

Global Health Pathology Research: Purpose and Funding

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KEYWORDS

• Pathologist • Global health • Cancer research • Funders • Accurate diagnosis

KEY POINTS

- Pathologists are fundamentally positioned to contribute to basic biological knowledge, to increasing accurate and efficient diagnostics, to enhance cost-effective practice, and to shape health care policy.
- Scientific rationales for international research projects include the local preponderance of disease, rare genetic variants, and/or unique environmental exposures. Well-conducted research studies include performance indicators to monitor quality, efficiency, and impact. Peer reviewers expect a deliberate plan to accommodate the realities of conducting international research.
- Improved communications among researchers and funders will help generate the evidence needed to advance our understanding of human biology and improve the human condition.
- Pathologists should think strategically about how their investigations fit into a larger agenda to address the needs of the health system.

INTRODUCTION

Peer-reviewed research funding is highly competitive: it is incumbent on the investigators to demonstrate the value, relevance, and impact of their proposals. At present, the practice of both pathology and global health are evolving rapidly. Funders and investigators need to work together to define a well-designed, well-executed clinical research agenda that will generate a sustainable, powerful field of clinical research. Pathology clinical practice ranges from laboratory medicine to anatomic pathology, microbiology, transfusion medicine, and molecular diagnostics. In this era of precision medicine, diagnostic pathology plays a pivotal role in accrual to clinical trials. Areas of research include basic biological investigation through translation of current automated tests to new practice settings.

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Pathologists become interested in global health for a variety of reasons, and perusal of the table of contents of this issue demonstrates their range of motivation. These motivations include altruistic volunteerism, education of the next generation of practitioners, sampling a comprehensive cross-section of human genetic diversity, and acquiring bio-specimens for basic research. Likewise, funders of global health have varying priorities. These priorities range from investigation of basic biology to scaling interventions that will reach the world's most disadvantaged citizens. It is beyond the scope of this article to debate the relative value of these underlying motivations; in fact, there is value in each of these approaches. The goal here is to improve communications among all interested parties to generate the evidence needed to advance our understanding of human biology and to improve the human condition.

The Center for Global Health¹ (CGH) of the National Cancer Institute² (NCI) at the National Institutes of Health³ (NIH) was formed in 2011 to catalyze global cancer research. The CGH addresses the NCI's commitment to strengthen global cancer research, build a global cancer research community, and foster the translation of research results into practice. From the CGH's inception, pathology and laboratory medicine have played a pivotal role in global clinical research by contributing to an accurate diagnosis, monitoring the effects of therapy, and providing precise input into disease surveillance systems.⁴ Over the past 5 years, the center has supported the intersection of pathology and global cancer research in many ways. The CGH has funded grants, contracts, and supplements to support new and enhanced diagnostic technologies. Additionally, the CGH has supported training the next generation of practitioners, hosted strategic planning sessions for pathology, and held workshops to increase the profile of pathology practice in low-resource settings.

This article summarizes the authors' experience to date and outlines future directions for pathology research. The NIH has a long history of working with the scientific community to generate funding announcements, and many of the 27 NIH institutes and centers pursue international projects. Peer reviewers use a well-defined set of criteria to work together to identify meritorious proposals.

- The first section discusses how the NIH's peer-review process applies to global health pathology research projects.
- The second section presents an illustrative sampling of NIH-funded projects with performance sites in low- and middle-income countries (LMICs) with 2 examples focused on cancer and anatomic pathology.
- The third section relates the research agenda to overarching strategic recommendations for enhancing global pathology.

APPLYING NATIONAL INSTITUTES OF HEALTH'S REVIEW CRITERIA TO GLOBAL PATHOLOGY RESEARCH

Performing research in international settings presents many opportunities for ingenuity. Access to facilities, equipment, communications, information technology, supplies, support staff, ethics review boards, demographic data, vital registration data, and baseline epidemiologic information can be challenging. Inclusive, intellectual partnerships among high-income country investigators and those working in local LMIC communities can not only address these challenges but can also refine and improve scientific hypotheses and assure relevance to local patient populations. For example, the CGH funded a partnership of Tanzanian and US investigators to document the high burden of esophageal cancer. Pathologists, epidemiologists, and clinicians

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