of Public Health, there are 4 PhD trainees and graduates funded by the Peruvian government.

The United Nations Children's Fund endorses a similar approach, stating that more effective progress can be made with a focus on providing training, resources, and capacity building to partner nations.¹⁷ The International Conference on Sustainable Health Development suggested facilitating the exchange of scholars and researchers among different academic public health institutes as well as nurturing collaborative research on similar problems in countries within a region,⁶ similar to what the JHU Fogarty program does already.

Lessons from the JHU Fogarty Program

Although emphasizing training, empowerment, and shared knowledge has been successful in South America, we cannot guarantee that this approach will have similar results across different countries and cultures. Without considering a country's institutional and cultural environment, there is a risk of global health partnerships further deepening health inequity.¹⁷ However, this approach should have a positive effect on public health in most circumstances. We can advocate for more in-country training grants and for institutions in upper-income countries to offer more scholarships for international students who pledge to return to their communities for a previously agreed-upon period. These funding mechanisms hold promise to help combat the brain drain that disproportionately affects low-income countries. In addition, we can encourage the empowerment of women and junior colleagues by promoting them to positions of leadership early in their careers. Collaboration and the free sharing of information among research networks and countries are essential for progress to occur.

In addition, global health curricula at public health schools need to place more emphasis on building in-country training programs and dedicating more time to health promotion-related projects. Instead of focusing on students' participation in short-term research projects, we could encourage students to explore capacity development or joining an ongoing, long-term research project. Collaboration with local co-investigators on research projects would not only improve the capacity and the sustainability of the project but also add an important dimension of cultural competency. Long-term research projects, such as those associated with 5-year Fogarty program training grants, have greater impact than shorter projects. In short, more emphasis could be placed on

sustainability and capacity building and less on medical and research tourism masquerading as participation in necessary research projects.

Meeting MDGs

Numerous avenues exist for successfully meeting MDGs, but doing so will take an intense and multidisciplinary effort. However, it is undeniable that public health schools can help the world meet MDGs through building public health networks and local research capabilities. Through the application of the specific interventions discussed here, other public health networks could be strengthened and in turn help their own countries and regions meet MDGs. The JHU Fogarty training program and similar programs have proven that emphasis on training, empowerment, and shared knowledge can have a significant impact on a public health network that can motivate eventual attainment of MDGs.

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