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**Building research capacity within cardiovascular disease prevention and management in low- and middle-income countries**

**A collaboration of the US Centers for Disease Control and Prevention, the Lancet Commission on Hypertension Group, Resolve to Save Lives, and the World Hypertension League**

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# Building research capacity within cardiovascular disease prevention and management in low- and middle-income countries: A collaboration of the US Centers for Disease Control and Prevention, the Lancet Commission on Hypertension Group, Resolve to Save Lives, and the World Hypertension League

Locally led health research in low- and middle-income countries (LMICs) is critical to overcome global health challenges. Local researchers are knowledgeable about health problems and understand the cultural, social, economic, and political contexts that influence patterns of disease and the effectiveness of interventions.<sup>1</sup> The impact of locally led research studies and their potential contribution to the literature cannot be overstated; yet, health research capacity in LMICs remains limited.<sup>2</sup> Most health researchers from low-resource settings face many challenges beyond those of researchers in well-resourced settings. Barriers for potential investigators range from lack of funding and mentorship to inadequate access to scientific literature, limited institutional support, slow Internet speed, and limited English language proficiency.<sup>3</sup>

As the incidence of cardiovascular disease (CVD) and associated risk factors rise in LMICs,<sup>4</sup> the importance of LMIC scientific communities generating evidence and disseminating findings and recommendations is critical. Therefore, the US Centers for Disease Control and Prevention (CDC), the Lancet Commission on Hypertension Group, Resolve to Save Lives, and the World Hypertension League came together with a shared goal of increasing opportunities for LMIC researchers to systematically evaluate CVD initiatives and share their results with the scientific community.<sup>5</sup>

In 2019, CDC began a mentorship collaboration with the Lancet Commission on Hypertension Group, Resolve to Save Lives, and World Hypertension League, and invited 35 LMIC public health trainees and practitioners to propose manuscripts that could enhance the evidence base and inform future work in their regions. Thirty-three authors representing 24 papers responded and were invited to prepare manuscripts. Twenty-two authors from seven countries were then invited to participate in a scientific writing workshop held in Atlanta, Georgia, in October 2019; 21 authors attended. The workshop trained participants on the principles of scientific writing and the process of journal submission and review. Interactive

lectures focused on the publication process, basic writing principles, and the purpose and best practices for writing the abstract, introduction, methods, results, and discussion sections of a scientific paper. The workshop also provided a forum for one-on-one mentorship of authors from LMICs by members of the Lancet Commission on Hypertension Group. Additional experts were also present at the workshop from Johns Hopkins University, Resolve to Save Lives, and the World Hypertension League. Mentors and other experts have extensive experience in clinical and population-based CVD prevention and management, epidemiology, and scientific dissemination. Twelve mentors from the Lancet Commission on Hypertension Group and Resolve to Save Lives agreed to provide ongoing mentorship to the LMIC authors. The workshop proved valuable as described by both mentees and mentors:

The Scientific Writing Workshop held in Atlanta was an informative and inspirational weekend. I was able to better comprehend the elements needed to write, edit, and publish a manuscript for a scientific journal. This was especially useful as we had guidance from mentors and journal editors, who gave multiple perspectives on the publishing process. The workshop was essential to the publishing of my manuscript!

(Bianca Løge, special section author who published on trans-fat elimination policy in the Eurasian Economic Union)

It was amazing to meet so many interesting people from all over the world in Atlanta and then to be able to maintain contact and reach the goal of drafting a manuscript.

(Professor Fernando Martínez García, Spain, Member

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of the Lancet Commission on Hypertension Group).

After the workshop, CDC facilitated communication among mentors and between mentors and authors, coordinating the effort that led to the publication of 13 scientific articles across two special sections by authors from LMICs in the area of hypertension control, trans-fat elimination, and sodium reduction. The World Hypertension League provided support by selecting the journal and identifying the potential reviewers. Mentors provided guidance, expertise, and support for authors as they strengthened their scientific writing skills and navigated the writing and publication process:

It is not easy for authors from LMICs to publish their work in high-impact global journals due to lack of experience and language barriers. However, after I joined the Scientific Writing Workshop, I felt it was possible to publish my work in those journals. It was not the first time I joined a writing workshop, but it was the first time that I had success result from a writing workshop. The mentors not only provided comments but also thoroughly reviewed my work, knowing it in as much detail as I knew it, and helped me work through it, polishing it with me until it was ready for publication.

(Khanuengnij Yueayai, special section author who published on hypertension diagnosis in Thailand)

The experience was very rewarding and helped me to gain insights into areas of public health that are not in the immediate focus of my own research. I learned a lot myself.

(Professor Christian Delles, The United Kingdom, Member of the Lancet Commission on Hypertension Group)

Championed by the Lancet Commission on Hypertension Group chair, mentors worked with authors throughout the process of preparing their papers for publication. The scientific writing mentorship process was intensive and iterative. Mentors volunteered a considerable amount of time providing technical guidance and encouragement on numerous drafts before articles were ready for journal submission. For many authors from LMICs participating in the initiative, this was their first experience in scientific writing. Lancet Commission on Hypertension Group mentors were mindful of the challenges new authors face and provided thoughtful technical and moral support to the mentees:

This mentorship program was extremely useful and quite supportive to my first manuscript preparation and concept development. The program provided me the opportunity to improve my scientific writing and quality of work. As a result of the close and helpful

guidance of the mentors, my work was published in the special section and can now have far-reaching impact.

(Juntima Photi, special section author who published on trans-fat consumption and reduction strategies in Thailand)

This was my first experience with scientific writing and manuscript publication in my 11-year public health career. Unlike many other programs I participated in the past, during this mentorship process I received end-to-end support until my manuscript was ultimately published.

(Ashish Krishna, special section author who published on hypertension control strategies in India)

With participation in the initiative entirely voluntary, mentors note their motivation for participating as due to their interest in helping LMIC researchers build their capacity in disseminating their research to the larger scientific community, thus increasing the global impact of the authors' work:

I wanted to help early-career investigators who have less access to research resources to disseminate their research findings to the global scientific community.

(Professor James Sharman, Australia, Member of the Lancet Commission on Hypertension Group)

As Sir Isaac Newton said 'If I have seen further it is by standing on the shoulders of giants.' This was my experience with my mentors who, through their professional experience, enabled me to write a piece of scientific research of global value. In LMICs, it is next to impossible to search and acquire the support of professionals with global exposure to writing such thematic articles. CDC played a vital role of searching mentors of global standing and linking them with researchers for the task of building a valuable manuscript.

(Omer Tarar, special section author who published on trans-fat control in Pakistan)

Members of the Lancet Commission on Hypertension Group expressed willingness to engage in future endeavors, with mentors expressing strong support for initiatives like this to continue, and CDC appears to be an ideal partner:

I enjoyed and found it of great relevance, with a considerable potential of amplification in LMIC countries. I make myself available for future initiatives.

(Professor Angelo Scuteri, Italy, Member of the

## Lancet Commission Hypertension Group)

Although this initiative required substantial time commitment from mentors and mentees, the important publications, combined with the positive comments from mentors and mentees, demonstrate a successful model for supporting cardiovascular research and publication capacity in LMICs. The first special section included six articles with an editorial,<sup>5</sup> and this special section includes seven additional articles as follows:

- Giraldo et al. have documented the facilitators and barriers for implementing the HEARTS in the Americas initiative and its technical package.
- Chailimpamontree et al. have estimated the salt intake in Thailand through a community-based survey.
- Angkurawarnon et al. have evaluated the control rate of hypertension in relation to adherence to hypertension treatment guideline from Thailand.
- Kaur et al. have measured the efficacy of a public health hypertension control program in a large cohort across four states in India.
- Das et al. have documented the factors affecting non-adherence to medical appointments among hypertensive patients in the public health facilities of India.
- Kannure et al. have explored the association between blood pressure control and phone call strategies among private practitioners in India.
- Negri et al. have compared the price of fixed-dose versus single component antihypertensive medicine in the Indian private sector.

## DISCLAIMER

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

## CONFLICT OF INTEREST

None.

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