

## Building health research infrastructure in Rwanda



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Emerging from the 1994 genocide, Rwanda is a relatively young country that is rebuilding its health and economic infrastructure. As a result of the 1994 conflict, the health system was depleted of human resources and educational and structural infrastructure. A large part of rebuilding the rapidly developing health system is the implementation and assessment of health programmes and interventions. Many such assessments are done under the guidance of the Ministry of Health and are often funded by international bodies. However, in view of human resource constraints, and pressing needs that stretch resources, such assessments are rarely shared within the published medical literature. A new emphasis on building research communication infrastructure is a mandate of the current government. Four main issues are related to this challenge: the cultural perception of the value of research; workload demands; skills (both long-term and short-term); and the effect and agendas of internal and external agencies and forces. Here we elaborate on these challenges and outline next steps in Rwanda's rebuilding of its health research system.

In the almost 20 years since the installation of Rwanda's new government, there has been a change in the recognition of and support for clinical research and assessment. Before 2002, little attention was paid to research in the academic environment because of the need to focus on other priorities, mainly responding to an urgent need of population care.<sup>1,2</sup> However, during and after the stabilising period of 2002, a new focus has been placed on assessments of health interventions. This move includes the assessment of implemented clinical programmes, financial and population interventions, and laboratory services. This new focus has been enabled by the stabilisation of the health system, which has come about partly by the reduction of the emergency status of epidemic diseases including HIV/AIDS, malaria, tuberculosis, and pneumonia; better management of fever, cough, and diarrhoea; and successful development initiatives through partnerships with international agencies.<sup>1,3</sup> The refocus has also included the establishment of various centres of excellence and the formal education of government employees. This refocus is important because much valuable health data—eg, the Rwandan District Level Health Survey data—have not yet been analysed.

As with many African countries, there has historically been a shortage of health workers and individuals skilled at clinical research. Because of the devastation of the health workforce during the 1994 crisis, a new generation of health workers has been developed. In 2002, the National University of Rwanda School of Public Health established the first Masters programme in public health, and has since expanded into six different streams of Masters programmes, leading to 150 graduates to date. A shortage of skilled clinical and implementation science researchers has constrained the growth of this programme; the maximum annual intake is about 30 students per year. Other types of training opportunities include short courses or workshops, and opportunities outside of the country. In 2010, the National University of Rwanda School of Public Health launched Rwanda's first PhD programme in public health, with a target of ten entrants every year. The Ministry's priority is that all high-level health workers and administrators have a doctorate in public health.

In view of human resource and financial constraints, prioritisation of research projects and deciding who should do them is a challenge. Of the 300 individuals identified as targets for research education investments, including senior directors, data analysts, professors, and physicians, all are presently engaged in time-consuming governmental work. Because routinely collected data often answer important public health questions, the knowledge transfer activities related to those data need to match the effort and quality that went into collecting them. Relevant education should include formal research communication and recognition of priority areas to build capacity. These areas should include biostatistics and epidemiology, laboratory technician skills, journal clubs, and innovative teaching approaches such as recognising differences between men and women in learning and promoting South-North and South-South mentorships.<sup>4</sup> Migration of health workers, both internally and externally, pose a threat to Rwandan capacity building. Without recognition of the time constraints, retention of skilled workers within the health domain will remain a challenge. One innovative approach that has been used within the health sector is the pay for performance model, and this is regarded as an opportunity in the research sector.<sup>5,6</sup> To achieve these

goals will require a streamlined focus that recognises the internal and external agendas in the country.

Finally, domestic and foreign interests have historically shaped the research agenda within Rwanda. Most research funding has come from external partners that typically fund programmes that are seated within donor agendas, often in agreement with the Ministry of Health.<sup>2</sup> Although the present model is mutually beneficial, a Rwandan research agenda is needed that is flexible and responsive to the idiosyncratic needs of local interests—ie, funding should be aligned with the official national research strategy, and not always targeted to a specific, vertically addressed issue. Other players, including foreign academic researchers, pharmaceutical companies, and non-governmental organisations will need to align with the priorities of the Ministry, which are defined by technical working groups.

Part of the refocus from the government has been to create Rwanda-specific funding for research; and as Rwanda moves forward in clinical research endeavours, it will have to recognise public-private partnerships and other investigator and funding models. In view of the rapid growth of education in Rwanda, and the country's focus on assessment, creation of a more comprehensive, data-informed national strategy that also allows academic freedom will be both a challenge and opportunity. As we move forward, having academics, health workers, and policy makers at the same table will be an important dimension for priority setting. The vision of the Government is to include staff at an 80:20 ratio in both education and research to better streamline efforts initiated in management of population health care.

The future is bright for research in Rwanda, but challenges remain. Lessons learned from the successes of the Rwandan health-care system should be shared with neighbouring countries facing comparable challenges. Going forward, building research infrastructure and capacity will be a key pillar in the development of a stronger Rwanda.

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