the interacademy medical panel

A CALL FOR ACTION TO STRENGTHEN HEALTH RESEARCH CAPACITY IN LOW AND MIDDLE INCOME COUNTRIES

Research capacity is the ability to conduct, synthesize, manage, share, and apply research (1). Research capacity strengthening (RCS) is important in all countries and involves developing national systems that can identify the need for research; commission, partner and conduct research; communicate the results of research to those who need to know; and ensure that research results are used (2, 3).

The need for systematic attention to building capacity for health research in low and middle income countries (LMICs) was brought to global attention in 1990 by the Report of *the Commission on Health Research for Development* (4). An independent international initiative, the Commission proposed strategies to harness the power of research to accelerate health improvements and overcome health disparities worldwide by addressing the inequities of the "90/10" gap, in which 90% of global research investments address the needs of only 10% of the world's population.

This important report was followed by a series of expert reports published between 2004 and 2010 by WHO in partnership with other UN agencies and non-governmental organizations, including two Ministerial forums (5,6,7), stressing the relevance of health research to health system development and calling for "research for health" across sectors as a key to economic and social development. In 2008, a report of views from accomplished researchers in low and middle income countries was produced, *Changing Mindsets: Research Capacity Strengthening in LMICs* (2008). It defined several practical ways in which RCS can be systematically operationalized in ways that build on the existing strengths of researchers and institutions in LMICs (8). The WHO Research Strategy (2010) emphasized the importance of RCS (9), and there has been continuous activity in this area described in relevant programs and publications, including training modules and tool kits (4,10,11,12,13,14,15). A wide array of donors [*] have supported RCS in LMICs for the past several decades [*].

The Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property (17) called for actions to improve the current coordination and to stimulate the financing of health research in order to serve developed and developing countries. Linked to this report are ongoing efforts to develop codes of conduct for basic and clinical research and more equitable partnerships through fair research contracting between individual investigators and research organizations in developed and developing countries (18). The WHR 2013 will focus on the role of research in achieving universal health coverage, including the important role of research capacity strengthening in this important field (16).

Organizations have been created at the global level as mechanisms to promote and support RCS. The Council on Health Research for Development (COHRED) was created in 2003 to work directly with governments in low and middle income countries (LMICs) to promote essential national research and strengthen essential national health research systems. The Global Forum was created in 2007 to maintain a global policy focus on and monitor investments in LMIC research capacity. These two were merged in 2011 (http://www.cohred.org/about-cohred-connect/global-forum-for-health-research) (3). WHO's Special Programme for TDR, ESSENCE, acts as a facilitating platform to enhance the coordination of investments by major international donors in health research by promoting shared priorities, developing common criteria for research costing, categories for investment, good practices and shared frameworks for monitoring and evaluation of progress with those investments (19).

There is general agreement across the global community that to improve the health status of its people and contribute to social and economic development and innovation, RCS must involve a systems approach at country level, balancing long-term investments at three levels: the individual investigator (their training and research support), the institutions and organizations in which they work and the national and regional health research systems that can provide a supportive environment for sustainable growth and scaling up of a country's health research capacity (1).

The Current Situation

Hard data on the successes and shortcomings of RCS-projects are scarce and the data available is often ambiguous (21,22). Enormous successes in the global fight against AIDS, tuberculosis, malaria and some neglected tropical diseases have contributed to increased media, public and political appreciation of the importance of

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- Swedish International Development Cooperation Agency/ Department for Research Cooperation (SIDA/SAREC) www.sida.se/English/
- Danish International Development Agency (DANIDA) um.dk/en/danida-en/
- Dutch Ministry of Foreign Affairs (DGIS) www.government.nl/ministries/bz
- International Centers for Excellence in Research (ICER)
- WOTRO Science for Global Development www.nwo.nl/en/about-nwo/organisation/nwo-divisions/wotro
- Fogarty International Centre www.fic.nih.gov/Pages/Default.aspx
- Rockefeller Foundation www.rockefellerfoundation.org/
- Wellcome Trust www.wellcome.ac.uk/
- Gates Foundation www.gatesfoundation.org/Pages/home.aspx

health research, with a steady increase in the participation by LMICs in the global research community (23). Using publications output as an indicator for research activity, McKee *et al* (24) show significant advances in Africa despite conditions in specific countries that inhibit progress due to lack of investment and political will. More recent initiatives that are, at this point, largely led by African scientists include the European and Developing Countries Clinical Trials Partnership (EDCTP) networks of excellence (www.edctp.org/), the Clinical Trials Partnership (25) and the Malaria Genomic Epidemiology Network (MalariaGEN- www.malariagen.net/). In recent years, global and regional information networks have developed with a goal of strengthening country level RCS in specific areas of concern.

Catalyzed by the business community, Product Development Partnerships (PDPs) such as Medicines for Malaria and the TB Alliance have grown. PDPs now manage 2/3 of the identified drug development projects for neglected diseases (26, 27). The MVP (Meningitis Vaccine Project) specifically for Africa involves academia, industry, local pharma in both developed and developing countries (www.meningvax.org).

TWAS - the World Academy of Sciences for the advancement of science in developing countries, has as its main mission the promotion of scientific excellence and capacity in the South for science-based sustainable development (http://twas.ictp.it/). In addition, global networks of academies of science (IAP- the global network of science academies www.interacademies.net/) and academies of medicine (IAMP, the InterAcademy Medical Panel www.iamp-online.org) promote the role of academies in providing evidence-based advice to governments for health and science policy and strengthening national higher education and research systems for health.

Continuing critiques of progress on health RCS note that some initiatives and programs are still uncoordinated. Many tend to stress only market-oriented aspects of medicine (e.g. laboratory methods, vaccinations, therapies), and many leave little infrastructure behind when specific program funding ends. Some observe that much of the international research in tropical diseases and genomics still involves data collected in the LMICs, transferred to a northern scientific site and published there without any built-in feedback to the country of origin (28,29). In several countries in sub-Saharan Africa, interventions are said to have failed to increase the quality and number of researchers and the productivity of research; to support sustainable local institutions; to retain human resources; and to improve the interface between researchers and the public (30). Some countries bearing the greatest burden of disease may suffer from lack of political will and government instability (31) and experience low public understanding of the importance of research investment (32).

While certain middle income countries like Brazil, China and India are becoming world leaders in health research and innovation, few LMICs have reached a critical mass of faculty and researchers. Facilities are still limited and many researchers suffer true intellectual isolation. These alarming conditions contribute to the brain drain of promising researchers similar to that for health workers and physicians from under-resourced, poor countries to wealthy northern countries (33,34,35,36). Some see limited epidemiological research capacity in Africa (37) as an obstacle to a full assessments of health status and the results of interventions. Others cite weak research capacity in disease endemic countries as the single most important rate-limiting factor to achieving solutions to their health and development priorities and in moving ahead to complete the unfinished business of eliminating neglected tropical diseases that still affect millions of people (2, 13).

Why Act Now?

While in the 20th Century, there was a true health revolution with over thirty years of additional life expectancy achieved on average across the globe, new global health challenges for the 21st Century face all countries.

For example:

- Emerging and drug resistant infections create greater risks whatever and wherever their origins due to global transportation and trade, population migration, and climate change (38).
- Climate change and its human health effects, including food security and water availability are truly global problems (39, 40).
- All regions of the world are experiencing both demographic and epidemiologic transition – longer life expectancy and the challenges of an aging population as well as an increase in non-communicable diseases (NCDs) worldwide, with the incidence of both growing fastest in LMICs.

Urbanization is now a global phenomenon with over half the world's population living in cities, with the most rapid urbanization in LMICs. Unique factors in the built-up and natural environments of cities are strongly linked to respiratory diseases and changing patterns of disease transmission. Obesity related to poor diet and inadequate exercise are very prevalent in cities and increasing in all countries. Informal settlements and migration exacerbate stress and mental health-related health problems. Health disparities are often dramatic within cities and the need for science to inform action on these broad determinants of health has never been more urgent (41).

The fact that these challenges are shared lends a new urgency to the call for renewed and more concerted national and global action to make RCS a priority in all countries and assure true partnerships that allow local scientists and researchers to participate in all phases of the process to address these shared global health problems. It is also important to encourage shared access to the enormous scientific opportunities available to tackle these problems in new ways through tools like genomics, molecular epidemiology, diagnostics using chip technology and efforts to create low-cost diagnostics suited to medical needs and social contexts in the developing world. In addition, all countries face the challenge of translating what is known into interventions that improve health by reaching the populations who need them most in a timely and cost-effective manner (27). The increased wealth of low and middle income nations also creates unprecedented opportunities for new research capabilities in the global south, and these countries must be included in future global discussions on health research and health research governance.

The 2012 World Health Assembly received the report of a WHO Expert Working Group on Research and Development: Coordination and Financing (CEWG*)* which has made recommendations for improvement in global

health research and development priority setting and coordination as well as for targets for country investment in their own health RCS and for donor country investment in the research capacity of LMICs (20). The recommendations in this report are still in active discussion by WHO member states and may become available before the 2013 World Health Assembly in May 2013.

Recommendations for Academies

IAMP member Academies consist of national and international leaders of the academic and scientific communities with important access to policy makers and the public. They can use their unique position to draw attention to the need for a robust research capacity in their own countries, and join with other academies at the regional and global level to accelerate sustained leadership for and investment in effective health research systems to promote sustained social and economic development and innovation.

At country level:

1. IAMP member Academies should engage with country leadership and other stakeholders to assess the adequacy of current national research capacity and, based on the findings of that assessment, determine the most effective role they can play to support the development of research capacity that addresses the health and development needs of their country.

2. IAMP member Academies should support appropriate priority setting for and investment in RCS, including the education and training of young investigators and supportive environments for their work, strong educational and research institutions that produce and host researchers to reverse brain drain and national health research policies and systems that support both.

3. IAMP member Academies in countries that provide international development assistance (IDA) should engage with appropriate country leadership to promote meaningful and sustained investment in research, using a system's approach to RCS, as a priority in their overall assistance programs to LMICs.

At regional and global level,

4. IAMP member Academies should maintain an emphasis on RCS and actively engage in efforts to build the health research systems needed to effectively address global health challenges for the future in order to:

    - ensure that strengthening systems for health research is a fundamental component of all "health systems strengthening" initiatives and investments;

    - ensure that health RCS is included in all long term national, regional and global strategies to promote human and economic development and innovation and to reduce health disparities;

    - promote international and country level funding of health research that permits better understanding of and action on the broad determinants of health by being: less vertical, more long term and sustainable, more client oriented and more responsive to country and community health needs.

5. IAMP member Academies should join efforts to assure that the international scientific community and all stakeholders in global health are committed to initiating aligned, autonomous, sustainable, high-quality research partnerships by and with LMIC investigators. This could be achieved by:

    - including developing country partners in the governing boards of RCS initiatives and ensure their active participation in agenda setting and prioritization of activities funded by developed countries;
    - jointly developing codes of conduct to ensure equitable and sustainable partnerships between developed and developing country researchers;
    - supporting current efforts to develop frameworks for fair research contracting among north-south researchers;
    - supporting current global efforts to develop and promote principles and guidelines for research integrity;
    - supporting and collaborating with pace-setting organizations and stakeholders in promoting RCS.

6. IAMP, working with its member academies at national level, should encourage the international community, the WHO and other stakeholders from LMICs as they move forward on the report of the WHO CEWG, to develop consensus on a global instrument for and a target level of investment in RCS by donor countries and LMIC countries themselves and monitor progress on these commitments.

(May 2013)

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(May 2013)

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3. Australian Academy of Science
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5. Académie Royale de Médecine de Belgique
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