

Investing in Research Training to Improve Global Cardiovascular Health



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In July 2015, the National Heart, Lung, and Blood Institute (NHLBI) released its Strategic Vision, including 4 Strategic Goals: 1) promote human health, 2) reduce human disease, 3) advance translational research, and 4) develop workforce and resources [1]. The fourth goal focuses on “enabling the biomedical workforce to fully capitalize on emerging scientific opportunities by equipping today’s workforce with new skills and the necessary tools and resources and by cultivating a diverse next generation of researchers trained in cutting-edge science and the requisite multi-disciplinary skills.” The NHLBI identified 166 refined critical questions and challenges, of which 30 (18%) were related to this fourth goal.

Global health received no mention in connection either with this workforce training goal or among the Vision’s Strategic Research Priorities on Collaborations and Partnerships. Nor did the Visioning Forum, as of September 11, 2015, generate more than 3 of 118 submissions (2.5%) addressing interests of low- and middle-income countries. Ideas about these regions concerned benefits to the United States of research in these regions, the value of training and support of mentors, and the need for training strategies in clinical research and implementation science research. This apparent oversight is out of keeping with the institute’s record of investment in global health activities, of which the Centers of Excellence program has been a major example.

We believe that global health research training is a fundamental requirement for improving cardiovascular health worldwide and is therefore essential to achievement of NHLBI’s Strategic Goals. We argue, as do others, for a substantial U.S. role in global cardiovascular health research. The National Forum for Heart Disease and Stroke Prevention [2], National Academy of Medicine [3], and other organizations have similarly called for greater investment in global cardiovascular health research training. This paper presents our rationale and outlines strategies to increase opportunities for global cardiovascular health research training in which U.S.-based and international trainees acquire needed knowledge, skills, and experience both in domestic settings and abroad.

RATIONALE

We support global cardiovascular health research training especially for the 4 following reasons.

First, a leading role for the United States in cardiovascular health research and in policy and practice

innovations requires engagement with our global partners, including those from low- and middle-income countries. As the global dimensions of heart disease, stroke, hypertension, and other cardiovascular conditions are increasingly recognized, the need for country-level research increases. The United States, by our history of research, is well-positioned to support this work and stands to gain from collaboration in research training, as the number of settings is multiplied where needed research is taking place, increasing opportunities for U.S. and international scientists to address questions relevant to our own national needs. Recent bibliometric trends suggest that failure to work globally threatens this leading position [4].

Second, global health research training is a good investment in research productivity, leading to a high proportion of grants submitted and awarded and papers published. For example, from 2004 to 2012, the Fogarty global health fellows’ and scholars’ programs supported 1-year mentored clinical research training for 524 individuals at 61 National Institutes of Health-funded research sites across 21 countries. After a mean follow-up of 3 years, 94 Fogarty alumni respondents had collectively submitted 117 subsequent extramural and intramural grant applications, and 79 received funding (68% success rate) [5]. These rates are enviable for any research training program. Further, among the first 1,617 published manuscripts evaluated from this cohort, international trainees were also more likely to publish a manuscript compared with U.S. trainees.

Third, global cardiovascular health research training can help to generate new strategies to decrease the burden of the largest current and future health threat, namely cardiovascular diseases. For example, the World Health Organization estimates that deaths from cardiovascular disease will increase from 18 (out of 57) million per year in 2015 to 22 (out of 70) million per year in 2030 [6]. This public health burden, approximately 1 out of every 4 deaths, is unlikely to decline, largely due to population growth and aging, despite global decreases in the age-adjusted death rate from cardiovascular diseases over the same period. Therefore, cardiovascular health research, which has played a major role in the decline in heart disease rates in high-income countries, is needed globally to develop new knowledge, including learning how to implement or translate what is known into practice, to accelerate favorable trends and reverse unfavorable ones.

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Fourth, strategies developed for low-resource settings have the potential to improve health and health care in the United States. Areas of the United States in which poverty, unemployment, and chronic disease burdens are endemic have much in common with such settings. For example, trials evaluating the use of lay health workers to improve adherence to medications for the secondary prevention of ischemic heart disease in India [7] to salt substitutes in China [8] demonstrate that research in low- and middle-income countries can be applicable to the pressing cardiovascular clinical and public health problems in the United States.

STRATEGIES TO IMPROVE ACCESS AND OPPORTUNITIES FOR GLOBAL CARDIOVASCULAR HEALTH RESEARCH TRAINING

We suggest the following strategies for rapidly increasing global cardiovascular health research training.

Leverage demonstrated training models to expand their reach and impact

Those to be considered include the following. (1) The Fogarty Global Health Fellows program, as discussed; (2) the International Ten Day Teaching Seminars on Cardiovascular Disease Epidemiology and Prevention, which focuses on teaching the fundamentals of cardiovascular disease epidemiology to early career trainees and has been conducted annually since 1968, with nearly 1200 trainees to date [9]; (3) the World Heart Federation Emerging Leaders Program, which focuses on implementation science, health systems, and health policy research training for early-to-mid-career trainees and is in its third year, with 50 trainees to date [10]; and (4) the National Institutes of Health D43 International Research Training Grants, which are institutional training grants to bring low- and middle-income country trainees to U.S. institutions for short-, medium-, and long-term training opportunities. These training programs are common within the field of infectious diseases, but of the 185 funded D43 programs in 2015, only 2 received funding from NHLBI through a limited competition among Medical Education Partnership Initiative (MEPI) institutions in Sub-Saharan Africa [11].

Take action now on the 2015 NHLBI Global Health Think Tank recommendations

The NHLBI hosted a global health think tank in 2015 and outlined strategic positioning and tactical activities, particularly related to late stage translation research. A synthesis of the discussions included that “[a] new cadre of investigators (including mentors) with knowledge and skills to conduct T4 research using integrated approaches that address health inequities both domestically and globally, are needed. The NIH/NHLBI portfolio of K, F, and T awards needs to be leveraged to accommodate junior and young investigators interested in T4 research skills

development” [12]. We agree and would encourage additional mechanisms for independent investigators and research teams, particularly during vulnerable periods of research careers (e.g., K to R transition).

Increase indirect costs paid to foreign institutions

Although U.S.-based universities have negotiated indirect rates of >50% of direct costs with the National Institutes of Health and other federal sponsors, global institutions from low- and middle-income countries typically receive far lower indirect rates, usually around 8%. U.S.-based institutions have used indirect costs from research grants to develop institutional research training capacity over time by providing field experience opportunities for ongoing, long-term training programs. Indirect costs are those that “have been incurred for common or joint objectives and cannot be readily identified with a particular final cost objective” and can be negotiated between the federal government and nonprofit organizations. Indirect cost rates are guided by complex principles outlined by the Department of Labor and Office of Management and Budget [13]. However, research organizations in low- and middle-income countries are not well-positioned to navigate the complex negotiation process to receive higher indirect rates. By fostering this favorable development, we can enable foreign institutions more readily to collaborate in the training and research needed to be effective in promoting cardiovascular health and reducing cardiovascular morbidity and mortality.

SUMMARY

We have outlined the rationale for supporting global cardiovascular health research training and strategies to increase global cardiovascular health research. A renewed and sustained investment such training has the potential to help the NHLBI, along with its global partners and other stakeholders, to achieve its 4 strategic goals and to improve cardiovascular health in the United States and worldwide.

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