Strategic, Successful, and Sustained Synergy

The Global Alliance for Chronic Diseases Hypertension Program

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With the aging of the world's population and the well-advanced epidemiological transition that is occurring in low- and middle-income countries (LMICs), the major burden of global diseases now lies with noncommunicable diseases (NCDs). Funding in global health, however, remains focused on human immunodeficiency virus, tuberculosis, and malaria with no equivalent PEPFAR (President's Emergency Plan for AIDS Relief) or Global Fund to support research and implementation practices to decrease the burden of NCDs, or provide new solutions to deliver impact. To prepare for the next global health objectives, the Global Alliance for Chronic Disease (GACD) brought together local funders to combine forces to enlarge the network of researchers in NCDs.

The GACD was formed from its precursor, the Grand Challenges Global Partnership, funding implementation science research with the aim of improving uptake and scale-up of well-evidenced approaches to prevention and control of NCDs, rather than developing new treatments [1]. In 2010, the GACD's member funding agencies collaborated on the first unified funding call for implementation research projects, which focused explicitly on implementation and evaluation of evidence-based approaches to address the burden of hypertension in LMICs and in indigenous (in the case of Australia and Canada) settings. Beyond a traditional research funding call, the GACD aspired to create something distinct from each individual funding agency's usual funding schemes—an international research collaboration that would collectively contribute new and actionable knowledge and catalyze research to address the growing global NCD burden.

As the initial hypertension program finishes, it is timely to reflect on the lessons learned, the maturation that has occurred, and the contribution that the GACD is making to multicountry, global implementation research.

ENABLING THE COLLABORATIVE CONTEXT

An expectation of GACD funding for the duration of the grant is attendance by at least 1 representative each from a high-income country (HIC) and an LMIC at the annual scientific meeting (ASM). By requiring attendance, and ring-fencing funding for attendance in the project budgets, the GACD has facilitated a unique collaborative context. Also attending these ASMs are the GACD board members, funding agency representatives, and secretariat staff.

At the ASMs, a mix of senior, midcareer, and early career researchers attend with good representation from both HICs and LMICs. Initially, it was just the hypertension research teams with 40 to 50 attendees; as other research consortia were funded (including Diabetes, Mental Health, and Lung Disease) attendance reached up to 150 at the 2018 meeting in São Paulo, Brazil. It is also common for GACD-funded research teams send additional team members to these annual meetings, often funded out of alternate funding mechanisms. Moreover, some researchers from the inaugural GACD Program (Hypertension) have continued to attend ASMs despite their project's (and funding) completion, reinforcing the value of these meetings and the ongoing knowledge transfer between cohorts over time. The size of these meetings, smaller than a traditional scientific conference, also provides an excellent opportunity for researchers to discuss not only their specific research projects, but also shared learnings and challenges, at a level not always possible in larger contexts.

At each ASM, the Secretariat invites experts such as local policy makers and Ministry of Health representatives, funding body representatives who give presentations, investors such as the World Bank, and specialists in media training. Access to such expertise and training opportunities is often challenging for researchers, particularly to those from LMICs; consequently, these components are highly valued.

COLLABORATIVE ACTIVITIES

The most-cited benefit by participants at the annual meetings has been the networking opportunities. Coming to the meetings where there was a relatively small number of people (compared with a scientific meeting or conference), staying together in the same hotel, sharing meals,

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and mingling over morning tea created important opportunities to foster networks, percolate ideas, build relationships, and have dedicated time to evolve these discussions into more specific collaborative activities in the future. Table 1 summarizes these activities and their opportunities for early career and midcareer researchers.

COLLABORATIVE OUTCOMES

The outcomes and impact of this collaborative context have been multiple.

Publications

The field of Implementation Science focusing on research in LMICs was still emerging as a field when the GACD was first established in 2009. In total, the hypertension-funded teams have so far published 75 papers across a range of scientific journals, thus contributing significantly to the implementation science literature.

Implementation Science Workshop

An Implementation Science Workshop, in conjunction with the ASM, was initiated and open to any funded researchers as well as local researchers from the host country. These workshops use a case study approach, with pragmatic discussions and. Topics include "What is an implementation trial?"; design and conduct of hybrid implementation-effectiveness studies; sharing of challenges of working in low-resource settings; and the importance of understanding process evaluation of complex interventions so as to understand "what worked, for whom, why, and why not." Since 2014, >450 researchers have been trained with the majority of attendees being women (57%) and from LMICs (67%), reflecting diversity and inclusion as part of the GACD's capacity building program. Several workshops have also been held separate from the ASM stemming from enthusiasm to access this expertise and provide local training opportunities for other researchers.

Network extensions

Stemming from hosting of the Seventh Implementation Science workshop in Tokyo, Japan, in 2018, a formal implementation science research network has been established in Japan. The RADISH (Research Association for Dissemination and Implementation Science in Health) has held their inaugural meeting with 120 attendees and plans to establish regular meetings and workshops, establish a reading circle to discuss implementation science books and methods, and disseminate relevant research opportunities and evidence to its member base.

Additionally, the Brazilian Implementation Science Network has been established following the inaugural GACD Implementation Science weeklong training school held in Brazil in 2018. Their goals include establishing formal relationships between the GACD and Brazilian research funding agencies, host annual collaborative meetings to foster collaborations in implementation science, and provide a platform to enhance collaborative IS implementation science.

Special interest working groups

Access to wider skillsets catalyzed the formation of working groups addressing areas of common interest. Several groups had a methodological focus such as process evaluation methods, task shifting or sharing as a health strengthening tool, frameworks for determining barriers, and enablers to implementation [2,3]. The COUNCIL (Control UNique to Cardiovascular diseases In LMIC) initiative started with the aim of reviewing the relevance of current cardiovascular disease guidelines for LMIC settings and developing an implementation pipeline for pragmatic solutions to the cardiovascular disease burden in LMICs [4]. The COUNCIL initiative has now also included other chronic NCDs including diabetes [5], stroke [6], obesity, chronic obstructive pulmonary disorder, and depression. The data consensus group aimed to develop consensus measures for data collection [7] and ensured an improvement in the commonality of data points collected across the projects, as well as improved consistent definitions across projects. This enhanced dataset is a significant opportunity for future collaborative meta-analysis.

CHALLENGES AND OPPORTUNITIES FOR IMPROVEMENT

Despite significant successes and positive outcomes from this innovative and novel approach by the GACD, there have also been limitations and challenges.

Highly successful researchers working in the competitive research funding environment may have challenges with "required" collaboration. The strong leadership by the GACD secretariat helped to keep the teams "on the same page," managing differences in personality, approaches, and ideas about methodology.

Additionally, at times there were many "asks" of the researchers and many opportunities for involvement in the GACD that, although generally positive, needed to be balanced with "opportunity cost." It could be challenging to know where to focus attention without losing sight of the main goal, which was delivering the funded project on time and within budget.

A final challenge is occurring with the success of the GACD program as additional members from Diabetes, Lung Disease and Mental Health funding calls are added to the annual meeting which is becoming quite large. Consequently, the opportunity to connect as a small, intimate group has diminished. The secretariat is now challenged with designing the agenda to maximize useful discussion without the meeting becoming a never-ending series of projects simply presenting their respective updates.

TABLE 1. Networking and collaborative opportunities of the GACD program

ASM Impact	Example
Informal mentoring opportunities	• Senior colleagues sharing wisdom over a shared dinner or during coffee breaks *Example: Multiple examples of E/MCRs encouraged to persevere despite a challenging research funding environment.*
Learning opportunities	• Access to a variety of different skills at the right time *Example: One LMIC investigator was successful in obtaining a local country grant specifically due to enhancement of expertise with participation in the GACD hypertension program.* *Example: An LMIC investigator has consequently had secondary involvement in an external regional expert group due to collaborations as part of the GACD hypertension program.* • Capacity to learn from other researchers, countries, and contexts. Hearing from the different contexts is helpful for cross-fertilization of ideas. *Example: The LARK study in Kenya incorporated process evaluation into their study after hearing about it in detail at one ASM* [8]. *Example: Access to expertise in theory-driven conceptual models enabled deeper understanding of contexts within which research was being conducted and also assisted with generalized learning across projects* [9].
Collaboration/networking across countries and continents	• Valuable networking opportunities not only for LMIC researchers with HICs, but also for so-called south-south collaborations between LMICs *Example: New collaboration between Christian Medical College Vellore, Sree Chitra Tirunal Institute for Medical Sciences and George Institute, India.* *Example: LMIC researcher from India identified 2 senior sponsors for an international fellowship opportunity.* *Example: Eight copublished papers across different teams.* • Geographically isolated E/MCRs from HICs such as Australia, where networking opportunities with northern hemisphere colleagues are more challenging due to high cost and long travel times to attend conferences and meetings. *Examples: Co-supervision of students across geographical regions between the United States and Australia.* *Example: Invited presentation for Australian ECR visiting the United States.*
Collaborating	• Unique opportunity to collaborate and bounce ideas off other researchers with complementary experience and skill sets to expand the breadth and potential of future research projects. *Example: Co-applicants on grants in different research areas.* *Quote from one researcher: "There is magnanimity of researchers, no one is competing, and we're all funded. Usually at a conference you showcase your final product and you're making it look good. Here we are living together all the things that happened on the way. Everyone is giving what they can give so that we can all learn from each other."*
Access to policymakers and decision makers	• GACD board members and funding agency representatives *Example: The challenges of grantsmanship in the area of Implementation Science was discussed openly with funding body representatives. Funding agency reviewers often expect "gold standard" RCTs, even when these are impractical or not the most appropriate methodology for implementation science. Subsequent funding calls were modified in response to this. In addition, a multidisciplinary, centralized grant review process comprising representatives nominated from several of the GACD funding bodies was ultimately implemented.* • Policymakers *Example: Policy roundtable held in each Implementation Science workshop, in which policymakers and program implementers engaged in practical discussions with researchers on moving their research findings to policy and practice* *Example: United Nations High Level meeting on NCDs—invitations to participate on panels.* • Philanthropic organizations

(continued)

TABLE 1. Continued

ASM Impact	Example
Opportunities for growth	• For many projects, the senior investigators stepped aside and allowed involvement of E/MCRs. This created capacity for more junior researchers to have a leading role on papers, or chairing a working group, thus building their profile as an independent researcher. *Example: The Council working group was set up by an LMIC researcher with a specific remit to assess availability and quality of guidelines relevant to LMICs.* *Example: The Process Evaluation working group was initiated by a then junior LMIC researcher who, with the support and guidance of more experienced colleagues, has developed guidelines for process evaluation as well as a manuscript describing the approaches and learnings of GACD projects' process evaluations.*

ASM = annual scientific meeting; ECR = Early Career Researcher; E/MCR = Early/Mid Career Researcher; GACD = Global Alliance for Chronic Disease; HIC = high-income country; LMIC = low- and middle-income country; NCD = noncommunicable disease; RCT = Randomised Controlled Trial.

NEXT STEPS

Moving forward, the GACD is already expanding the network by bringing on board different disease areas such as lung diseases and mental health, and most recently hosting a funding call to support scale up projects involving proven interventions. However, over and above these initiatives, additional priorities should include consideration for how the GACD might support the maintenance of these networks. Without the facilitative context of the Annual Scientific Meeting, the risk is that the networks will slowly wither and die. Inclusion of GACD alumni in future scientific meetings, scholarships for LMIC members to continue to attend the ASM, and active sponsorship by the GACD board and secretariat to promote use of the GACD networks for occasions, such as invited presentations, expert advisory boards, or other academic endeavors, would be highly valuable.

The legacy of the GACD Hypertension Program is not only the relationships and friendships formed, but also the documented contribution to the field of implementation science in NCDs; provision of supported learning opportunities regardless of career stage, discipline, or country of residence; and unprecedented access to funders, policymakers, and other decision makers. With a fully established new global network of NCD researchers, over 200 million committed in funding, global representation, multiple internationally competitive publications, and new south-south collaborations, the value-add of this novel funding approach is that this group of researchers has truly become more than the sum of the parts. Without a doubt, this network is significantly contributing to the lowering of cardiovascular risk factors and thereby prolonging life in those at greatest need globally.

REFERENCES

1. Daar AS, Singer PA, Leah Persad D, et al. Grand challenges in chronic non-communicable diseases. Nature 2007;450:494–6.
2. Joshi R, Thrift AG, Smith C, et al. Task-shifting for cardiovascular risk factor management: lessons from the Global Alliance for Chronic Diseases. BMJ Glob Health 2018;3(Suppl 3):e001092.
3. GACD Hypertension Research Programme, Writing Group, Peiris D, Thompson SR, et al. Behaviour change strategies for reducing blood pressure-related disease burden: findings from a global implementation research programme. Implement Sci 2015;10:158.
4. Owolabi M, Olowoyo P, Miranda JJ, et al. Gaps in Hypertension guidelines in low- and middle-income versus high-income countries: a systematic review. Hypertension 2016;68:1328–37.
5. Owolabi MO, Yaria JO, Daivadanam M, et al. Gaps in guidelines for the management of diabetes in low- and middle-income versus high-income countries-a systematic review. Diabetes Care 2018;41:1097–105.
6. Bayona H, Owolabi M, Feng W, et al. A systematic comparison of key features of ischemic stroke prevention guidelines in low- and middle-income vs. high-income countries. J Neurol Sci 2017;375:360–6.
7. Riddell MA, Edwards N, Thompson SR, et al. Developing consensus measures for global programs: lessons from the Global Alliance for Chronic Diseases Hypertension research program. Global Health 2017;13:17.
8. Frawley A, Rotich J, Delong A, et al. Hypertension knowledge retention amount communicty health workers in rural western Kenya: process evaluation of the LARK hypertension study. Presented at: World Congress of Cardiology and Cardiovascular Health; June 4—7, 2016. Mexico City, Mexico.
9. Daivadanam M, Ingram M, Sidney Annerstedt K, et al. The role of context in implementation research for non-communicable diseases: answering the 'how-to' dilemma. PLoS One 2019;14:e0214454.