Towards Sustainable Research Capacity Development and Research Ownership for Academic Institutes in Developing Countries: The Malawian Research Support Centre Model

Exnevia Gomo, MSc, PhD
Director of Research
University of Malawi College of Medicine
P/Bag 360, Chichiri
Blantyre 3
Malawi
Tel: +265 999 788 665
Fax: +265 1 874 700
Email: exgomo@gmail.com

Linda Kalilani
Email: lkalilani@medcol.mw

Victor Mwapasa
Email: vmwapasa@medcol.mw

Chifundo Trigu
Email: registrar@medcol.mw

Kamija Phiri
University of Malawi College of Medicine,
P/Bag 360, Chichiri
Blantyre 3
Malawi
Email: kphiri@mlw.medcol.mw

Joann Schmidt
Umoyo Health Consulting, LLC
4114 Hillside
Howell, MI, USA 48843
Email: joannjschmidt@yahoo.com

Michael Boele van Hensbroek
Global Child Health Group
Emma Children's Hospital Amsterdam Medical Centre
P.O. Box 22660,
1100 DD Amsterdam, Netherlands
Email: mbvh04@gmail.com

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Abstract

In lesser-developed African countries, the lack of institutionalised support for research, combined with limited career opportunities and poor remuneration, have contributed to weak research infrastructure and capacity, and a continuing brain drain to developed countries. Malawi's Research Support Centre (RSC) model is novel in that it provides a comprehensive framework for capacity building that includes the traditional components of individual skills building while developing institutional capacity to support and stimulate the research enterprise. The model also features a strong emphasis on developing a culture for sustained good research practice through adopting international research standards. Further, the RSC provides a strong element of self reliance through continued training and income generation, thus ensuring sustainability of activities. The Malawi experience suggests that the model is achieving its intended goal of sustainable research capacity development, and may be applicable to other developing countries with similar challenges.

Introduction

Academic institutions in Africa often depend on international collaborators for their research agenda, scientific support and funding. For example, clinical research conducted by the College of Medicine (CoM), University of Malawi, is recognized to be of high quality. However, its research agenda has largely been developed, driven by and funded through its international collaborators (Europe and the US). Furthermore, the intellectual ownership of the research conducted in Malawi and elsewhere in Africa has remained with the collaborating institutes, as reflected in the main applicant on grant proposals and key authorship positions in publications (Kerac et al, 2009; Dorsey et al, 2007). The recent introduction of international standards such as Good Clinical Practice (GCP) has generally improved the quality of research. However, it has also amplified the complexity and costs of conducting research, further increasing the dependence of resource-limited academic institutions on their international collaborators.

Traditional approaches to strengthening research capacity in developing countries have focused primarily on honing individual skills through training at the doctoral level in developed country institutions without preparing the environment at the home institution for the return of these skilled individuals (Sawyerr, 2004).

These research capacity-building efforts have been unable to halt the brain-drain from African academic institutions to high-paying non-governmental organizations (NGOs) and institutions in *the North*. A combination of limited career opportunities, lack of institutionalised support for research and remuneration are major reasons young African academics do not return to their home countries after their training overseas (Sawyerr, 2004; University of Malawi, 2004).

To build sustainable research capacity and local research ownership in developing countries, a management model is needed that comprehensively addresses the factors noted above (Figure 1). The CoM has established a Research Support Centre (RSC), which, in its first four years, has successfully addressed these issues. This manuscript describes the conceptual functions and achievements of the Malawian RSC, and proposes the RSC concept as a tool to develop sustainable research capacity in similar, research-limited academic institutions.

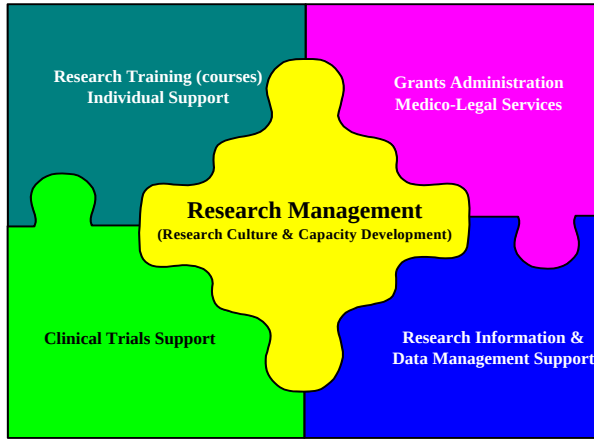

Figure 1: Research Support Centre functions.

Research Support Centre (RSC) Concept and Functions

There are four major elements of RSC functions that an African university may develop.

Individual Support is focused on developing research skills by providing both faculty and students a package of logically sequenced courses, including research methodology and the conduct of research (e.g., protocol writing, project management, data management, and Good Clinical Practice [GCP]), and one-to-one consultations for statistical and epidemiological support.

Clinical Trials Support is essential for the development of GCP-compliant protocols and the instruments to implement them. This includes support with relevant

research regulatory guidelines, protocol submission to review committees, data and grants management, and trial coordination and monitoring by locally trained study coordinators

Table 1: Development of Research Support Centre functions in a phased approach

Development Phase	Activities
Phase 1 (Year 1)	
Infrastructure set-up	Recruitment of staff Office equipment and materials
Basic courses	Research methodology Clinical trial design Introduction to GCP Introduction to data management
Services	One-on-one consultation Information (email, website and newsletter)
Phase 2 (Years 2-3)	
Courses	Clinical trial coordination Clinical trial monitoring (training and monitoring) Project management Statistical analysis Grant management
Services	Clinical trial monitoring and coordination Grant management
Research governance	Research policy Grants management policy and procedures Institutionalisation of the RSC
Phase 3 (Years 3-4)	
Advanced courses	Advanced GCP Advanced data management Advanced grant management training Evidence-based medicine
Services	Data management Statistical support Project management/Study coordination Trial site management Comprehensive grant management
Research governance	Research policy Grants management policy and procedures Ethical review and approval
Phase 4 (Year 4 onwards)	
Consolidation	Accreditation of courses Accreditation of CRAs monitoring services Quality control and assurance for services & courses

and clinical research associates (CRAs). Training of local CRAs and study coordinators is an essential component of the RSC concept and a potential source of income.

Research Information Support includes the development of research information (website and newsletter) and data management services, such as the RSC website (www.medcol.mw/rsc/).

Grant Administration Support focuses on establishing sound pre- and post-award administrative, financial and project management.

Critical to the success of these elements is the establishment or strengthening of the overall research governance, including the ethical review of research proposals.

In the initial phase of the RSC, a core staff comprised of a unit head, statistician, epidemiologist, data manager, information technology specialist, CRA trainees, finance officer and secretary, should be able to establish the platform for launching the various services in a phased approach (Table 1). Funding for the initial phase ideally should come from the host institute. If this is not feasible, international donors may be approached, but this has the disadvantage that support may be tied to specific deliverables not directly related to the RSC objectives. In the case of the Malawi RSC, core funding was provided by the Netherlands-African Partnership for Capacity Development and Clinical Interventions Against Poverty-Related Diseases (NACCAP). Of the €725,000 four-year budget provided, 43% was allocated to salaries on a sliding scale -- from €100,000 in year one to €36,000 in year four. This strategy aimed to make the RSC self sustainable within a reasonable time frame. Therefore, from the start, income generation (through international research grants, course fees and services for non-university staff/projects) should be one of the key objectives of the RSC.

The Malawian RSC Experience

The RSC was initiated at the CoM, Malawi as part of a large research programme funded by the NACCAP that included a series of intervention studies to prevent malaria and HIV-related morbidity and mortality in children (NWO-NACCAP, 2010). These trials, conducted according to GCP standards, formed an opportunity for on-the-job training of the RSC staff.

The objective of the RSC programme was to develop a Malawian-owned RSC that would attract high-quality Malawian researchers from abroad, contribute to capacity building through a comprehensive course programme and on-the-job training opportunities, introduce GCP standards, advance Malawi's capability to develop its own research agenda, and successfully compete for international research grants.

In the initial phase, due to unfamiliarity with the RSC concept, recruiting of the core staff from the local academic community was complicated. However, as soon as the

RSC became well known in the local research community, the expatriate staff initially recruited could be replaced by scientists from the region. By year two the RSC had a well established staff base and organisational structure. Among the 13 staff members were a director, deputy director (an epidemiologist), three clinical research associates (CRAs), one trial coordinator, a data manager, a website/information coordinator, grant administrator, data officer, and administrative assistant.

Five Malawian CoM staff were trained by South Africa-based clinical research organisations (CROs) (Kendle and African Clinical Research Organisation) as part of a comprehensive CRA training and mentoring package. This included classroom and on-the-job training over a three-year period. After completion of the training, the regional CRAs could independently monitor trials in Malawi, generating significant income for the RSC. By the end of the third year, the RSC was generating 11% of its total operating costs, with trial monitoring contributing nearly 80% of this income. While this cannot replace external funding, it indicates the potential of sustainability of the RSC, especially with more concerted efforts to institute supportive services that both generate income (including training courses) and prevent the loss of indirect costs.

The course programme was developed collaboratively with the CROs and various universities from the North, using a *Train the Trainers* system. Seven local staff were trained as trainers, and over 500 individuals (students and medical and research staff) from the Southern African region participated in the various courses.

With the RSC assuming a coordination role for research in the CoM, the need for a governance framework for its operations became evident. The RSC facilitated the development of a CoM Research Policy, which set the mandate and operational scope of the RSC. The RSC also established research grants management procedures that streamlined grant administration into well defined pre- and post-award processes.

Four senior Malawian academics returned to assume positions either at the RSC or in one of the RSC-linked research projects. In addition, an improved working climate at the CoM contributed to the return of other scientists and medical doctors. Apart from the RSC information service (website and RSC newsletter), word-of-mouth advocacy by returned Malawian academics seems to be a powerful tool in persuading others to consider following suit. By year three, four other academics had returned to the CoM through contacts with the RSC.

Over the past four years, the CoM has experienced a rapid growth in the number of competitive international grants awarded directly to Malawian investigators. This is attributed partly to the increased visibility of research in the college and the support provided by the RSC, which has motivated academics to become involved in grant writing.

The core funding for the Malawian RSC was provided by a four-year NACCAP grant (NWO-NACCAP, 2010). However, the RSC generated significant income (11%

of its operating costs) through its various services. In addition, the strengthening of research governance enabled the CoM, through the RSC, to effectively recover indirect costs from research grants. Further, the CoM managed to attract additional donor support from international funding agencies, including the U.S. National Institutes of Health, Wellcome Trust (United Kingdom) and the European and Developing Countries Clinical Trials Partnership (EDCTP). Clearly, the support of the college's northern partners was critical in setting the tone for its achievements and sustainability.

Conclusion

The Malawian RSC – A Model for Sub Saharan Africa?

The success of the Malawian RSC does not seem unique to Malawi. The Malawian issues summarised above are comparable to those in many other sub-Saharan African countries. An important reason for the success of the RSC is that the Malawian academic community embraced the RSC concept soon after its start. The comprehensive approach and local ownership of the RSC has appealed to a new generation of African academics, who have a growing awareness that the role of donors and guest universities from the North may need to be revisited. In most African research institutions, major research has traditionally been driven by expatriate researchers who have come as part of capacity strengthening efforts. This is evident from the few publications in which African researchers are the lead authors. Inevitably the foreign researchers dominate the local research agenda, have more skills and experience to attract international funding, and, as principal investigators, exercise intellectual ownership. An RSC-like initiative may be similarly welcomed by other African Universities with comparable problems. Further, the Malawian RSC core staff could play a supportive role in the initial phase of developing similar programs in the region. This has already been accomplished with the recent establishment of RSCs at the University of Zimbabwe College of Health Sciences and the University of Zambia School Of Medicine, based on the Malawian model and supported by Malawian RSC staff. Other universities from Uganda, Rwanda, and Mozambique have recently shown interest, and are considering developing their own RSCs. It may be time to consider developing an African RSC network in which south-south training and coaching is a critical component. If successful, this initiative may contribute to true sustainable research capacity building and to local research ownership.

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