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Global Noncommunicable Disease Research: Opportunities and Challenges

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Opportunities for collaboration on global noncommunicable disease (NCD) research across international borders and scientific disciplines are increasingly available, coinciding with globalization of science and an unprecedented interest in global health among U.S. students, clinicians, and early-career investigators (1). However, challenges to developing and funding a global NCD research agenda remain. In September 2014, researchers representing 41 institutes, including universities, government agencies, private companies, journals, and foundations in the United States met to discuss the challenges and identify opportunities for moving forward on a global NCD research agenda. Four action items emerged from this conference.

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Build Bridges Between Communicable Disease and NCD Research

The conventional dichotomy of communicable diseases and NCDs in global health must be replaced with a more holistic approach to health. Noncommunicable disease researchers and governments could leverage infrastructure and cohorts already established or being developed for communicable disease research (2). Collaborations will naturally emerge in 2 domains: strengthening primary care systems in low-resource settings to manage various common infections and chronic conditions and establishing integrated care models for persons with chronic HIV or AIDS who are also affected by NCDs (3). Collaborative work in the second domain is urgently needed given the rapid increase in life expectancy among persons with HIV internationally after the global distribution of antiretroviral drug treatment (3). Unfortunately, a major challenge for such interdisciplinary projects is that most funding agencies focus on specific conditions. Infrastructure development, clinical research, and public health research are typically funded through different sources, and this further complicates matters.

Encourage Reciprocal Exchanges of Health Innovations Between U.S. and Global Health

Investments in global NCD research do not need to be a zero-sum game in which investment in global health detracts from U.S. health. Although most global health efforts have focused on implementing evidence-based practices from the developed world in developing countries, adoption of health care innovations from resource-limited settings (such as use of lay community health workers for primary care delivery and mobile phones to improve patient adherence) in the United States may reduce health care costs and improve patient outcomes (4). In addition, global NCD research findings may be directly applicable to the United States because its population is becoming more ethnically diverse.

Better Communicate the Benefits of Global NCD Research Investment

Global NCD researchers, the National Institutes of Health (NIH), and other institutions supported by U.S. taxpayers must clearly communicate the benefits to be gained by the United States from engaging in global NCD research (Table). A few of the potential scientific benefits include gaining a greater understanding of the health effects of a wider range of exposures to environmental pollutants, particularly high-dose exposures, and access to large samples from diverse populations for genomic studies and clinical trials. For clinicians, international work offers opportunities to broaden their medical knowledge, refine their physical examination and diagnostic skills, and become more culturally competent (5).

Creating incentives for trainees to work abroad can strengthen their research skills. The 32 U.S. fellows supported by the National Heart, Lung, and Blood Institute’s Centers of Excellence program for global NCD research published more than 70 manuscripts, and the 536 fellows supported by the NIH Fogarty International Clinical Research Scholars and Fellows Program published more than 3000 manuscripts (6). This productivity improves the academic breadth and prestige of universities.

Promoting health equity around the globe can improve political stability (7). The U.S. Department of State recognizes this link between global health and U.S. security and promotes shared responsibility for improving health internationally. The President's Emergency Plan for AIDS Relief exemplifies this soft political influence through health diplomacy. Policymakers should respond to requests from low- and middle-income country governments, which are beginning to focus on NCDs.

Support Early-Career Investigators and Mentors

Early-career investigators are the current front line and future leaders of global NCD research, but their career pathways are poorly defined. U.S. universities should adopt new metrics of success that reward public health effect and team science and recognize that, in today's globalized scientific community, an interdependent researcher is more valuable than an independent researcher.

The increasing difficulty in obtaining funding further complicates the pathway for early-career investigators. Although the NIH once funded 1 out of 3 research proposals, it now funds only 1 out of 6 (8). Career Development ("K") Awards, which are critical for early-career investigators, are extremely competitive, particularly for global NCD researchers. The funding pathways after "K" Awards are even more competitive, and investigators often rely on "R" Awards. An increase in funding devoted to global NCD research would be an important first step toward supporting talented scientists. Concurrently, universities could increase hard-money and exploratory grants to encourage these high-impact endeavors. Global NCD mentors also need financial support to dedicate time to training and building NCD research capacity at their universities and in partnering countries.

Several examples of success are worth noting. The National Heart, Lung, and Blood Institute Global Health Strategic Plan highlights the need for global translational research (9). It will be important for other NIH institutes and centers as well as other governmental and nongovernmental funding agencies to emphasize global NCDs in their strategic plans. Investigators in the United States should seek opportunities to sit on NIH study sections to ensure that global NCD projects are reviewed and scored fairly, particularly in light of their large potential for public health effect. In this regard, the dramatic misalignment between the global burden of disease and U.S. funding agency priorities (far more resources are available for HIV and AIDS than for NCDs, which cause more deaths) must be addressed (10). Policymakers in the United States can lead the way to address NCDs as they did with the Global Fund for HIV/AIDS and the President's Emergency Plan for AIDS Relief.

Conclusion

Achieving these 4 action items requires complementary contributions by U.S. global NCD researchers, funders (both public and private), and universities. Increased collaboration across university-based centers focused on global NCDs is also essential. Finally, global NCD research must coincide with political efforts to address known NCD risk factors and disparities in health. Advocacy for each of these changes will be critical. The time for action is now.

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Table

Summary of Benefits to U.S. Science, Academic Institutions, Investigators, and Others From Engaging in Global Noncommunicable Disease Research

Science	Academic Institutions	Investigators	Others
Reverse innovation and opportunities for implementation science	Training opportunities for early career investigators	Personal enrichment	US State Department: soft power influence through health diplomacy
Unique environmental exposures and doses	Improve reputation and prestige, and thus the strength of faculty and student applicants	Expanded pool of mentors	Industry: help feed pipeline of young investigators; efficiency of clinical trials; support labor force for US industries abroad
Genetic diversity	Create sense of solidarity among faculty	Develop leadership skills	Global academic partners: universities working together to develop research infrastructure and skills
Immigrant and minority health	Engage in university mission	Establish partnerships that could last decades	Research investments can be sources of revenue through patentable ideas
US military, expatriate, and traveler health	Increase visibility with other organizations	Platform for early career investigators to develop their own pathways	
Standardization and validation of different tools in diverse populations	Partnering with other strong institutions in low- and middle-income countries extends reach of limited resources	Interdisciplinary exchange of ideas, new perspectives, people	
Access to diseases or advanced disease stages that are rare in US	Diversify student body, trainees, and faculty from low- and middle-income countries		
Unique opportunity to study interactions with infectious diseases	Increase breadth of diseases studied and appeal to prospective students and faculty		
Basic science research cheaper	Research drives creativity and innovation in healthcare		
Drug discovery (traditional medicines)			