

HRCSI Programme Evaluation

August – October 2013

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October 2013

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Abbreviations

CARTA	Consortium for Advanced Research Training in Africa
CNHR	Consortium for National Health Research
COHRED	Council on Health Research for Development
CoM	College of Medicine
COMREC	College of Medicine Research Ethics Committee
DFID	Department for International Development
DG	Director General
GoM	Government of Malawi
HRCSI	Health Research Capacity Strengthening Initiative
IDRC	International Development Research Centre
Lath Umoyo	Liverpool Associates in Tropical Health Umoyo
LSTM	Liverpool School of Tropical Medicine
MHRC	Multidisciplinary Health Research Committee
MoH	Ministry of Health
NAC	National Aids Commission
NCST	National Commission for Science and technology
NGO	Non Governmental Organisation
PWC	Price Waterhouse Coopers
REACH	Research for Equity and Community Health
SACORE	Southern Africa Consortium for Research Excellence
ToR	Terms of Reference

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Executive summary

Background

The Health Research Capacity Strengthening Initiative (HRCSI) is a five-year (2008- 2013) programme funded by the Wellcome Trust and the UK Department for International Development, which aims to strengthen health research capacity in Malawi. HRCSI provides a range of competitive grants for professional development, internships, undergraduates, Masters and PhDs, and for institutional strengthening. The purpose of this evaluation was to document the performance and impact of HRCSI, and to note successes, challenges and lessons learnt in order to inform future health research capacity strengthening activities in Malawi and in other contexts.

Methods

The evaluation team comprised academics from Malawi, Canada and the UK with expertise in researching, doing and evaluating health research capacity strengthening programmes and in using mixed methods research. The evaluation process and data collection tools were informed by published evidence and by the experience and knowledge of the evaluation team. Information was obtained from face to face or telephone/Skype interviews with interviewees and supplemented by information from reports and databases. Thirty interviewees were selected from a list of 173 individuals involved in HRCSI specifically chosen to represent multiple perspectives (i.e. research governance, funding, generation, uptake and consultancy). Most interviewees were selected randomly but others were selected because they had in-depth knowledge about specific aspects of the project. Interview guides were based on published information about methods and indicators for research capacity strengthening evaluations. They took account of research capacity strengthening at individual, institutional, national, and international levels and covered processes, progress, impact, strengths/assets and lessons learned. Information was synthesized into three themes which were used to structure the evaluation report – start up, major outputs and sustainability.

Findings

a) Start-up

There was general agreement that the start up phase of HRCSI had been fraught with difficulties, primarily because the incubation phase was over ambitious and unrealistic assumptions had been made about the existing baseline capacity in Malawi for grant-making. HRCSI was reorganized in 2010-11 and extra support and accountability mechanisms introduced for financial and project management. One of the key lessons is that sufficient time should have been set aside at the beginning for establishing roles, responsibilities and relationships between all the partners and for setting up systems. Making sure the structures, systems and processes were fit for the purpose of awarding grants could have been a key step before HRCSI was expected to start putting out calls for applications. Acting on lessons learnt from HRCSI and other projects, DFID have now established regional research hubs in Africa and Asia to bring their oversight closer to the overseas recipients.

b) HRCSI's major outputs

National research regulation: The National Health Research Agenda (2012 to 2016) was widely regarded as one of the foremost achievements of the HRCSI project and its development involved broad consultation. The Agenda aims to harmonize health research priorities and to provide evidence which aligns with Malawi's priority needs for policy and decision making. Development of a registry of research to capture protocols and ethics submissions and to track fulfillment of the research agenda is at an early stage.

Institutional research capacity: There was an overwhelming view that HRCSI had produced a step change in the number of high calibre scientists in Malawi and in fostering research interest among young Malawians. HRCSI has supported around 50 MSc and PhD students, and over 400 undergraduate health-related projects in projects ranging from basic science to biomedical and social science. The diversity of awards offered by HRCSI was popular, with short-term grants raising awareness and providing research exposure, and longer-term grants achieving strengthened capacity to do research. HRCSI has undoubtedly contributed to enhancing mechanisms in Malawi for managing research processes and funding, and has developed supporting guidelines and tools for the various stage of the grant awarding process. Researchers were generally happy with the operation of research ethics committees though there were some perceptions about lack of impartiality. Institutional levies on research grants are becoming a significant disincentive for some researchers and have occasionally resulted in some forming private companies to compete with public institutions for grants.

Initially many of the HRCSI grants were awarded to Malawi's premier health research institutions but with an increasingly wide advocacy campaign the project has succeeded in making awards to some of the smaller institutions including those in the non-government sector. The award process was general viewed as non corrupt but there were consistent reports of problems with the application process including difficulties with submission and poor communication about the outcome of applications. There were also long delays in getting funds once an award had been made. This was largely due to the cumbersome financial and award approval processes involving agencies including HRCSI, PriceWaterhouseCoopers-Kenya and the Wellcome Trust. Once an award had been approved most award recipients were satisfied with their interactions with HRCSI and sites visits which were considered professional and well organized.

Knowledge sharing: HRCSI has supported research dissemination through national and institutional meetings and academic media, and by sponsoring attendance at conferences. The project has also had a close relationship with individuals in print media for disseminating information about HRCSI such as Calls for Applications. Findings from several HRCSI-sponsored projects have been published and around half of all projects have been presented at conferences. Various international collaborations have been promoted through HRCSI but the potential for disseminating research results to the general public through local radio and TV media has not yet been exploited.

Research uptake: Promoting research uptake was assigned less of a priority than grant awarding during the mid-term reorganization. However, HRCSI has contributed to a new initiative designed to bring together policy makers, subject experts and researchers for the purpose of catalyzing research uptake.

c) Sustainability

HRCSI funding will cease on 31st October 2013 followed by a one year 'consolidation' close-down phase. Although HRCSI has only been effectively operational since 2011 there was widespread recognition that it had significantly increased research capacity in Malawi and was beginning to develop a track record for health research grant-making. There was overwhelming support for it to continue as a national research management centre and a long term vision that it could be a national hub for grant management across all sectors. Predominant opinion indicated that HRCSI should be more firmly embedded within NCST as this would facilitate its extension beyond the health sector. There was general agreement that while much had been achieved in terms of strengthening the systems, processes and leadership within NCST and in creating some linkages with the Ministry of Education, further strengthening would be needed for HRCSI to be effectively integrated and sustained in the long term.

HRCSI Evaluation Report

The Health Research Capacity Strengthening Initiative (HRCSI) is a five-year (2008- 2013) programme which aims to achieve *‘strengthened health research capacity for the generation of scientific knowledge and improve its use in evidence-based decision making, policy formulation and implementation’*. HRCSI is a £10,000,000 programme jointly, and approximately equally, funded by the Wellcome Trust and the UK Department for International Development (DFID). It sits within the National Commission for Science and Technology, a parastatal of the Government of Malawi based in Lilongwe. The purpose of this evaluation was to document the performance and impact of HRCSI in order to inform future health research capacity strengthening activities in Malawi and in other contexts. The experiences, successes, challenges, lessons and recommendations detailed in this evaluation also provide a solid platform from which HRCSI can make a case to compete for future capacity strengthening funds.

1. Background to HRCSI programme (see TORs appendix 1)

The conception of HRCSI began in 2005 with a scoping exercise conducted by DFID, the Wellcome Trust and IDRC. From the start, this project was very different from the funders’ usual model of directly funding research through individuals or consortia predominantly led by northern institutions. It was also the first time that these funders had jointly funded an initiative and the link between DFID and the Wellcome Trust had been partly prompted by a recommendation from the UK Treasury. The initial scoping study was followed in 2006 by an approach to the government of Malawi to set up a Task Force to develop a proposal. A group of ‘elders’ identified 12 people, representing government, research institutions and civil society, to form the Task Force. Following a broad and inclusive consultation process within Malawi (evidenced in Proposal 060207, amended August 08) and with counterparts from a sister project in Kenya, a proposal was submitted to the funders and approved in 2007. A funder’s steering group for the project was established and it formally started operations in 2008. At the start of HRCSI NCST was just being established and the systems for managing grants were not securely in place, Malawi-based Lath Umoyo was appointed to manage a two-year incubation period. The aim of this period was to set up the systems required for grant making and to begin the process of awarding grants.

The HRCSI is currently managed by Dr Mathildah T. Chithila-Munthali (MC) and a secretariat comprising five individuals with expertise in management, monitoring and evaluation, research and finance. HRCSI is based in the National Commission for Science and Technology (NCST) which was established in 2010 following the Science and Technology Act (2003) and a Cabinet directive (2008). NCST’s purpose is to provide science and technology to the government and to address the existing fragmentation of research efforts and research knowledge across the country, in order to accelerate the socio-economic development of the nation and to improve the quality of life of its people. At its inception, posts within NCST were filled through open competition, many places being taken up by previous employees of The National Research Council of Malawi and the Department of Science and Technology, which were then disbanded. The NCST Board includes a representative from the Ministry of Health.

HRCSI provides a range of competitive grants for individuals and institutions in Malawi, by networking researchers and coordinating research, and by promoting the use of research to influence health

policy-making. Grants are offered for professional development, internships, undergraduates, Masters, PhDs and for institutional strengthening.

2. Methods for conducting the evaluation

Data was obtained principally from face to face or telephone/Skype interviews with a random selection of stakeholders. A few individuals who had longstanding and in-depth knowledge about HRCSI were also purposefully selected for interview. Information was supplemented by data from annual reports, reviews and databases of project topics and awardees (appendix 2).

Interview guides were developed by DCC and NF and were based on published information about methods and indicators that have been used to evaluate research capacity strengthening (appendix 3). They transformed this information into five interview guides each of which targeted a different category of stakeholder (i.e. those involved in research governance, funding, generation, uptake, and consultancy). The interview guides took account of research capacity strengthening at individual, institutional, national, and international levels and each covered the domains of processes, progress, impact, strengths/assets and lessons learned. If interviewees gave permission, interviews were recorded as back up to written notes taken by all members of the interview team. Prior to the interviews the interviewers agreed among themselves the topics on which each particular interviewee was likely to be able to provide particular insights. Discussions took place between interviewers immediately after each interview aimed at corroborating interpretations. Written notes of interviews were typed up within a few hours of each interview. Recordings were deleted once all project outputs had been finalised. All contributions were anonymised.

The evaluation team were provided with a list of 173 individuals who had knowledge of the HRCSI programme. Using random number generation (www.randomizer.org/form.htm) 20% of individuals in each of the five categories of stakeholders were selected and contacted to arrange an interview. If they were unavailable the next person on the list in that category was approached, so that at least one person in each category was interviewed. Additional interviewees were selected because of their in-depth knowledge in areas not sufficiently covered in interviews to date. Interviews were conducted by at least two people and the same questions were asked of more than one interviewee in order to improve the quality of information obtained. We anticipated that these 35 interviews and information from reports, would enable us to reach saturation (i.e. no new information emerging) on the four key HRCSI outputs (see section 3.2).

Evaluation team members DCC and NF who had minimal involvement in the interviews commented on the draft report and suggested revisions. The consolidated evaluation report was reviewed by the HRCSI secretariat before being finalised and formally submitted to HRCSI.

3. Findings from the evaluation

The results of this evaluation are presented under headings corresponding to start-up and re-organization management issues, findings relating to the four major HRCSI outputs and issues related

to the current situation and sustainability. The recommendations (appendix 4) and lessons learnt are based on our own analysis of the current situation and are a synthesis of suggestions from interviewees, our own experiences and our knowledge of the literature.

3.1 General findings concerning start-up and reorganization

Virtually all interviewees had welcomed the HRCSI programme and recognised that it met a high priority need within Malawi. There is no doubt that the programme has significantly raised the profile of health research in Malawi and the capacity to conduct and engage with research. Despite many challenges, it has had several important achievements. There was recognition that the important gains the project has made so far would be lost if it was allowed to collapse. Interviewees voiced strong support for its continuation.

Programme start up

The initial 2007 proposal outlined how HRCSI would be placed in a specially convened Project Management Unit at the National Research Council of Malawi (NRCM) and documented a detailed workplan and budget. The start of HRCSI coincided with the disbanding of the NRCM and the Department of Science and Technology, and the formation of the National Commission for Science and Technology (NCST). As the structures and posts within NCST had not been firmly established, the HRCSI proposal included TORs for five technical assistants to enhance the skills of NCST staff so that they could eventually manage and integrate HRCSI into NCST. NCST had no operational budget or financial operating systems at its inception and the funders' start-up institutional review had not included an in-depth assessment of the capacity in NCST to utilise the project budget. It soon became apparent to the funders that attention needed to focus not just on technical issues but also on governance mechanisms. The initial proposal included provision for a project management agency, so the funders contracted Lath Umoyo to provide interim management for the HRCSI project from 2008-11.

There was a general recognition that the incubation start up phase of HRCSI had been fraught with difficulties. These included: overambitious output targets; poor communications among agencies, including the absence of signed documents clearly laying out the roles and responsibilities of all the parties; budget re-profiling; continued lack of consolidation of skills and structures in NCST; and the loss of key LATH UMOYO staff and technical assistants. There was disharmony within NCST which was aggravated by large salary differentials between NCST and HRCSI staff. These, and other factors, contributed to the project initially floundering and to a breakdown in trust among the agencies involved. Despite all these difficulties, two rounds of awards were made by HRCSI in 2009 and 2010.

Following a site visit by funders in September 2011 calls for grants by HRCSI were suspended. The funders were unable to find an organisation in Malawi who were able to provide both financial and management oversight and support for systems strengthening within NCST. The funders therefore contracted Price Waterhouse Coopers Kenya (PWC) as they were working with HRCSI's sister programme in Kenya (Consortium for National Health Research, CNHR1). Several interviewees in Malawi were surprised at this decision as they felt that suitable organisations were available in Malawi. In 2011 a way forward was agreed between HRCSI and the funders, mediated by an external consultant, which included reducing the Knowledge Translation component. A project manager with

strong research and management credentials was recruited. Contracts were formalised, a bank account was opened and HRCSI was able to demonstrate due financial diligence to the funders. As part of this process it was agreed that HRCSI Board should approve the selection of award recipients and financial decisions, but in practice the Board's decisions had to be approved by the funders and on occasions were overturned. While it was appreciated that the necessary checks and balances should be in place, this cumbersome multi-step process resulted in significant delays in disbursing award funds.

There was general agreement that the start up phase (incubation period) was over ambitious and that unrealistic assumptions had been made about the existing baseline capacity in Malawi for grant-making. Several interviewees felt that this phase was focussed too much on demonstrating progress against targets, perceived to be driven by the funders' needs, and that insufficient time was allowed for identifying critical capacity needs and for setting up and testing out systems and processes. Funders observed they had been naïve in thinking they could use their previous experience of supporting research centres in Kenya and Malawi and apply it to the HRCSI and had underestimated the extent of the deficit in existing research systems and financial management capacity. Funders have recognised that the complexity of HRCSI and other similar initiatives meant that it could not be adequately managed by them from a UK base. As a result of their experiences with HRCSI and other projects, DFID have now established regional research hubs in Africa and Asia to bring their oversight closer to the overseas recipients.

From the perspective of funding applicants in Malawi, the weak grant making processes meant applicants often experienced delays of over one year between being selected for an award and the funds being available. This, coupled with the decision to cancel the third round in 2011 after applications had been submitted, poor communications and the lack of standards against which to judge applications, resulted in considerable loss of HRCSIs' credibility among stakeholders.

At the start of HRCSI, IDRC was responsible for the learning component of the programme. IDRC funded a consultant to facilitate participatory programme planning processes in Malawi which included assessing needs and helping stakeholders to work out all the components that they would need to be able to run a grant making process. The learning component provided support for workshops, for example for outcome mapping, and for the development of an M&E framework. These supportive inputs and the ongoing learning component provided by IDRC were perceived as valuable by the stakeholders in Malawi and resulted in presentations by HRCSI at an international meeting in Montreux in 2010. IDRC inputs to HRCSI were discontinued in February 2010. The reasons for this were not made clear and some stakeholders in Malawi felt that they had not been adequately involved in this decision.

In our experience it is not unusual for projects to have a shaky start as it takes time to establish trust and set up functional systems to run the project. Grant recipients normally take care to shield funders from the details of these problems in case it may jeopardise their chances of a good review or future funding. At the time, HRCSI and its sister programme in Kenya, were unique in that the funders were very closely involved with all aspects of the projects, including their difficulties, and this may have led to some perceived over-magnification of the problems compared to other projects. Frank discussions between funders about the problems encountered in HRCSI and other projects, and about shared lessons that could be learnt would enable subsequent projects to avoid some of the pitfalls.

Recommendation 1

Such large projects should consider separating the start-up phase (0 to 12-18 months) from the 'production' phase (12-18 to 42-48 months), making funding of the second phase contingent on demonstrating that effective systems and processes have been set up. This should be preceded by an in-depth review of the systems needed to absorb, disburse and account for the funds and a plan to fill any gaps. Ideally spreading the funding over a longer time period would provide more opportunity to set up and test systems providing this could be accommodated within funders budget cycles. Taking away the pressure to start the grant making process in the first phase would enable all agencies involved to satisfy themselves that the systems were fit for purpose before facing time pressures to deliver outputs

Recommendation 2

The relationship between the funders themselves and between funders and stakeholders in Malawi, including their roles and responsibilities and how they will share learning, needs to be clear. This particularly relates to potential missed opportunities for ongoing learning in HRCSI (e.g. by IDRC), for building national-level capacity within Malawi for financial and management oversight and auditing (e.g. by enhancing the capacity of relevant organisations in Malawi to support HRCSI) and for sharing funders experiences and lessons from HRCSI, its sister project in Kenya and other similar projects

Recommendation 3

The three principles of designing capacity strengthening programmes - starting small and expanding gradually, finding and building on what exists already, and establishing trusting and well-defined partnerships – should underpin any future capacity strengthening projects

Reorganization

During the re-organisation of HRCSI in 2010-11, systems and processes were strengthened and oversight for the project made the responsibility of the NCST Board. Rather than using models from wealthy countries, which often do not translate well into an African context, HRCSI used expertise and lessons from around the region to inform its operations. Examples include multinational research review panels based on experiences from Kenya, design of the national research agenda and knowledge translation processes from Zambia, set up of a research registry from Botswana, and advocacy using similarities in the national role of universities with Tanzania. Following the reorganisation HRCSI began working on generating its outputs primarily focusing on awarding grants with awards being made in 2012.

3.2 Findings related to the HRCSI four key outputs

The four key HRCSI outputs were:

1. Enhanced institutional capacity for high-quality multi-disciplinary health-related research studies
2. Evidence-based policy and programme formulation

3. Effective sharing of scientific knowledge
4. Improved regulation and co-ordination of national health research

In the following sections we have addressed these outputs in the order which best demonstrates the logical sequence from improved research regulation and coordination, through enhanced generation of research by institutions and sharing of new research findings, to impact on decision-making for policies and programmes.

HRCSI output 4: Improved regulation and co-ordination of national health research

National Health Research Agenda

The process by which the National Research Agenda and Strategy was achieved was ‘highly commended’ and viewed by the vast majority of interviewees as one of the foremost achievements of the HRCSI project. This agenda met a growing need in Malawi for nationally harmonised health research priorities. The Agenda (2012 to 2016) is geared towards obtaining evidence which aligns with priority needs for policy and decision making. The Government of Malawi “expects all cadres of stakeholders to support the implementation of this National Health Research Agenda”. The process for defining the agenda involved a broad consultation process to identify research priorities and collation of research done on priority areas to identify research gaps. Our interviews confirmed that the process was widely known about and supported, and several interviewees had been part of the consultation process. Monitoring adherence to the agenda will be done through the two research committees (MoH and CoMREC) as the ethics application forms have been adapted to include a section on how the research fits with the Agenda priorities. Researchers felt that their choice of research topics generally took account of the Agenda but noted that funders and researchers themselves also influenced research topics and that the Agenda should not interfere with academic freedom.

Recommendation 4

Regular monitoring of compatibility of research with the national research agenda should be undertaken in order to identify areas that are neglected and may need specially focused grants. The research agenda should not be proscriptive and care needs to be taken not to stifle academic freedom and innovation

National funding for research

HRCSI has been lobbying for GoM to fulfill the requirements of the Abuja declaration and allocate 2% of national funds to the Science and Technology research fund. Funders have also indicated that a financial commitment by GoM to support research would add weight to future applications for external funding. In part fulfillment of this obligation, district health managers have been advised to include research in their annual plans and budgets. In response to this, HRCSI has supported a MoH research unit to provide research training for district hospital staff but so far this has not resulted in any award applications to HRCSI as a result of the training.

Recommendation 5

For research to be generated at district level, more support will be needed to mentor individuals to identify policy-relevant topics, prepare grant applications and conduct research. This will need to be underpinned by a research strategy and ear-marked research budget

National research registry

Although there is not yet any mechanism for centrally capturing research activities and impact at a national level, HRCSI has secured a grant through CoHReD Botswana to facilitate collaboration between NAC, CoHRed and CoM to develop a health research information system (Rhinno). This will essentially be a registry of research which will capture protocols and ethics submissions and ultimately feed this information into the Knowledge Translation communities of practice.

HRCSI output 1: Enhanced institutional capacity for high-quality multi-disciplinary health-related research studies

Multi-disciplinary research has been enhanced at some institutions such as The University of Malawi's polytechnic where different departments were working together in health promotion research. While such research was done in the past, the HRCSI grant has strengthened it. Most institutions did not have strategic plans for research capacity strengthening, instead relying on generic institutional policies and guidelines. The Centre for Social Research of the University of Malawi had specifically included research mentorship in its strategic plan. Interns at the Centre, including those funded through HRCSI and other sources, were participating in mentorship arrangements.

Recommendation 6

To be able to track enhanced institutional capacity, institutions should be encouraged to develop strategic plans with targets and indicators and to document baseline in order to be able to then demonstrate progress

Individual researchers supported by HRCSI

Interviewees were unanimous in appreciating that HRCSI had trained substantial numbers of high calibre scientists, boosted interest in research among young Malawians and improved the quality of research results in Malawi. HRCSI has supported around 50 MSc and PhD students, and over 400 undergraduate health-related projects. Between 2004-7 only about 40% of research applications were headed by a Malawian but since HRCSI started this has increased to 64%. Overall, in the last 5 years SACORE, CARTA, the College of Medicine at the University of Malawi and HRCSI have together trained or supported 340 postgraduates from a baseline in 2008 of just a handful of MSc and PhD holders across Malawi. HRCSI and many of the interviewees, recognise the need now is to track these graduates and to make sure that there is a comprehensive national strategy for placing them in appropriate posts and providing them with career development opportunities.

Recommendation 7

Graduates should be tracked to collect evidence about their progress and outputs; they should have appropriate career development opportunities within Malawi

Research topics and diversity

HRCSI offers a wide range of types of awards from travel grants and internships to PhD fellowships and institutional grants. The types of awards to be offered had been pre-determined through a consultative process. Almost all interviewees liked this award diversity, though some suggested that it may have been better to initially focus on a more narrow range. Some interviewees proposed that in future HRCSI should consider focusing its efforts only on areas that are not well covered by other funders (i.e. not PhDs as these are funded through Wellcome Trust). Short-term grants were viewed as being most effective as a public relations exercise for HRCSI and for raising awareness of research, whereas longer-term grants were probably more effective at achieving strengthened capacity to do research. Prior to HRCSI many of Malawi's research projects were biomedical reflecting the traditional approach to research in Malawi. HRCSI has strongly promoted the notion of multi-disciplinary research and a specific, large multi-disciplinary grant has been awarded. In addition, several junior and senior grants have included multi-disciplinary aspects and diverse topics have been funded (table 1) including a health and social science network.

Table 1. Research topics funded through HRCSI 2008-13 (excludes undergraduate projects)

Type of award	Year of HRCSI programme	Total	Biomedical science*	Public/international health*	Social science*
MSc	1	3	1	2	0
MSc	2	28	12	9	7
MSc	4	10	5	5	0
PhD	2	6	4	0	2
PhD	4	9	4	0	5
Junior	2	7	5	2	0
Senior	2	3	2	0	1
Multi-disc	2	1	1	0	0
Interns	4	10	4	2	4
Summary					
MSc	1-5	41	18	16	7
PhD	1-5	15	8	0	7
Other	1-5	21	12	4	5
Total		77	38	20	19

**Biomedical*: clinical chemistry, microbiology, molecular, statistics

Public/international: epidemiology, demography, informatics

Social: anthropology, economics

Recommendation 8

HRCSI may consider focusing its efforts on the type of research grants that are not well covered by other funders

Institutional capacity to support academic research activities: systems, processes and mentoring

Researchers recognised that HRCSI has supported institutions to improve research support and this was extremely welcome. The Research Support Centre at the College of Medicine, which was not part of the HRCSI programme, was cited as a good model for how institutions could support researchers. For example, this office helps researchers prepare financial reports, procure supplies and provides information about research grant opportunities. Applicants based in academic institutions were generally able to access support to help them prepare their applications. Those who were not in academic institutions, and even some who were, struggled to find help for example when applying for MSc grants and places in universities. By delegating responsibility for selecting and managing undergraduate student projects to academic institutions from 2009-12 (i.e. Chancellor College and College of Medicine), HRCSI contributed to building their skills in research management.

Mentoring at institutions was done in at least two ways namely, passive and active. Passive mentoring involved inexperienced researchers getting inspired by experienced colleagues while active mentoring involved inexperienced researchers being attached to senior and experienced colleagues. The HRCSI internship program as a way of capacity building was commended. However, most interviewees including interns and their mentors considered six months of internship as inadequate for one to acquire necessary skills and knowledge. The interns also regarded the USD 500/month stipend as inadequate. Nevertheless, the interns indicated that their mentors were very helpful and that the programme had helped them realise some of their goals. There were examples of how HRCSI had helped individuals' career paths e.g. an individual who had benefited from the undergraduate grant had subsequently secured a place to do a Masters Degree within the country.

Recommendation 9

HRCSI may consider supporting extension of the CoM Research Support Centre model to other Malawian institutions

Recommendation 10

Consider providing support at the pre-application stage to applicants who have a promising concept but are not able to access research expertise in their own institutions to help them develop a full proposal

Ethics approval processes

Researchers were generally pleased with the efficient way ethics committees functioned and with their turnaround times. They however expressed significant concerns that ethics committees may now becoming 'obstacles' to research. These concerns included the perceived lack of impartiality (e.g. reviewers were often close colleagues of applicants) and the lack of commitment of committee members. (e.g. they did not show up at meetings where proposals were reviewed). Interviewees who sat on ethics committees stated that conflict of interest did not arise, explaining that members of the committees were professionals who sometimes had their own proposals rejected by the committees. Some interviewees suggested that each academic institution should have a research ethics committee to deal with small proposals from students while the larger proposals could be reviewed by COMREC or NHSRC. The Multidisciplinary Health Research Committee was renewed in 2012 and now includes

researchers from Malawi, the African Region and Europe. Although this should improve the confidence and trust of applicants many were not aware of this renewal process.

Researchers were also concerned that ethics committees' were overly focused on the 10% overhead charged by the committee rather than on the quality of the science and its ethical implications. Some interviewees (particularly previous and current members of the committees) justified the 10% overhead charge as it is for sustainability of the ethics committees, which do not get funding from government or the institutions. Further deductions are also applied to grants. For instance the Polytechnic deducts 10% of the research project budget and a further 30% of the researchers' fees. Such deductions are regarded as disincentives by researchers. The dissatisfaction has led some faculty members to form private companies and compete with official college applications for grants.

Recommendation 11

Consideration should be given to reorganising COMREC so that it becomes a national cross-university ethics committee and to setting up ethics committees in each institution for review of student projects. Greater transparency, predictability and justification is needed concerning the amount and use of charges levied on researchers' projects. Considerations should include the possibility of charging a fixed scale of fees for ethics submissions (to cover the costs of the ethics committee) and of transferring responsibility for negotiating other institutional project charges away from the ethics committees to another agency

Recommendation 12

Members of both ethics committees should rotate on a regular basis; the changes in the national committee should be well publicised, feedback from researchers who submit applications for ethics approval should be solicited and used to enhance the functioning of the committees

Institutional grant awarding and grant management capacity

Through HRCSI, the NCST board has gained knowledge about the systems needed to manage research processes at national level and the multi-disciplinary HRCSI committee has gained considerable new experience in reviewing and awarding proposals. Initial difficulties included lack of clear guidelines for reviewers (e.g. should their scientific review also include the budget?), poor communication and a lack of planning for meetings. The situation has improved with time and has been helped by the guidelines for all grant schemes that have been produced and implemented, and enhanced systems for governance, granting, finance/accounting and ICT. This has been complemented by the provision of office equipment including computers for NCST, and manuals for grants and finance. Tools have been produced specifically for various stages of the grant awarding process including for baseline assessment, pre-disbursement, site visits, grantee reports, post award reports and post fellowship reports.

Recommendation 13

A clear mechanism for ensuring that the tools, guidelines, processes and expertise that have been developed around the grant-making process in Malawi should be identified and implemented

Recipients' experience of the grant making process

Awareness of HRCSI opportunities: Initially only a few institutions were aware of the HRCSI initiative, particularly the College of Medicine. The grants were thought to be for those in clinical sciences and because of this some potential beneficiaries did not apply. This partly explains why the College of Medicine had a lion's share of the grants. Since 2011 HRCSI has operated a pro-active advocacy campaign including using print media for disseminating information about HRCSI (e.g. Calls for applications). This has resulted in a significant boost in enquiries and applications and has expanded the range of awardees, such as the Polytechnic and those from the private and CHAM sector. However, some relevant institutions (e.g. Malawi College of Health Sciences) are still under-represented and some (e.g. the Catholic University of Malawi) only heard about HRCSI a few months ago. Some interviewees noted that because HRCSI awards had been predominantly awarded to high profile institutions and individuals already capable of competing for external grants, research capacity building across the nation had not been very effective as it was the smaller institutions and individuals who needed the most support.

Recommendation 14

HRCSI needs to build on the strong advocacy campaign it has initiated in the print media to ensure that all institutions that could potentially benefit from the HRCSI project are aware of the project and what it will support. This should include extending the time for newspaper adverts about award opportunities and expanding the outreach sensitization visits for each new call focusing particularly on smaller institutions and junior researchers

Grant application process: Some award recipients felt that HRCSI had good levels of transparency in their grant awarding process and were non corrupt in the processing of the grants compared to other bodies citing example from some organisations who abused such funds by giving grants in exchange for bribes. There were consequently suggestions that HRCSI should consider competing to manage and administer external funds. However there were also some complaints about the HRCSI grant awarding process including: difficulties in submitting proposals, lack of acknowledgment of receipt and about unsuccessful applications, lack of transparency and/or consistency in eligibility and selection criteria, lack of notification when funds were disbursed to awardees' accounts, long delays in getting funds once award had been made (with several examples of this period exceeding one year).

Post-award: Most award recipients were satisfied with the way they interacted with HRCSI once an award had been approved. However, communication around internship grants was problematic as, contrary to their expectations, mentors were not involved in the selection process and received almost no prior notice of the arrival of interns in their units. The negotiation process for the awards was similar to that with other funding agencies and money was provided in full. Annual site visits by HRCSI to project sites were considered professional and well organised.

Recommendation 15

Communication between HRCSI and applicants needs to be improved and the application process and selection and eligibility criteria should be clarified and more transparent

Recommendation 16

The current multi-layered, multi-agency approval process for agreeing awards and disbursing funds needs to be made less cumbersome. Transfer of money to recipients needs to be expedited by streamlining the approval process and giving more financial autonomy to HRCSI

Researchers' incentives

The motivation for academics to do research seems to be related more to career progression than to financial incentives as the salary tops (or 'fees') for academics to do research are relatively small. In addition there are several taxes and deductions that shrunk the funding package for each project (e.g. the previous polytechnic example about the 10% and 30% deductions). Such deductions had driven some staff to form companies that compete for grants with the academic institutions in order for researchers to increase their take home pay from the grants. Other research incentives for people in the academia included patriotism for the country, to be seen to be participating in university activities and also the fact that it was easier to get grants when one was associated with an institution than when one applied as an individual. The motivators to do research for those based in non-academic environments are less clear but may include consultancy opportunities and encouragement by others, for example the research committees which have been set up in the larger hospitals.

Recommendation 17

A panel should be established to provide guidance about remuneration for researchers to take into account the need to incentivise them without significantly disrupting pay differentials and to prevent the burgeoning private research companies from undermining the research activities of academic institutions

HRCSI output 3: Effective sharing of scientific knowledge

There was widespread recognition of the way that HRCSI had supported research dissemination including through national (e.g. July 2013) and institutional meetings (e.g. CoM 2012), by sponsoring an issue of Malawi Medical Journal and by enabling meetings of special interest groups (e.g. for health and social science, Sep 2013). 50% of grantees have already presented research results in national and international conferences, 50% have submitted their papers for publication to various international journals and 6 have already had papers published in international journals (appendix 5). HRCSI has also supported various international research collaborations including between CoM, University of Liverpool and the Zomba Central Hospital, between Ntcheu Hospital and Witwatersrand University, CoM and Stellenbosch and Cape Town Universities. Although HRCSI secretariat have had interactions with the media about the HRCSI project, there was almost no evidence of any interaction between health researchers and members of the media for the dissemination of research findings to the general public. Interviewees from the media did not feel that they had adequate opportunities, and also possibly lacked competence, to re-package research for public consumption.

Recommendation 18

Media personnel need to be given capacity and opportunity to digest the research findings into everyday language of the people and interactions between researchers and the media need to be promoted

HRCSI output 2: Evidence-based policy and programme formulation

Researchers had generally found that health policy makers in Malawi were approachable and willing to consider research findings. Researchers often did not have time to pursue these interactions intensively and welcomed recent efforts by MoH to improve technical support to make engagement with policy makers more effective. HRCSI's ability to promote the translation of research into knowledge for use by policy makers has been hampered by a lack of expertise following downgrading of the exercise following the mid-term review, but is now being addressed by a new Knowledge Translation Platform. This has been established through the Director of Research at the Malawi MoH with some contribution to funding by HRCSI. This initiative involves Dignitas International, a Zomba-based NGO, and draws on experiences from the Zambian Forum for Health Research. Through this platform 'communities of practice' are being set up which bring together researchers, experts and policymakers starting with the disciplines of non-communicable diseases and supply chain. The Platform will strengthen the ability of researchers and national policymakers to develop and evaluate policy briefs and systematic reviews and promote their interactions through an interactive website.

3.3 Current situation and sustainability**Current situation**

The HRCSI secretariat understands that funding will virtually cease on 31st October 2013 and that there will not be an option for a no-cost extension to use up the approximately 50% (£5,000,000) unspent budget. In addition to finding innovative mechanisms to ensure that ongoing commitments to awardees are honoured, funders have committed £200,000 for the 2013-14 close-down 'consolidation' year. This will be overseen by a new coordinator with knowledge of the project. As there is still no deputy DG in place the new HRCSI coordinator will still have to report directly to the NCST Director General.

Sustainability of HRCSI

If HRCSI is sustained, what should it do?

There was overwhelming support for HRCSI to continue now that it has gained significant traction. Although it has only been effectively operational since 2011 there was widespread recognition that the programme has made substantial inroads into generating research demand and improving research capacity. Some interviewees viewed HRCSI's future role as a research management centre with a mandate to bring people together to feed knowledge into the 'policy machinery' and to act as the hub for channeling research funding from all health research donors. Although all HRCSI's current activities were considered important and necessary, some suggested that one option may be for HRCSI to concentrate on awarding grants and locate other activities (e.g. institutional development) elsewhere.

Within which structures should HRCSI be situated?

Most popular option - within NCST. Although there was no clear consensus about where HRCSI should be situated within the structures in Malawi, the majority view was that it should be integrated into NCST as the coordinating body for research in Malawi. As NCST is a multi-sectoral agency, this would send a clear message that HRCSI was not exclusively for health workers and would provide an opportunity to use the most successful aspects of HRCSI as a model for non-health sectors. The NCST Board has recently resolved to sustain HRCSI and a new HRCSI Task Force has been approved which will develop a proposal and lobby for funds from GoM and new external donors. An in-depth analysis of the current set up and effectiveness of the grant-making systems, processes and tools within NCST was beyond the scope of this evaluation. However, there was general agreement that the systems, processes (including financial), leadership and the health team within NCST as well as linkages with the Ministry of Education would need strengthening in order for it to embed HRCSI. There was a strong feeling that if the incorporation of HRCSI into NCST was well managed it could be used to lever the necessary strengthening of people and systems in NCST and filling of the still-vacant deputy DG position.

Other options. Two alternative options were suggested. HRCSI could become an *independent organisation* (e.g NGO) with its own external funds but it was felt there may be a substantial risk of it being sidelined and/or of duplicating the efforts of NCST, making it unable to effectively coordinate research generation and uptake. Alternatively HRCSI could be placed *within the MoH Research Unit*, but this unit was felt to have insufficient capacity and lodging HRCSI firmly within a single ministry would make it difficult for it to function effectively across other ministries especially the Ministry of Education which is responsible for the research training institutions.

Recommendation 19

There is an urgent need for a senior group (possibly the 'elders') to devise a 10 year vision for HRCSI and to decide whether to pursue the way forward proposed by most of the interviewees (i.e. embed it in NCST). Discussions will need to identify funding and a process to support the group's decision. The discussions need to include options about whether to retain only the part of HRCSI's activities relating to grant awarding and a scoping study of other models from around the region may be helpful to inform these discussions. Developing the human resources and systems within NCST to be able to take on HRCSI functions, informed by an in-depth analysis, will be a critical first step

Recommendation 20

The impact and achievement of HRCSI needs to be measured when it has been functioning effectively for > 5 years (ie in 2016) taking account not only of direct effects (e.g. publications, grants, institutional systems) but also of any indirect benefits

Recommendation 21

HRCSI's vision, funding schemes and successes should be publicised much more widely both within Malawi and beyond, possibly by making better use of Public Relations officers and Health Educations sections in the MoH

Recommendation 22

Need to diversify funding support for HRCSI to reduce the risk of over-reliance on individual funders and to provide flexibility

5. Reflections on this evaluation

Strengths

The design of this evaluation, the tools including interview guides and interviewees selection process, are all based on recognized social and health science research methods and published evidence about how to design and monitor capacity strengthening programmes. The evaluation team has extensive experience of planning and implementing health research capacity strengthening programmes and of conducting and publishing research on capacity strengthening. Examples of some relevant publications are provided in appendix 6 and more details are in the CVs supplied during the bidding process for this project.

The interview guides were developed prior to conducting interviews by researchers not subsequently involved in most interviews. Bias was further minimized by adopting a stratified random sampling approach for interviewees, combined with purposeful sampling to fill in specific information gaps. Facts provided by interviews were confirmed by at least two different sources. At least two interviewees took notes to aid the details and quality of documented information and so that discrepancies could be discussed and resolved immediately after the interview. Importantly, LN and KK, are Malawians and were therefore able to provide invaluable contextually and culturally relevant insights throughout the entire evaluation process. Notes were written up within a few hours of each interview and ~90% of interviews were recorded as a back up. Saturation of information was achieved for almost all points included in this report. The draft report was reviewed by two team members minimally involved in the interviews as well as by the HRCSI manager and NCST representative to ensure clarity and accuracy.

Limitations

This evaluation was limited by time and budget which meant that an in-depth analysis of the entire grant making systems, processes and tools in HRCSI and NCST was beyond the scope of the evaluation. The evaluation budget of US \$33,521 was approximately 0.25% of the total HRCSI budget and 0.5% of the total project spend. The 8 week evaluation period was divided into 4 weeks for literature review, design of methods and development of data collection tools, 2 weeks for interviews and review of documents to provide data, and 2 weeks to produce a draft report, solicit feedback and incorporate feedback into the final report. Due to these time limits and financial constraints only about 20% of the total 173 individuals associated with HRCSI could be interviewed. However as individuals from all five categories were interviewed and saturation points were reached for all the major points it is unlikely that additional interviews would have resulted in significant new information. The initial list of stakeholders had been generated by the HRCSI secretariat so it is possible that it may have been biased. However, none of the interviewees identified any other individuals who should be interviewed and who were not on the list.

The evaluation team: roles and declaration of relevant interests

DCC and NF were responsible for conducting research to identify state-of-the-art evidence and tools that could be used to inform the development of the interview guides for the five categories of stakeholders. They piloted the interview guides and also contributed to reviewing the report. DCC has supervised a PhD student who collaborated with Dignitas and the College of Medicine

LN assisted by **KK** was responsible for day to day liaison with the HRCSI team and for arranging the interviews. Both LN and KK were present for almost all the interviews, with LN taking the lead for many. Both contributed to drafting the report. Other employees of REACH Trust, but not LN or KK, have been in receipt of funding from HRCSI project and the previous Director was on an HRCSI advisory board.

IB was the lead researcher for this project responsible for approving the final version of the report and for contributing to drafts. She was present for and/or led many of the interviews. IB has had previous involvement in research projects in Malawi including with the Ministry of Health and Population (1998-2002) and as a supervisor for two PhD students (Kamjia Phiri, Steve McKew) based at CoM. She was mentioned in the original HRCSI bid in 2008 as a resource person for technical research issues during the incubation period. In practice this involved providing some e-mail advice to the programme manager in 2009 about the process for reviewing proposals after having been provided with a selection of some of the early applications. She did not receive any personal income for this work. At the time LATH UMOYO was a subsidiary company of LSTM and so LATH UMOYO's income provided a contribution to LSTM's core costs.

Appendix 1

TERMS OF REFERENCE FOR AN INDEPENDENT EXTERNAL END OF PROGRAMME EVALUATION

Note: These are the original TORS. Minor changes to these were agreed between HRCSI and LSTM prior to signing the contract.

1. Introduction

Health Research Capacity Strengthening Initiative (HRCSI) is a five-year (2008-2013) Programme managed by the National Commission for Science and Technology a parastatal of the Government of Malawi based in the Capital City Lilongwe. HRCSI works to strengthen the health research capacity for the generation of scientific knowledge within Malawi, and improve its use. This Programme is jointly funded by Wellcome Trust and the UK Department for International Development (DFID).

HRCSI phase 1 is expiring on 31 October 2013. Consequently, the Programme is planning to engage local and international evaluators to conduct an independent external evaluation. The end of programme evaluation will not be viewed exclusively as terminal. It will be a formative and forward-looking process that seeks to enhance the relevance, efficiency, effectiveness, impact and sustainability of future health research capacity building activities in other contexts.

2. Back ground

The 'incubation' of HRCSI was undertaken by Liverpool Associates in Tropical Health (LATH) from 2008-2011. The end of the formal 'incubation' process left the initiative without some of the key elements required by the funders to support the initiative directly and therefore end incubation, such as a financial track record in managing the funders' money. As a result, PricewaterhouseCoopers (PWC), which works with an HRCS sister programme in Kenya (Consortium for National Health Research, CNHR1) was engaged to conduct a midterm evaluation of HRCS, provide financial oversight and to support systems strengthening within NCST.

3. Purpose

The purpose of this evaluation is to provide an independent assessment of the performance and impact of HRCSI against agreed activities; expected results and programme objectives and to provide recommendations for future multi-agency HRCSI approaches.

4. Objectives

1. Assess project effectiveness and the degree to which planned outputs and outcomes have been achieved to the time of the review.
2. Assess Programme efficiency and document strengths and weaknesses of the current HRCSI approach.

3. Assess potential impacts of the Programme and ascertain if HRCSI was an effective use of money.
4. Assess if funds were used effectively and efficiently to deliver results.
5. Identify and analyze lessons learned during HRCSI implementation and formulate recommendations and strategies for any follow-up multi-agency HRCSI phase 2.
6. Assess relevance and sustainability of HRCSI
7. Assess management process

5. Evaluation Scope

The evaluation will address three core questions in order to understand *where we are coming from, where we are and where we are going* as regards health research capacity strengthening.

Evaluation Question 1: What is the current status of the implementation process and achievement of value for money?

This question is related to programme efficiency and effectiveness issues, and will assess the following aspects of the programme:

- Progress made so far in the implementation of HRCSI.
- The extent to which the programme has delivered activities on time and factors that have contributed to or hindered the implementation process. How far funding, personnel, regulatory, administrative, time, other resources and procedures have contributed to or hindered the achievement of results.
- Assess the model of flow of funds from funders to NCST and determine its effect on programme implementation and absorption
- The major factors which are likely to influence the achievement or non-achievement of future HRCSI phases.
- Efficiency and effectiveness of key programme components (finance, grants management and governance)
- Factors enhancing or hindering stakeholder satisfaction
 - Extent to which value for money has been achieved
- Evidence of obvious links between significant expenditures and key project outputs?
- Lessons Learned and Recommendations
 - Were there any significant changes in the programme design or the context? What were the reasons for these and what were the lessons learnt
 - Recommendations for improvements and future actions based on observations during the evaluation process (e.g. for sustainability, future programme design and management).

Question 2: What is the actual and potential impact of HRCSI

- Assess achievements and impact in relation to indicators in the HRCSI log-frame considering:
 - What is the project's overall impact and how does this compare with what was expected?
 - Has the project addressed the intended target group and what is the actual coverage?

- What difference has been made to the careers/lives of those involved in the project?
- Validity of original assumptions and influence of external factors on impact.

Question 3: Are the current implementation structures adapted to allow for multi-agency collaboration? This question is related to relevance and efficiency issues, and will assess:

- The efficiency and effectiveness of programme approach, management and governance setup (organizational structure, staff profiles and job ToRs).
- The relevance and efficiency of the governance
- The extent to which HRCSI is suited to the priorities of research institutions, individual researchers, national and district level decision-makers
- Whether the programme design is internally coherent, i.e. are the activities and outputs of the project consistent with the overall goal and the attainment of its objectives?
- Synergies/duplication created with similar initiatives?
- Alignment of programme functions, especially grants management, to the best practices in the industry

6. Methodology:

- Desk research
- Interviews with project team
- Interviews with key external stakeholders
- Field visits

The selected evaluation consultants will work collaboratively with HRCSI to develop a detailed evaluation action plan.

7. Evaluation Process and Timeline:

The Final Evaluation is expected to take place for the period of 9 weeks from the date of signing the contract.

Activity	Duration in weeks
Collection of evidence and preparation of tools	2 weeks
Pre-visit telephone/skype interviews	1 week
Site visits,interviews, observations,presentation	2 weeks
Analysis of data and production of draft report	2 weeks
Final Report	1 week

8. Outputs:

Outputs expected include:

- An evaluation action plan.
- A presentation of initial evaluation findings/first draft for face-to-face discussion with the project team.
- Final Evaluation Report, approx 30 pages, of publishable quality (in English).

9. Potential Candidates

Qualifications

At least a Master of Science degree in a relevant discipline. Applicants with a PhD or professors will have an added advantage.

Skills and Competencies

- Have interest in Malawi or low income countries and tropical health research
- Have a high level of technical or scientific research knowledge
- Have knowledge or experience in grants awarding process
- Track record in conducting evaluations
- Have high standard of integrity, independence and objectivity
- Have interest in, and ability to work effectively in, an interdisciplinary setting

Further information:

For any further information please contact the HRCSI, Programme Manager at +265-1-774475 **Email:** mchithila@ncst.mw or hrcsi@ncst.mw

Appendix 2

Documents about HRCSI and Malawi used to inform the evaluation

Listed in alphabetical order according to the file name used by the provider of the resource

1. Amended HRCSI proposal 30 Feb09
2. Amended HRCSI proposal 30 February09
3. Annual M&E report July 2011 to June 2012. V2
4. Copy of HRCSI-Annex I 5 YEAR WORK PLAN – tasks per year x5 for each of the 4 outputs
5. Cumulative HRCSI Achievements and Outputs July 2013
6. Cumulative HRCSI Achievements and Outputs July 2013 - HRCSI GRANTS BY RFA AND CATEGORY: April 2009 to Jul 2013
7. HRCSI Independent end of term evaluation – advert for this evaluation project, May 2013
8. HRCSI M&E Report 14 July 2010 FINAL
9. HRCSI M&E Report 14 July 2010 FINAL – Apr 2009 to Mar 2010
10. JRA Volume 42 Number 1 Spring2011
11. July Research Dissemination Conference-Final Program (1). *Towards Enhancing Health Research Capacity for Better Health Outcomes for Malawi* 24th-26th July 2013
12. June2011MERprt – Annual HRCSI report July 2010-June 2011 (also provided as: NCST HRCSI M&E Report for the year July 2010 to June 2011 word 97)
13. KTPMalawiArticleforEVIPNet - South-to-South Collaboration Leads to The Formation of Malawi Knowledge Translation Platform Steering Committee and Communities of Practice. Knowledge Translation Platform
14. Malawi HRCSI Proposal 060207 (amended August08) Final submission
15. Manuscript abstracts (Andrew Mtewa) – 12 abstracts of planned publications by HRCSI awardees
16. Narrative report - v2 05022007
17. NCST HRCSI M&E Report for the year July 2010 to June 2011 word 97
18. NHResearch agenda Malawi – National Health Research Agenda, Malawi 2012-2016

19. NHRS_Assessment_manual_review_version_FINAL. Building and strengthening national health research systems. A Kennedy and C Ijsselmuiden Consultation document; not for circulation
20. Progress on the HRCSI 5 year Work Plan 10 may 2013 (1)-May Review (V2)
21. Progress on the HRCSI 5 year Work Plan 10 may 2013 (1)-May Review (V2). April 2009 to May 2013.
22. Proposal Annex A-P Revised 060207

Appendix 3

Interview Guides

a) Design - Conceptual Underpinnings

Academic and Grey Literature – Key References

The interview guides for the HRCSI evaluation were designed based on a theoretical understanding of the key components and actors in an optimal health research system (please refer to Conceptual Diagrams 1 and 2 below). These components and actors were conceptualized at the individual, institutional, national, and international levels. This conceptual understanding (and Conceptual Diagrams 1 and 2) were informed primarily by the following three key academic references:

- Ghaffar, D. A., Jsselmuiden, C., & Zicker, F. (Eds.). (2008). *Changing mindsets: research capacity strengthening in low-and middle-income countries*. Council on Health Research for Development (COHRED).
- Hilderbrand M E, Grindle MS (1994). Building sustainable capacity: Challenges for the public sector. In: UNDP, eds., Cambridge.
- Lansang MA, Dennis R (2004). Building capacity in health research in the developing world. *Bulletin of the World Health Organization*, 82, 764-70.

The framing of the interview questions were influenced by the 'judgment domains of criteria' prioritized for the purposes of this evaluation. These domains include: processes, progress, impact, strengths/assets, and lessons learned. Key references that were used to explore questions within each of these domains are listed here:

- Work done by the Liverpool School of Tropical Medicine's (LSTM's) Global Health Development Group: Bates, I., Taegtmeier, M., Squire, S. B., Ansong, D., Nhlema-Simwaka, B., Baba, A., & Theobald, S. (2011). Indicators of sustainable capacity building for health research: analysis of four African case studies. *Health Research Policy and Systems*, 9(1), 14.
- A draft report (2013) written by Dr. Donald Cole to the STIHR Directors' Working Group on Sustainability, entitled: "Reflection for University of Toronto Cross (X)-STIHR Community".

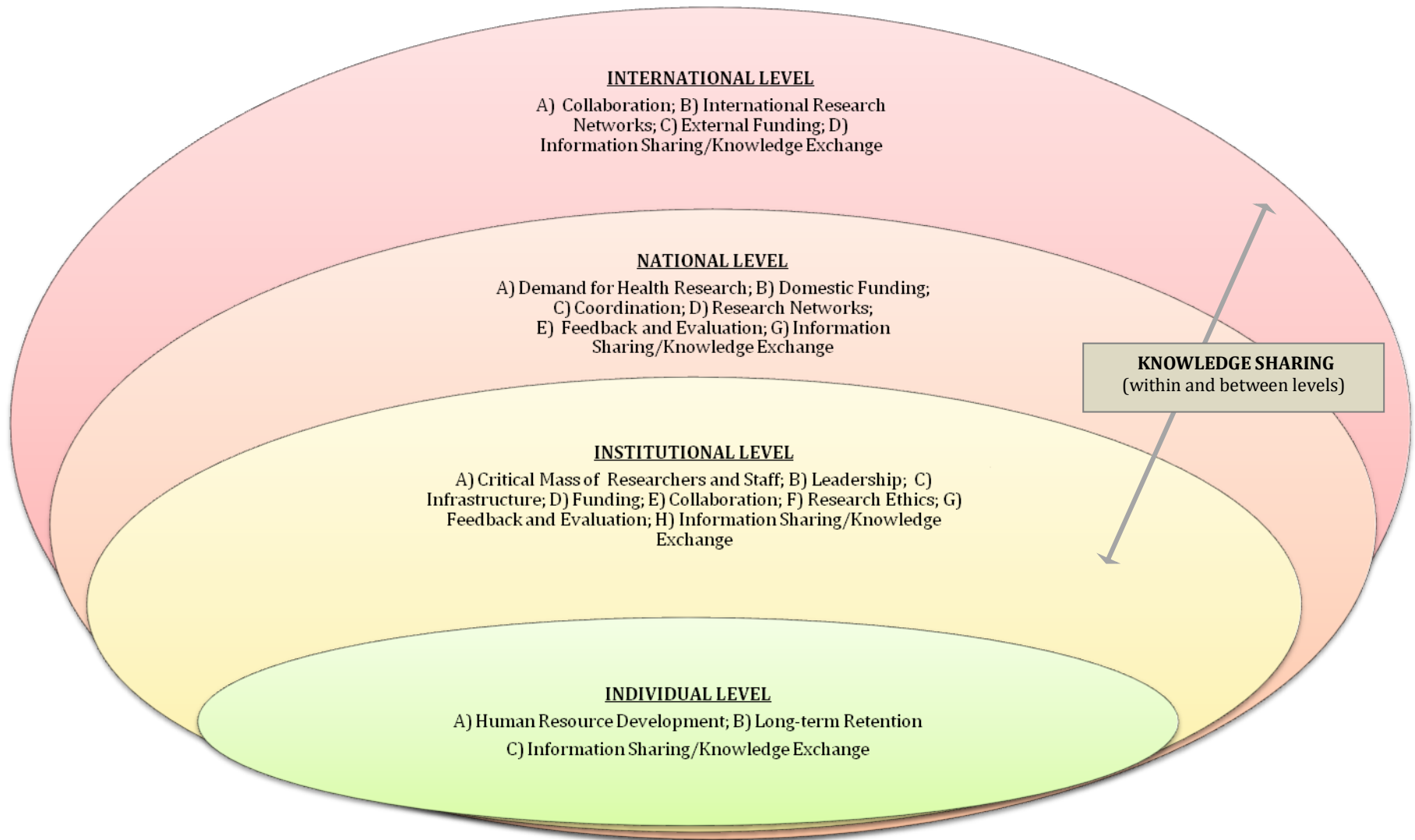
Lastly, the structure of the interview guide and some interview questions were influenced by previously designed evaluation tools, drawing on the following key references:

- Bates, I., Akoto, AYO, Ansong, D., Karikari, P., Bedu-Addo, G., Critchley, J. & Nsiah-Asare, A. (2006). Evaluating health research capacity building: an evidence-based tool. *PLoS Medicine*, 3(8), e299.
- Unpublished documents (2013) from the Royal Society-Leverhulme Africa Award Evaluation: Research protocol proposal, ethics application, interview guides, survey methodology, and communications with stakeholders.
- Bates, I., Taegtmeier, M., Squire, S. B., Ansong, D., Nhlema-Simwaka, B., Baba, A., & Theobald, S. (2011). Indicators of sustainable capacity building for health research: analysis of four African case studies. *Health Research Policy and Systems*, 9(1), 14.

- Bates, I., Phillips, R., Martin-Peprah, R., Kibiki, G., Gaye, O., Phiri, K., ... & Purnell, S. (2011). Assessing and strengthening African Universities' Capacity for Doctoral Programmes. *PLoS medicine*, 8(9), e1001068.
- An unpublished interview guide (2013) for evaluating the university's capacity to manage doctoral programmes.
- An unpublished document (2013) entitled: "Activity plan to fill high priority capacity gaps (CNTD funding agreed) - Malawi".

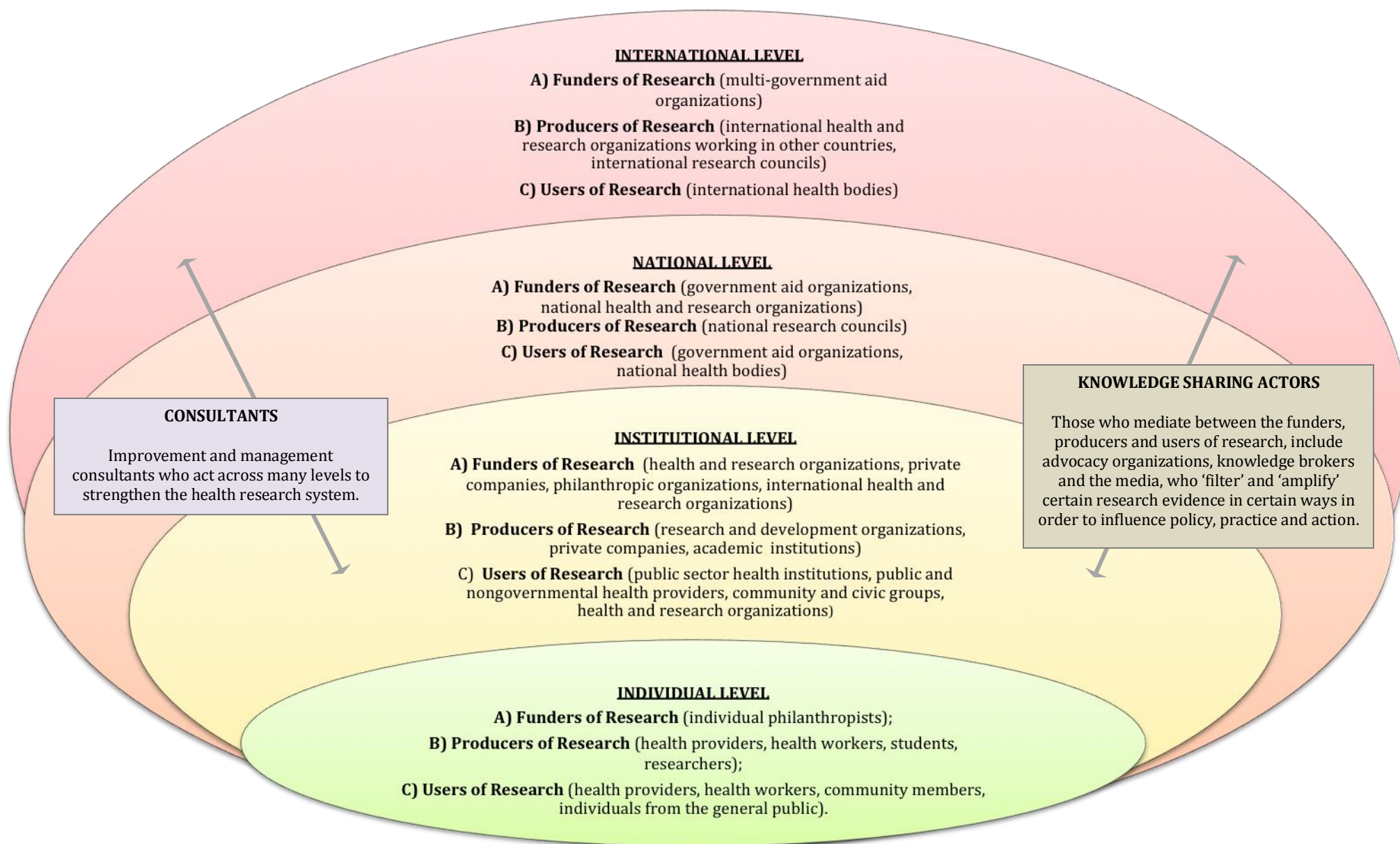
Conceptual Diagram 1: Key Components of an Optimal Health Research System

NOTE: This conceptual understanding influenced the types of categories of questions included within each of the interview guides.



Conceptual Diagram 2: Key Actors in an Optimal Health Research System

NOTE: This conceptual understanding is the reason why separate interview guides have been designed for different types of key actors.



b) Orientation for Interviewers

General notes

- Interviews should run for approximately 45 minutes (between 30-60 minutes).
- In all interview guides, the 'verbal consent', 'introduction to interview', 'demographics', and 'closing the dialogue' sections are identical. In this way, you can be sure that all of the information that you need for any given interview is included within the guide that you are referring to.

Selecting the appropriate interview guide

- All interviewees will be categorized into one of the following groups of actors: Institutional Producer/Users of Research; National Users of Research; National Governors; International Funders; and Consultants. There is a unique interview guide for each of these groups of actors, though some sorting out the actor role may be needed. Please ensure that you use the appropriate interview guide for each interviewee.
- If media representatives are interviewed, they should be considered to be a 'national user of research'.
- In the interview guide for 'institutional producers/users of research', there are some probes that are meant only for student interviewees. These are italicized.

Preparing to conduct the interview

- Before conducting the interview, it is important to research the general role of the interviewee with whom you will be speaking, and to have a general idea about the role of their institution/organisation/agency. This may involve consulting their website and/or perusing available documents. This will allow you to use your interview time as effectively as possible.
- Indicate to the interviewee how selection occurred.

Using supplementary notes during the interview

- In the section entitled 'strengthening research capacity', there is a question that asks the interviewee regarding their understanding of the ways in which HRCSI has achieved its objectives. If interviewees are unsure about the particular objectives of HRCSI, please record this in your interview notes, and then state the following four objectives to the interviewee:
 1. Enhanced institutional capacity for high-quality multi-disciplinary health-related research studies
 2. Evidence-based policy and programme formulation
 3. Effective sharing of scientific knowledge; and
 4. Improved regulation and co-ordination of national health research

Using your own judgment and discretion while conducting the interview

- These interview guides include many questions. As an interviewer, you should use your own judgment to pose only those questions that are appropriate to ask your interviewee. Be selective and think critically.
- When appropriate, consider:

- Changing the order of question categories and questions
- Changing the wording of individual questions
- Emphasize things that are most important, and de-emphasize things that are least important
- Probe for information of relevance to the *role* of the interviewee

Using general probes during the interview

When probing interviewees during the interview, consider the use of the following general probes:

Can you elaborate on that idea?	Can you tell me a bit more about the last time you experienced that or felt that way?
Would you explain that further?	Can you give me a specific example of that?
Is there anything else?	Do you personally feel that way?
Would you give me an example?	Is that something you have experienced?
Can you tell me more?	Can you expand on your answer?

c) Interview Guides

i) Interview guide for institutional Producers/Users of Research

Verbal Consent

The purpose of the evaluation that we are conducting is to monitor and evaluate the progress of Health Research Capacity Strengthening Initiative (HRCSI) in their aims of health research capacity strengthening in Malawi. With your permission, this interview will be digitally (audio) recorded as to not miss any information. Please be assured that the information you provide will be held in strictest confidence at all times. You may choose to end the interview at any time and you have the right not to answer any question or any parts of the interview. All interview data will be anonymised in the final evaluation reports and publications. Do I have your permission to proceed? Do you have any questions before we begin?

Introduction to interview

Thank you for agreeing to participate in this interview today. The goal of this evaluation is to reflect upon HRCSI's work towards creating and maintaining an optimal health research system in Malawi. We hope that you will think of this interview as an opportunity for you to share your perspective, insights, and ideas about how HRCSI is currently functioning, what they are doing well, and what they would need to improve on.

General background

I would like to ask some general information about you. I just want to remind you that this information will remain confidential and that you do not have to answer any questions that you do not want to answer.

- What is the role of your institution?
 - What role does your institution play in strengthening national research capacity?
- What specific role do you play in your organisation?
 - Do you have any additional roles?
- How long have you served in this (these) role(s)?
- Can you describe your current relationship/involvement with the HRCSI?

Strengthening Research Capacity

As you know, the main objective of HRCSI is to strengthen the national environment for generation of multi-disciplinary health research capacity and its uptake in policies, interventions, and among individuals.

- What is your interpretation of multi-disciplinary health research capacity?
 - What is your interpretation of multi-disciplinary health research capacity strengthening?
 - How do you think these concepts apply or do not apply to the work that you do?
- How well has health research capacity been strengthened over the last five years?

- To what extent do you believe HRCSI has contributed to this?
- What could be improved?
- To what extent do you believe HRCSI has achieved its objectives?
- What do you think about the health research capacity?
 - What works at the international, national, institutional and individual levels?
 - What are some success stories?
 - What doesn't work?
 - What could be improved?

Human Resource Development

- How has HRCSI contributed to the graduate and post-graduate training offered at your institution?
 - What has been positive about HRCSI's support?
 - What could be improved?
 - *For students*
 - *What has been beneficial about the training that you received?*
 - *What other types of training would you like to receive?*
 - *What could be improved?*
- In your institution, what kinds of training are offered that focus on:
 - different research methodologies?
 - grant writing and fundraising?
 - monitoring and evaluation planning?
 - managing research and resources?
 - research ethics?
 - writing and disseminating research findings for different audiences?
 - developing and nurturing of software skills (i.e.: computer literacy)?

Critical Mass of Researchers and Staff (Including Recruitment and Retention)

- Please describe your working environment and facilities within your institution
 - What works well?
 - What isn't working well?
- In what ways is the environment supportive and collegial?
- In what ways is the environment competitive and non-collegial?
- What levels of expertise do the researchers/staff have, and in which disciplines?
- Is there adequate administrative support?
- Are researchers/staff overloaded in your institution?
 - If yes, what is needed in order to improve this?
- Are there adequate training opportunities offered?
- Within your institution, do you think that the salaries are fair?

Leadership and Mentorship

- How is leadership encouraged at your institution?
 - Does HRCSI play any role in this?

- What type of leadership is encouraged?
 - Are students encouraged to take on leadership roles?
- In what ways in mentorship valued and not valued?
 - *For students:*
 - *Do you have a mentor at your institution? If yes, has this made a difference to you in your experiences as a student?*

Infrastructure

- Does your institution have adequate physical space to work out of (offices, laboratories and other spaces)?
 - Has HRCSI contributed (positively or negatively) to this?
- Are there enough resources in place for you to communicate freely with other institutions, global peers, or end users of health research findings?
 - Has HRCSI contributed (positively or negatively) to this?
- Do you have adequate access to peer-reviewed grey literature?
 - Has HRCSI contributed (positively or negatively) to this?

Research Ethics Procedures

- What research ethics procedures are in place in your institution?
 - What works well?
 - What could be improved?

Incentive Systems

- Do you think that you and your colleagues receive adequate recognition for the hard work that you do within your institution?

Demand for Health Research

- In what ways is health research valued and/or not valued within your institution?
 - What do you think influences this?
 - What kinds of research areas and types of research are valued within your organization?

Funding

- In terms of funding, what do you think are the most important elements to consider when aiming to strengthen national health research capacity?
 - What are your thoughts about:
 - continuity of support?
 - length of grants?
 - diversification of funding?
 - the impact of domestic and external funding?
 - What is working well?
 - What could be improved?
- In terms of the funding that HRCSI provides to other institutions and actors, what do you think are the most important elements to consider and prioritize?

- How frequently should the funding be provided?
- How long should the grants be?
- How diverse should the grants be?
- Should funding be domestic or external?

Collaboration and Communication

- Please tell me about the specific ways in which you collaborate and work with HRCSI.
 - What is working?
 - What is not working?
- What has your role been in these collaborations, and what has the role of HRCSI been?
- How engaged have you been in these collaborations?
 - What has facilitated your engagement with these collaborations?
 - What barriers are in place that prevent you from engaging in these collaborations?
- In what ways do you see yourself and your organisation collaborating with HRCSI in the future?

Research Networks

- Please describe the research networks that exist between your institution and other institutions or national organizations?
 - Has HRCSI played a role in facilitating or preventing the development of these networks?
- From your perspective, what role do you think HRCSI plays in the strengthening of national research networks?
 - In strengthening of south-south collaborations?
 - In strengthening of north-south collaborations?
 - In strengthening of north-north collaborations?
- In what ways (if any) do you currently support HRCSI in working towards strengthening international and national research networks?
 - How might you support HRCSI in the future?

Feedback and Evaluation

- What kind of feedback (if any) do you provide to HRCSI in terms of ongoing training, grants, and research opportunities?
 - What information do you think is most and least important to provide?
 - What kind of feedback do you provide within your own institution?
 - What kind of feedback do you provide to other actors?
 - What do you think could be improved in this evaluation feedback?
- What kind of evaluation reports and information do you receive from HRCSI and other actors in the health research system?
 - What information do you think is most and least important for you to have?
 - What is working well and what could be improved in this evaluation feedback loop?

Knowledge Sharing and Information Exchange

- How does HRCSI share information with your institution?
 - How is this is effective?

- How could this be improved?
- How do you share information with HRCSI?
 - How is this is effective?
 - How could this be improved?
- What do you think could be done differently to improve health research knowledge sharing in Malawi?
 - What role could HRCSI could play in this?
 - What role could other actors play in this?
 - What role could your organisation could play in this?

Demographics

Before ending this interview, I would just like to ask you just a few more questions about you.

- What is your area of specialization?
- What geographic location do you currently work in?
- What is your gender?
- What is your age (under 25, 25-35, 36-45, 46-55, 56-65, over 65)?
- What is the highest level of academic qualification you have obtained?

Closing the dialogue

- Are there any other important points about your experiences that we haven't yet discussed?

I would like to thank you again for your time and willingness to participate in this interview.

ii) Interview Guide for National Users of Research

Verbal Consent

The purpose of the evaluation that we are conducting is to monitor and evaluate the progress of Health Research Capacity Strengthening Initiative (HRCSI) in their aims of health research capacity strengthening in Malawi. With your permission, this interview will be digitally (audio) recorded as to not miss any information. Please be assured that the information you provide will be held in strictest confidence at all times. You may choose to end the interview at any time and you have the right not to answer any question or any parts of the interview. All interview data will be anonymised in the final evaluation reports and publications. Do I have your permission to proceed? Do you have any questions before we begin?

Introduction to interview

Thank you for agreeing to participate in this interview today. The goal of this evaluation is to reflect upon HRCSI's work towards creating and maintaining an optimal health research system in Malawi. We hope that you will think of this interview as an opportunity for you to share your perspective, insights, and ideas about how HRCSI is currently functioning, what they are doing well, and what they would need to improve on.

General background

I would like to ask some general information about you. I just want to remind you that this information will remain confidential and that you do not have to answer any questions that you do not want to answer.

- What is the role of your organisation?
 - What role does your organisation play in strengthening national research capacity?
 - How does your organisation decide which health research information to trust and use?
 - How do you think this health research affects the work that your organisation does?
- What specific role do you play in your organisation?
 - Do you have any additional roles?
- How long have you served in this (these) role(s)?
- Can you describe your current relationship/involvement with the HRCSI?

Strengthening Research Capacity

As you know, the main objective of HRCSI is to strengthen the national environment for generation of multi-disciplinary health research capacity and its uptake in policies, interventions, and among individuals.

- What is your interpretation of multi-disciplinary health research capacity?
 - What is your interpretation of multi-disciplinary health research capacity strengthening?
 - How do you think these concepts apply or do not apply to the work that you do?
- How well has health research capacity been strengthened over the last five years?

- To what extent do you believe HRCSI has contributed to this?
- What could be improved?
- To what extent do you believe HRCSI has achieved its objectives?
- What do you think about the health research capacity?
 - What works at the international, national, institutional and individual levels?
 - What are some success stories?
 - What doesn't work?
 - What could be improved?

Demand for Health Research

- In what ways is health research valued and/or not valued by your organization?
 - Does your organisation draw on health research to make decisions and set priorities?
 - What do you think influences this?
 - What kinds of research areas and types of research are valued within your organization?
- In what ways do you think health research contributes to national policy development or programme implementation in Malawi?
 - What facilitates this?
 - What prevents this?
 - What role does HRCSI play in this?
 - What role does your organisation play in this?
- In what ways does HRCSI influence the national demand for health research?
 - How could HRCSI be more effective?
 - What is working?
 - What isn't working?

Funding

- In terms of funding, what do you think are the most important elements to consider when aiming to strengthen national health research capacity?
 - What are your thoughts about:
 - continuity of support?
 - length of grants?
 - diversification of funding?
 - the impact of domestic and external funding?
 - What is working well?
 - What could be improved?
- In terms of the funding that HRCSI provides to other institutions and actors, what do you think are the most important elements to consider and prioritize?
 - How frequently should the funding be provided?
 - How long should the grants be?
 - How diverse should the grants be?
 - Should funding be domestic or external?

Collaboration

- Please tell me about the specific ways in which you collaborate and work with HRCSI.
 - What is working?
 - What is not working?
- What has your role been in these collaborations, and what has the role of HRCSI been?
- How engaged have you been in these collaborations?
 - What has facilitated your engagement with these collaborations?
 - What barriers are in place that prevent you from engaging in these collaborations?
- In what ways do you see yourself and your organisation collaborating with HRCSI in the future?

Feedback and Evaluation

- In terms of the support that you provide to HRCSI, what kind of evaluation reports and information do you ask for from them?
 - How could this evaluation feedback be tailored more practically to you?
 - What is working well and what could be improved in this evaluation feedback loop.
- What kind of feedback do you provide to HRCSI?
 - What kind of feedback do you provide within your own institution?
 - What kind of feedback do you provide to other actors?

Knowledge Sharing and Information Exchange

- How does HRCSI share health research information directly or encourage researchers to share information with your organisation?
 - How could this information be communicated to you in a way that would be more useful?
 - What is effective about the way that you are receiving health research information from HRCSI?
- How do you share information with HRCSI or other researchers?
 - How is this effective?
 - How could this be improved?
- What do you think could be done differently to improve health research knowledge sharing in Malawi?
 - What role could HRCSI could play in this?
 - What role could other actors play in this?
 - What role could your organisation could play in this?

Demographics

Before ending this interview, I would just like to ask you just a few more questions about you.

- What is your area of specialization?
- What geographic location do you currently work in?
- What is your gender?
- What is your age (under 25, 25-35, 36-45, 46-55, 56-65, over 65)?>
- What is the highest level of academic qualification you have obtained?

Closing the dialogue

- Are there any other important points about your experiences that we haven't yet discussed?

I would like to thank you again for your time and willingness to participate in this interview.

iii) Interview Guide for National Governors of Research

Verbal Consent

The purpose of the evaluation that we are conducting is to monitor and evaluate the progress of Health Research Capacity Strengthening Initiative (HRCSI) in their aims of health research capacity strengthening in Malawi. With your permission, this interview will be digitally (audio) recorded as to not miss any information. Please be assured that the information you provide will be held in strictest confidence at all times. You may choose to end the interview at any time and you have the right not to answer any question or any parts of the interview. All interview data will be anonymised in the final evaluation reports and publications. Do I have your permission to proceed? Do you have any questions before we begin?

Introduction to interview

Thank you for agreeing to participate in this interview today. The goal of this evaluation is to reflect upon HRCSI's work towards creating and maintaining an optimal health research system in Malawi. We hope that you will think of this interview as an opportunity for you to share your perspective, insights, and ideas about how HRCSI is currently functioning, what they are doing well, and what they would need to improve on.

General background

I would like to ask some general information about you. I just want to remind you that this information will remain confidential and that you do not have to answer any questions that you do not want to answer.

- What is the role of your organisation?
 - What role does your organisation play in strengthening national research capacity?
- What specific role do you play in your organisation?
 - Do you have any additional roles?
- How long have you served in this (these) role(s)?
- Can you describe your current relationship/involvement with the HRCSI?

Strengthening Research Capacity

As you know, the main objective of HRCSI is to strengthen the national environment for generation of multi-disciplinary health research capacity and its uptake in policies, interventions, and among individuals.

- What is your interpretation of multi-disciplinary health research capacity?
 - What is your interpretation of multi-disciplinary health research capacity strengthening?
 - How do you think these concepts apply or do not apply to the work that you do?
- How well has health research capacity been strengthened over the last five years?
 - To what extent do you believe HRCSI has contributed to this?
 - What could be improved?

- To what extent do you believe HRCSI has achieved its objectives?
- What do you think about the health research capacity?
 - What works at the international, national, institutional and individual levels?
 - What are some success stories?
 - What doesn't work?
 - What could be improved?

Demand for Health Research

- In what ways does your organisation value/not value health research?
 - What and whom do you think influences this?
 - What kinds of research areas and types of research are valued within your organization?
- In what ways does health research contribute to national policy development or programme implementation in Malawi?
 - What facilitates this?
 - What prevents this?
 - What role does HRCSI play in this?
 - What role does your organisation play in this?
- In what ways do you think HRCSI influences the national demand for health research?
 - How could HRCSI be more effective?
 - What is working?
 - What isn't working?

Funding

- In terms of funding, what do you think are the most important elements to consider when aiming to strengthen national health research capacity?
 - What are your thoughts about:
 - continuity of support?
 - length of grants?
 - diversification of funding?
 - the impact of domestic and external funding?
 - What is working well?
 - What could be improved?
- In terms of the funding that HRCSI provides to other institutions and actors, what do you think are the most important elements to consider and prioritize?
 - How frequently should the funding be provided?
 - How long should the grants be?
 - How diverse should the grants be?
 - Should funding be domestic or external?

Coordination and Governance

- How does your organisation come to know about national health research priorities?

- How does your organisation contribute to setting national health research priorities?
 - Who plays a role in shaping these decisions?
 - How do you implement these research priorities?
- In what ways are domestic and external research funding opportunities coordinated?
- How is health research competition managed at the national level?
 - What role does your organisation play in this?
 - What role do you think HRCSI plays (or should play) in this?
- How are incentive systems – such as research awards and recognition – managed at the national level?
 - What role does your organisation play in this?
 - What role do you think HRCSI plays (or should play) in this?

Collaboration

- Please tell me about the specific ways in which you collaborate and work with HRCSI.
 - What is working?
 - What is not working?
- What has your role been in these collaborations, and what has the role of HRCSI been?
- How engaged have you been in these collaborations?
 - What has facilitated your engagement with these collaborations?
 - What barriers are in place that prevent you from engaging in these collaborations?
- In what ways do you see yourself and your organisation collaborating with HRCSI in the future?

Research Networks

- From your perspective, what role do you think HRCSI plays in the strengthening of national research networks?
 - In strengthening of south-south collaborations?
 - In strengthening of north-south collaborations?
 - In strengthening of north-north collaborations?
- In what ways (if any) do you currently support HRCSI in working towards strengthening international and national research networks?
 - How might you support HRCSI in the future?

Feedback and Evaluation

- In terms of the support that you provide to HRCSI, what kind of evaluation reports and information do you ask for from them?
 - How could this evaluation feedback be tailored more practically to you?
 - What is working well and what could be improved in this evaluation feedback loop.
- What kind of feedback do you provide to HRCSI?
 - What kind of feedback do you provide within your own organisation?
 - What kind of feedback do you provide to other actors?

Knowledge Sharing and Information Exchange

- How does HRCSI share health research information with your organisation?
 - How is this effective?
 - How could this be improved?
- How do you share information with HRCSI?
 - How is this effective?
 - How could this be improved?
- What do you think could be done differently to improve health research knowledge sharing in Malawi?
 - What role could HRCSI could play in this?
 - What role could other actors play in this?
 - What role could your organisation could play in this?

Demographics

Before ending this interview, I would just like to ask you just a few more questions about you.

- What is your area of specialization?
- What geographic location do you currently work in?
- What is your gender?
- What is your age (under 25, 25-35, 36-45, 46-55, 56-65, over 65)?>
- What is the highest level of academic qualification you have obtained?

Closing the dialogue

- Are there any other important points about your experiences that we haven't yet discussed?

I would like to thank you again for your time and willingness to participate in this interview.

iv) Interview Guide for International Research Funders

Verbal Consent

The purpose of the evaluation that we are conducting is to monitor and evaluate the progress of Health Research Capacity Strengthening Initiative (HRCSI) in their aims of health research capacity strengthening in Malawi. With your permission, this interview will be digitally (audio) recorded as to not miss any information. Please be assured that the information you provide will be held in strictest confidence at all times. You may choose to end the interview at any time and you have the right not to answer any question or any parts of the interview. All interview data will be anonymised in the final evaluation reports and publications. Do I have your permission to proceed? Do you have any questions before we begin?

Introduction to interview

Thank you for agreeing to participate in this interview today. The goal of this evaluation is to reflect upon HRCSI's work towards creating and maintaining an optimal health research system in Malawi. We hope that you will think of this interview as an opportunity for you to share your perspective, insights, and ideas about how HRCSI is currently functioning, what they are doing well, and what they would need to improve on.

General background

I would like to ask some general information about you. I just want to remind you that this information will remain confidential and that you do not have to answer any questions that you do not want to answer.

- What is the role of your organisation?
 - What role does your organisation play in funding capacity strengthening initiatives?
- What specific role do you play in your organisation?
 - Do you have any additional roles?
- How long have you served in this (these) role(s)?
- Can you describe your current relationship/involvement with the HRCSI?

Strengthening Research Capacity

As you know, the main objective of HRCSI is to strengthen the national environment for generation of multi-disciplinary health research capacity and its uptake in policies, interventions, and among individuals.

- What is your interpretation of multi-disciplinary health research capacity?
 - What is your interpretation of multi-disciplinary health research capacity strengthening?
 - How do you think these concepts apply or do not apply to the work that you do?
- How well has health research capacity been strengthened over the last five years?
 - To what extent do you believe HRCSI has contributed to this?
 - What could be improved?

- To what extent do you believe HRC SI has achieved its objectives?
- What do you think about the health research capacity?
 - What works at the international, national, institutional and individual levels?
 - What are some success stories?
 - What doesn't work?
 - What could be improved?

International Research Networks

- From your perspective, what role do you think HRC SI plays in the strengthening of national research networks?
 - In strengthening of south-south collaborations?
 - In strengthening of north-south collaborations?
 - In strengthening of north-north collaborations?
- In what ways (if any) do you currently support HRC SI in working towards strengthening international and national research networks?
 - How might you support HRC SI in the future?

Funding

- In terms of the funding that you provide to HRC SI, what do you think are the most important elements to consider and prioritize?
 - For example:
 - continuity of support?
 - length of grants?
 - diversification of funding?
 - What is working well?
 - What could be improved?
- In terms of the funding that HRC SI provides to other institutions and actors, what do you think are the most important elements to consider and prioritize?
 - How frequently should the funding be provided?
 - How long should the grants be?
 - How diverse should the grants be?
 - Should funding be domestic or external?

Collaboration

- Tell me about the specific ways in which you work with HRC SI.
 - What is working?
 - What is not working?
- How engaged have you been in interactions with HRC SI?
 - What has facilitated your engagement?
 - What barriers are in place that prevent you from engaging as you would like?

- In what ways do you see yourself and your organisation working with HRCSI in the future?

Knowledge Sharing and Information Exchange

- How does HRCSI share health research information with your organisation?
 - How is this effective?
 - How could this be improved?
- How do you share information with HRCSI?
 - How is this effective?
 - How could this be improved?
- What do you think could be done differently to improve health research knowledge sharing in Malawi?
 - What role could HRCSI could play in this?
 - What role could other actors play in this?
 - What role could your organisation could play in this?

Feedback and Evaluation

- In terms of the financial support that you provide to HRCSI, what kind of evaluation reports and information do you ask them to provide you with?
 - What information is most and least important for you to collect?
 - What is working well and what could be improved in this evaluation feedback loop?
- What kind of feedback do you provide to HRCSI?

Demographics

Before ending this interview, I would just like to ask you just a few more questions about you.

- What is your area of specialization?
- What geographic location do you currently work in?
- What is your gender?
- What is your age (under 25, 25-35, 36-45, 46-55, 56-65, over 65)?
- What is the highest level of academic qualification you have obtained?

Closing the dialogue

- Are there any other important points about your experiences that we haven't yet discussed?

I would like to thank you again for your time and willingness to participate in this interview.

v) Interview Guide for Research Consultants

Verbal Consent

The purpose of the evaluation that we are conducting is to monitor and evaluate the progress of Health Research Capacity Strengthening Initiative (HRCSI) in their aims of health research capacity strengthening in Malawi. With your permission, this interview will be digitally (audio) recorded as to not miss any information. Please be assured that the information you provide will be held in strictest confidence at all times. You may choose to end the interview at any time and you have the right not to answer any question or any parts of the interview. All interview data will be anonymised in the final evaluation reports and publications. Do I have your permission to proceed? Do you have any questions before we begin?

Introduction to interview

Thank you for agreeing to participate in this interview today. The goal of this evaluation is to reflect upon HRCSI's work towards creating and maintaining an optimal health research system in Malawi. We hope that you will think of this interview as an opportunity for you to share your perspective, insights, and ideas about how HRCSI is currently functioning, what they are doing well, and what they would need to improve on.

General background

I would like to ask some general information about you. I just want to remind you that this information will remain confidential and that you do not have to answer any questions that you do not want to answer.

- What is the role of your organisation?
 - What role does your organisation play in strengthening national research capacity?
- What specific role do you play in your organisation?
 - Do you have any additional roles?
- How long have you served in this (these) role(s)?
- Can you describe your current relationship/involvement with the HRCSI?

Strengthening Research Capacity

As you know, the main objective of HRCSI is to strengthen the national environment for generation of multi-disciplinary health research capacity and its uptake in policies, interventions, and among individuals.

- What is your interpretation of multi-disciplinary health research capacity?
 - What is your interpretation of multi-disciplinary health research capacity strengthening?
 - How do you think these concepts apply or do not apply to the work that you do?
- How well has health research capacity been strengthened over the last five years?
 - To what extent do you believe HRCSI has contributed to this?
 - What could be improved?

- To what extent do you believe HRCSI has achieved its objectives?
- What do you think about the health research capacity?
 - What works at the international, national, institutional and individual levels?
 - What are some success stories?
 - What doesn't work?
 - What could be improved?

Demand for Health Research

- In what ways does your organisation value/not value health research?
 - What and whom do you think influences this?
 - What kinds of research areas and types of research are valued within your organization?
- In what ways do you think HRCSI influences the national demand for health research?
 - How could HRCSI be more effective?
 - What is working?
 - What isn't working?

Funding

- In terms of funding, what do you think are the most important elements to consider when aiming to strengthen national health research capacity?
 - What are your thoughts about:
 - continuity of support?
 - length of grants?
 - diversification of funding?
 - the impact of domestic and external funding?
 - What is working well?
 - What could be improved?
- In terms of the funding that HRCSI provides to other institutions and actors, what do you think are the most important elements to consider and prioritize?
 - How frequently should the funding be provided?
 - How long should the grants be?
 - How diverse should the grants be?
 - Should funding be domestic or external?

Coordination and Governance

- How does your organisation come to know about national health research priorities?
 - Who plays a role in shaping these decisions?
 - How do you respond to these research priorities?
- In what ways are domestic and external research funding opportunities coordinated?
- How is health research competition managed at the national level?
 - What role does your organisation play in this?
 - What role do you think HRCSI plays (or should play) in this?
- How are incentive systems managed at the national level?

- What role does your organisation play in this?
- What role do you think HRCSI plays (or should play) in this?

Collaboration

- Please tell me about the specific ways in which you collaborate and work with HRCSI.
 - What is working?
 - What is not working?
- What has your role been in these collaborations, and what has the role of HRCSI been?
- How engaged have you been in these collaborations?
 - What has facilitated your engagement with these collaborations?
 - What barriers are in place that prevent you from engaging in these collaborations?
- In what ways do you see yourself and your organisation collaborating with HRCSI in the future?

Research Networks

- From your perspective, what role do you think HRCSI plays in the strengthening of national research networks?
 - In strengthening of south-south collaborations?
 - In strengthening of north-south collaborations?
 - In strengthening of north-north collaborations?
- In what ways (if any) do you currently support HRCSI in working towards strengthening international and national research networks?
 - How might you support HRCSI in the future?

Feedback and Evaluation

- In terms of the support that you provide to HRCSI, what kind of evaluation reports and information do you ask for from them?
 - What information is most and least important to collect?
 - What is working well and what could be improved in this evaluation feedback loop?
- What kind of feedback do you provide to HRCSI?
 - What kind of feedback do you provide within your own organisation?
 - What kind of feedback do you provide to other actors?

Knowledge Sharing and Information Exchange

- How does HRCSI share health research information with your organisation?
 - How is this effective?
 - How could this be improved?
- How do you share information with HRCSI?
 - How is this effective?
 - How could this be improved?
- What do you think could be done differently to improve health research knowledge sharing in Malawi?

- What role could HRCSI could play in this?
- What role could other actors play in this?
- What role could your organisation could play in this?

Demographics

Before ending this interview, I would just like to ask you just a few more questions about you.

- What is your area of specialization?
- What geographic location do you currently work in?
- What is your gender?
- What is your age (under 25, 25-35, 36-45, 46-55, 56-65, over 65)?
- What is the highest level of academic qualification you have obtained?

Closing the dialogue

- Are there any other important points about your experiences that we haven't yet discussed?

I would like to thank you again for your time and willingness to participate in this interview.

Appendix 4

Recommendations arising from this evaluation

1	Such large projects should consider separating the start-up phase (0 to 12-18 months) from the 'production' phase (12-18 to 42-48 months), making funding of the second phase contingent on demonstrating that effective systems and processes have been set up. This should be preceded by an in-depth review of the systems needed to absorb, disburse and account for the funds and a plan to fill any gaps. Ideally spreading the funding over a longer time period would provide more opportunity to set up and test systems providing this could be accommodated within funders budget cycles. Taking away the pressure to start the grant making process in the first phase would enable all agencies involved to satisfy themselves that the systems were fit for purpose before facing time pressures to deliver outputs
2	The relationship between the funders themselves and between funders and stakeholders in Malawi, including their roles and responsibilities and how they will share learning, needs to be clear. This particularly relates to potential missed opportunities for ongoing learning in HRCSI (e.g. by IDRC), for building national-level capacity within Malawi for financial and management oversight and auditing (e.g. by enhancing the capacity of relevant organisations in Malawi to support HRCSI) and for sharing funders experiences and lessons from HRCSI, its sister project in Kenya and other similar projects
3	The three principles of designing capacity strengthening programmes - starting small and expanding gradually, finding and building on what exists already, and establishing trusting and well-defined partnerships – should underpin any future capacity strengthening projects
4	Regular monitoring of compatibility of research with the national research agenda should be undertaken in order to identify areas that are neglected and may need specially focused grants. The research agenda should not be proscriptive and care needs to be taken not to stifle academic freedom and innovation
5	For research to be generated at district level, more support will be needed to mentor individuals to identify policy-relevant topics, prepare grant applications and conduct research. This will need to be underpinned by a research strategy and ear-marked research budget
6	To be able to track enhanced institutional capacity, institutions should be encouraged to develop strategic plans with targets and indicators and to document baseline in order to be able to then demonstrate progress
7	Graduates should be tracked to collect evidence about their progress and outputs; they should have appropriate career development opportunities within Malawi

8	HRCSI may consider focusing its efforts on the type of research grants that are not well covered by other funders
9	HRCSI may consider supporting extension of the CoM Research Support Office model to other Malawian institutions
10	Consider providing support at the pre-application stage to applicants who have a promising concept but are not able to access research expertise in their own institutions to help them develop a full proposal
11	Consideration should be given to reorganising COMREC so that it becomes a national cross-university ethics committee and to setting up ethics committees in each institution for review of student projects. Greater transparency, predictability and justification is needed concerning the amount and use of charges levied on researchers' projects. Considerations should include the possibility of charging a fixed scale of fees for ethics submissions (to cover the costs of the ethics committee) and of transferring responsibility for negotiating other institutional project charges away from the ethics committees to another agency
12	Members of both ethics committees should rotate on a regular basis; the changes in the national committee should be well publicised, feedback from researchers who submit applications for ethics approval should be solicited and used to enhance the functioning of the committees
13	A clear mechanism for ensuring that the tools, guidelines, processes and expertise that have been developed around the grant-making process in Malawi should be identified and implemented
14	A strong and equitable advocacy campaign is needed to ensure that all institutions that could potentially benefit from the HRCSI project are aware of the project and what it will support. This should include extending the time for newspaper adverts about award opportunities and conducting outreach sensitization visits for each new call focusing particularly on smaller institutions and junior researchers
15	Communication between HRCSI and applicants needs to be improved and the application process and selection and eligibility criteria should be clarified and more transparent
16	The current multi-layered, multi-agency approval process for agreeing awards and disbursing funds needs to be made less cumbersome. Transfer of money to recipients needs to be expedited by streamlining the approval process and giving more financial autonomy to HRCSI
17	A panel should be established to provide guidance about remuneration for researchers which takes into account the need to incentivise them without significantly disrupting pay differentials and to prevent the burgeoning private research companies from undermining the research activities of academic institutions

18	Media personnel need to be given capacity and opportunity to digest the research findings into everyday language of the people
19	There is an urgent need for a senior group (possibly the 'elders') to devise a 10 year vision for HRCSI and to decide whether to pursue the way forward proposed by most of the interviewees (i.e. embed it in NCST). Discussions will need to identify funding and a process to support the group's decision. The discussions need to include options about whether to retain only the part of HRCSI's activities relating to grant awarding and a scoping study of other models from around the region may be helpful to inform these discussions. Developing the human resources and systems within NCST to be able to take on HRCSI functions, informed by an in-depth analysis, will be a critical first step
20	The impact and achievement of HRCSI needs to be measured when it has been functioning effectively for > 5 years (ie in 2016) taking account not only of direct effects (e.g. publications, grants, institutional systems) but also of any indirect benefits
21	HRCSI's vision, funding schemes and successes should be publicized much more widely both within Malawi and beyond, possibly by making better use of Public Relations officers and Health Educations sections in the MoH
22	Need to diversify funding support for HRCSI to reduce the risk of over-reliance on individuals funders and to provide flexibility

Appendix 5

Publications and presentations from HRCSI awards

LIST OF PUBLICATIONS FROM HRCSI GRANTEES

1. Misheck Nkhata

One of the best four of the 2010/2011 academic year; placed on the Amsterdam Master in Medical Anthropology website (<http://amma.socsci.uva.nl/theses.html>).

2. Fanuel Lampiao

An article arising from an HRCSI funded research grant project titled *The anti fertility effects of **Acacia nilotica** in male Wistar rats* by Associate Professor Lampiao was published in the Journal of Reproduction and Infertility, Vol. 14, No 1, January – March 2013.

Dr Fanuel Lampiao MD, PhD, finished the first phase of his research project in the quarter Jan-March 2011. He published a research paper entitled *The in vitro anti-fertility effects of Acacia nilotica on human spermatozoa function* with Spatula DD - A Peer Reviewed Journal on Complementary Medicine and Drug Discovery (*Spatula DD. 2011; 1(2):59-66*).

3. Mike Chipeta

Mike Chipeta an HRCSI training fellowship alumnus, who is now working for Malawi Liver Pool Wellcome Trust, has published a research paper based on his thesis with an international journal PLOS Neglected Tropical Diseases, 2013, Volume 7, issue 3.

4. Albert Dube

Former HRCSI training fellowship awardee, Albert Dube, published his MSc dissertation research project paper with the international journal PLOS ONE as the first author. The paper is titled *Fertility intentions of monogamous couples in Northern Malawi in the context of HIV testing and onset of ART treatment*.

5. Elizabeth Kampira

An HRCSI training fellowship PhD awardee, Elizabeth Kampira, published an expert review article, titled *Pharmacogenetics Research Developments in Africa: A Focus on Malawi*. It was published in the Journal of Current Pharmacogenomics and Personalized Medicine, 2012 volume 10, number 1.

6. A small grant recipient, Rodwell Gundo MSc, BScN, RNM who works for the Kamuzu Central Hospital Intensive Care Unit had his paper accepted for publication upon being supported to participate at the 6th world congress on paediatric critical care held in Sydney, Australia from 13-17th March, 2011. The abstract which was accepted for presentation has been published in the supplement of the Journal of Paediatric Critical Care Medicine. 2011 vol. 12, No. 3 (suppl), pp. A92.

DISSEMINATION AT VARIOUS RESEARCH CONFERENCES BY HRCSI GRANTEES

<i>HRCSI grantees and titles of their research papers presented at national and international research conferences. Grantee</i>	Title of research paper	Research Conference <i>where presentations were done</i>
Albert Dube <i>(former MSc training fellowship)</i>	Associations of HIV and fertility intentions among married couples in Karonga, Northern Malawi	International Congregation of Demographers and Researchers on Population and Development, organised by Population Association of America, San Francisco, from 1-6 May 2012.
Albert Dube	Associations of HIV and fertility intentions among married couples in Karonga, Northern Malawi	<i>National HIV/AIDS research and best practices dissemination conference, November 2011</i>
Blessings Kaunda <i>(current MSc training fellowship)</i>	"Couples' voices on Medicalised Male Circumcision (MMC) Polemics and Masculinities in Southern Malawi-An anthropological Study" Poster Exhibition by: B. Kaunda, D. Mathanga, A. Nkhata, R. Pool (2012)	XIX International AIDS Conference (AIDS 2012), Washington, D.C., 22-27 July 2012
Michael Chipeta	Analysis of schistosomiasis haematobium infection prevalence and intensity in Chikhwawa, Malawi: Application of two Part Model	National Research Dissemination Conference held from 16th-18th May 2012 at Cross Roads Hotel in Lilongwe
James Chirombo	Geostatistical modelling of household malaria in Malawi	National Research Dissemination Conference May 2012
G Hamuza	Non-parametric regression and spatial variation of malaria incidences: linking disease risk to climate variability in Malawi	National Research Dissemination Conference, May 2012
Clement Banda	Assessment of the relationship between mobile phone technology acceptance and usability in the delivery of maternal health services among health surveillance assistant in the rural parts of Malawi	National Research Dissemination Conference, May 2012
F Iampiao	Anti-fertility effects of acacia nilotica in male rats.	National research dissemination conference, May 2012
Misheck Nkhata	Uncertainties of Sex: Adolescent boys' meanings and experiences of the first	National HIV/AIDS research and best practices dissemination

	sexual intercourse in Chilumba.	conference held in November 2011
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Grantee	Dissemination conference
James Chirombo	16th CoM Research Conference held on 27 th October 2012
Owen Musopole	16th CoM Research Conference on 27 th October 2012
Gracious Hamuza	16th CoM Research Conference on 27 th October 2012
Pocha Kamudumuli	Wits Faculty of Health Sciences Research Day and Post Graduate Expo held on 19 th September 2012.
Andrew Mtewa	16th CoM Research Conference on 27 th October 2012

- The Programme also supported a research grant recipient, Dr F Lampiao, to present findings from his research project at the *39th Conference of the Physiology Society of Southern Africa* held in August 2011.
- A PhD training fellowship awardee, Elizabeth Kampira made a poster presentation at the 2nd Antiviral Congress Conference held in Cambridge Massachusset USA, from 11th to 13th November 2012. The presentation was titled *Investigating The Role Different mtDNA Variants Play on Peripheral Neuropathy Among Malawians on Stavudine Containing Antiretroviral Therapy*. The researcher reports a significant association between ‘L02a’ with increased risk of peripheral neuropathy and ‘L2a’ with reduced risk for ‘PN’.
- The Programme awarded small grants to 2 postgraduate students who were pursuing MSc degrees at Kamuzu College of Nursing. The students submitted research abstracts to an international conference in South Africa, that is, the *International Confederation of Midwives 29th Triennial Congress, 19th to 23rd June 2011* held in Durban, South Africa. One of the awardees conducted a study aiming at *Assessing quality of focused antenatal Care provided to pregnant women at Bwaila Antenatal Clinic* and the other investigated *Factors influencing the utilisation of postnatal care, at one week and 6 weeks at Zomba Central Hospital*.
- Dr Zondiwe Mwanza a small grant recipient who made an oral presentation on paediatric kidney disease had the opportunity to have his paper published in the Cardiovascular Journal of Africa.

**July 2013 HRCSI Research Dissemination Conference Presentations
Presentations and Publications by HRCSI Grantees**

Oral Presentations

The Effects of Acute Administration of Chinese Aphrodisiacs Sold in Blantyre on Sperm Characteristics and Fertility Profile in Guinea Pigs

Fanuel Lampiao, PhD Department of Basic Medical Sciences, Division of Physiology, College of Medicine, University of Malawi, P/Bag 360, Chichiri, Blantyre 3.

Malaria specific CD4 T cell Immunity in HIV-exposed Children on Cotrimoxazole Prophylaxis Herbert Longwe¹, Kamija Phiri², Francis Munthali³, Rhita Mankhanamba³, Kondwani Jambo⁴, Wilson Mandala^{1,2}
Department of Basic Medical Sciences, College of Medicine, University of Malawi.² Department of Community Health, College of Medicine, University of Malawi.³ Department of Pathology, College of Medicine, University of Malawi.⁴ Malawi-Liverpool-Wellcome Trust Clinical Research Programme

Incomplete immune reconstitution in the lung of HIV-infected Malawian adults following antiretroviral therapy

Kondwani C Jambo^{1,3}; Dominic H Banda¹; Louise Afran¹; Anstead Kankwatira¹; Theresa Allain²; Stephen B Gordon³; Robert S Heyderman^{1,3}; David G Russell⁴; Henry C Mwandumba^{1,3}, ¹Malawi-Liverpool-Wellcome Trust Clinical Research Programme, University of Malawi College of Medicine, Blantyre, Malawi; ²Department of Medicine, College of Medicine, Blantyre, Malawi; ³Department of Clinical Sciences, Liverpool School of Tropical Medicine, Liverpool, UK; ⁴Department of Microbiology and Immunology, College of Veterinary Medicine, Cornell University, Ithaca, New York, USA.

Health Research Capacity Strengthening Initiative Alumni Association (HRCSIAA): *Promoting Health Research for a Healthy nation*

Luckson Tembo, HRCSI Alumni Vice Chair, College of Medicine

Assessment of Knowledge on Diet and Lifestyle Management and Among Diabetic Patients in Northern Region of Malawi

¹Master R.O. Chisale, ²Dr Maono Ngwira, ^{2,3}Joseph Wu and ³Martha Chipeta, ¹ Mzuzu Central Hospital, ² Mzuzu University, ³ Luke International Norway

Analysis of *Schistosomiasis haematobium* Infection Prevalence and Intensity in Chikhwawa, Malawi: An Application of a Two Part Model

Michael G. Chipeta^{1*}, Bagrey Ngwira², Lawrence N. Kazembe³, ¹Malawi Liverpool-Wellcome Trust Clinical Research Programme, Blantyre, Malawi, ²Community Health Dept., University of Malawi, College of Medicine, Blantyre, Malawi, ³Statistics Department, University of Namibia, Windhoek, Namibia

Partnership Dynamics and Care-seeking Trajectories among Couples after HIV Self-testing in Blantyre

*Moses Kumwenda^{1,2}, Alister Munthali³, Geoff Chipungu¹, Rodrick Sambakunsi², Mackwellings Phiri¹, Daniel Mwale¹, Tore Gutteburg⁴, Liz Corbett⁵, Nicola Desmond⁶.

¹College of Medicine – University of Malawi, ² Malawi Liverpool Wellcome Trust, ³ Chancellor College – University of Malawi, ⁴University of Tromsø, ⁵London School of Hygiene and Tropical Medicine, ⁶ Liverpool School of Tropical Medicine.

Malaria Rebound after Cotrimoxazole Prophylaxis in HIV exposed children Nyanyiwe Mbeye^{1,3,6}, Mary-Ann Davies², Kamija Phiri¹, Feiko ter Kuile³ Matthias Egger^{2,4}, Gilles Wandeler^{2,5}

¹College of Medicine, University of Malawi, Blantyre, Malawi, ²School of Public Health and Family Medicine, University of Cape Town, South Africa, ³Liverpool School of Tropical Medicine, University of Liverpool, UK, ⁴Institute of Social & Preventive Medicine (ISPM), University of Bern, Switzerland, ⁵ Department of Infectious Diseases, University Hospital Bern, Switzerland, ⁶ Netherlands Institute for Health Sciences (NIHES), Erasmus Universiteit Rotterdam, The Netherlands.

Introduction and Evaluation of the Xpert® MTB/RIF assay in Lilongwe, Malawi

UNC Project, Lilongwe, Malawi Tarsizio Chikaonda^{1, 2}, Robert Krysiak², Wendy Stevens¹, Lesley Scott¹, Irving Hoffman², Nelson Nguluwe², Isaac Thengolose², James Mpunga³, Mina Hosseinipour²

¹University of the Witwatersrand, ²UNC Project, Lilongwe, Malawi, ³Malawi National TB Programme

Characterisation of anti-RNP autoantibodies

¹Victor Ndhlovu, ¹University of Malawi, College of Medicine.

Average weight gain and its relationship to dietary diversity among pregnant women in Lilongwe rural communities: *The case of women attending antenatal clinic at Mlale Hospital*

Haswel Mulenga¹ and Numeri C. Geresomo¹, Bunda College of Agriculture, P.O. Box 219, Lilongwe

Poster Presentations

Mitochondria haplogroups play a role in stavudine associated lipodystrophy: Expanding the Scope of Pharmacogenomics Applications in Africa

Elizabeth Kampira^{*†}, Johnstone Kumwenda[‡], Joep J van Oosterhout^{††}, Collet Dandara^{*}

^{*}Division of Human Genetics, Faculty of Health Sciences, University of Cape Town, Observatory 7925, Cape Town, SOUTH AFRICA, [‡]Department of Medicine, College of Medicine, University of Malawi, Private Bag 360, Blantyre 3, MALAWI; Tel: +265 1 871 911 , ^{††}Malawi-Liverpool Wellcome Trust Clinical Research Programme, College of Medicine, P.O Box 30096, Blantyre 3, MALAWI

Age-related changes in cortical bone microstructure and how sex, ethnicity and nutrition affect estimation of age at death.

¹Lackson Tembo, ²Dr. Paul Felts, ¹University of Malawi, ²University of Dundee

Factors associated with antiretroviral resistance in human immunodeficiency virus patients on antiretroviral therapy in South Africa

Dickman P.Gareta, BSc^{1, 3}, Christopher C.Hoffman, PhD², Edmore Marinda, PhD^{3, 1} Health Research Capacity Strengthening Initiative (HRSCI), Lilongwe, MALAWI, ² Aurum Institute for Health Research, Johannesburg, SOUTH AFRICA , ³ Witwatersrand University, School of Public Health , Johannesburg, SOUTH AFRICA

The effect of HIV infection and antiretroviral therapy on the proportion of smear positive or cavitary pulmonary tuberculosis in northern Malawi

L. Munthali¹, P. Khan^{1,2}, N.J. Mwaungulu¹, F. Chilongo¹, S. Floyd², M. Kayange³, J.R. Glynn², N. French⁴, A.C. Crampin^{1,2}, ¹Karonga Prevention Study, Chilumba, Malawi, ²London School of Hygiene and Tropical Medicine, London, UK, ³Karonga District Hospital, Ministry of Health, Malawi
⁴Institute of Infection & Global health, University of Liverpool, UK

Characteristics of Semen Parameters of Malawian Men from Couples Seeking Assisted Reproduction

Anna Kutengule BSc¹, Fanuel Lampiao PhD^{1,1} Department of Basic Medical Sciences, Division of Physiology, College of Medicine, University of Malawi, P/Bag 360, Chichiri, Blantyre 3.

Duration of Untreated Psychosis (DUP) and Clinical Outcome: One and half Years after First- Episode Psychosis

Harris K Chilale¹, Richard Banda¹ and Japhet Muyawa^{1,1} Saint John of God Community Services P.O. Box 744 Mzuzu Malawi; Atipatsa C Kaminga, Mzuzu University, P/B 201, Mzuzu 2

Effectiveness of multisystem non-pharmacological management of delirium in elderly inpatients Systematic Review

Lowani Andy Nyirenda ^{1,2} ¹ Cardiff University, ² College of Medicine

The Impact of HIV/AIDS on Fertility in Malawi (MPhil. Thesis)

Emmanuel Souza¹ and Associate Prof. T. Moultrie² , ¹University Of Malawi, ²Center for Actuarial Research, University of Cape Town

Fertility Intentions and Use of Contraception among Monogamous Couples in Northern Malawi in the Context of HIV Testing: A Cross-Sectional Analysis

^{1*}Albert L.N. Dube, ²Angela Baschieri ², John Cleland, ² Sian Floyd ^{1,2} Anna Molesworth ^{1,2} Fiona Parrott ^{1,2} Neil French, ² Judith R. Glynn, ¹ Karonga Prevention Study, P.O. Box 46, Chilumba, Malawi, ² London School of Hygiene and Tropical Medicine, Keppel Street, WC1E 7 HT

Medicalised Male Circumcision (MMC) debates and Masculinities in Southern Malawi-An anthropological Study.

Blessings N. Kaunda-Khangamwa¹, Don.P Mathanga¹, Amon Nkhata², Robert Pool^{3,1} College of Medicine, Malaria Alert Centre-Communicable Disease Action Centre, Malawi, ²HIV Unit, Ministry of Health, Malawi, ³University of Amsterdam, Center for Global Health and Inequality

Knowledge and Related Risk Behaviours Predisposing Secondary School Students to HIV/AIDS Infection in Lilongwe Rural

Louis Zyambo¹ and Lucky Mhango^{1,1} Mzuzu University

The Impact of HIV and AIDS on Social Capital in Rural Malawi: a case of Sta Sawali in Balaka District

Mathias Mbendela^{1,1} Centre for Social Research-University of Malawi, HRCSI Intern

Exploring Maternal and Child Health for Mulanje and Thyolo Relocated Groups in Machinga

Wezzie Stephanie Lora¹, ¹University of Durham

Strategies for male involvement in the prevention of mother to child transmission of HIV services in Blantyre, Malawi

L.A. Nyondo¹, A. Muula¹ and A. Chimwaza², ¹Department of Community Health, College of Medicine University of Malawi, ²Kamuzu College of Nursing, University of Malawi

Demand Side and Provider Cost at the Maternity Waiting Home at Mchinji District Hospital, Malawi

O.M. Musopole¹, ¹Northern Zone Health Support Office, Ministry of Health, Mzuzu.

The effect of user-fee exemption on the utilisation of maternal health care at mission health care facilities in Malawi

¹Gerald Manthulu, PhD student, ¹Health Economics Research Unit, University of Aberdeen, Foresterhill, Aberdeen, AB25 2ZD

Factors Influencing Demand for Medical Check Up Among Staff of AMREF¹ and KMTC² in Nairobi, Kenya

¹Milward Tobias, ¹Africa Medical and Research Foundation, Kenya Medical Training College

Community Knowledge and Perceptions of Tuberculosis: How do they affect people's intentions to go for early diagnosis?

Simon Sikwese, Email: ssikwese@pakachere.org

A Review of Some Water and Sanitation Issues in Communities within Zomba Central Urban Area.

¹Norah Machinjiri, ¹Chancellor College

Factors Affecting Accessibility and Utilization of Ministry of Health Policy Information and the Potentiality of Web Based Portal System

Billy Wilson Nyambalo, Ministry of Health, Research Unit, Lilongwe

Assessment of the Relationship between Mobile Phone Technology Acceptance and Usability in the delivery of healthcare services among Health Surveillance Assistants in the rural parts of Malawi

Clement Khalika Banda and Harry Gombachika, University of Malawi

Molecular typing of Mycobacterium tuberculosis strains in Johannesburg, South Africa.

Pocha Samuel Kamudumuli¹, Natalie Beylis^{1,2}, Leandra Blann^{1,3}, ¹Department of Clinical Microbiology and Infectious Diseases, University of the Witwatersrand, Johannesburg, South Africa

² National Health Laboratory Services (NHLS), Mycobacteriology Referral Laboratory, Johannesburg, South Africa, ³ National Health Laboratory Services (NHLS), Infection control Services Laboratory, Johannesburg, South Africa

¹ Africa Medical and Research Foundation

² Kenya Medical Training College

Multiple Carriage of diverse pneumococcal serotypes provides the potential for vaccine escape in Malawian children

Kamng'ona, A^{1,2a,3}, Bar-Zeev, N, Gould, K⁴, Chaguza, C¹, Msefula, C^{2b}, Cornick, J^{1,3}, Kulohoma, B^{1,3}, Gray, K^{2,3}, Bentley, S⁵, French, N^{1,3}, Hinds, J⁴, Heyderman, RS¹, Everett, D^{1,3}, ¹Malawi Liverpool Wellcome Trust Clinical Research Programme, ²University of Malawi, College of Medicine, ^aBiochemistry and ^bMicrobiology Departments, Blantyre, Malawi, ³University of Liverpool, Liverpool, ⁴St George's, University of London, London, UK, ⁵Pathogen Sequencing Unit, Wellcome Trust Sanger Institute, Cambridge, UK

Sequential acquisition of T-cell and antibody immunity to non-typhoidal *Salmonella* in Malawian Children

Tonney S. Nyirenda¹, James J. Gilchrist², Nick Feasey¹, Sarah Glennie¹, Naor Bar-Zeev¹, Melita A. Gordon³, Calman A. MacLennan⁴, Wilson L. Mandala⁵, and Robert S. Heyderman¹ ¹Malawi Liverpool Wellcome Trust Clinical Research Programme, University of Malawi College of Medicine, Malawi, ²Department of Paediatrics, University of Oxford, United Kingdom, ³Department of Gastroenterology, University of Liverpool, United Kingdom, ⁴Novartis Vaccines Institute for Global Health, Italy, ⁵Biochemistry Section, Basic Medical Sciences Department, University of Malawi College of Medicine, Malawi

Differentiation Potential of Adipose Derived Stem Cells (Adscs) When Co-Cultured with Smooth Muscle Cells (Smcs - Skut-1) and the Role of Low Intensity Laser Irradiation (Lili)

¹BD Mvula and ¹Prof H Abrahamse, ¹Laser Research Centre, Faculty of Health Sciences, University of Johannesburg, 2028 Doornfontein, South Africa

Antioxidant Activities in Extracts of Indigenous Vegetables from Kenya and Malawi.

Wakisa Lenard Kipandula,^{1,2} Benson Mwanza², Edward Nguu² and Dorington Ogoyi^{3,1} ¹Department of Biochemistry/Molecular biology, Kamuzu Central Lab, Kamuzu Central Hospital, P.O. Box 149, Lilongwe, Malawi. Email: wakisakipandula@gmail.com, ²Department of Biochemistry, School of Medicine, University of Nairobi, P.O. Box 30197, 00100, Nairobi, Kenya., ³Department of Biochemistry and Biotechnology, Technical University of Kenya, P.O. Box 52482, 00200, Nairobi, Kenya.

Mathematical Model for the Control of Malaria in Malawi

Gracious Aristotle HAMUZA, Ministry of Industry and Trade, P. O. Box 30366, Lilongwe 3

Zero adjusted models with applications to analysing helminths count data

Michael G. Chipeta^{1,*}, Bagrey M. Ngwira², Christopher Simoonga³, Lawrence N. Kazembe⁴, ¹Malawi Liverpool - Wellcome Trust Clinical Research Programme, P O Box 30096, Blantyre, Malawi, ²Community Health Dept., University of Malawi, College of Medicine, P/Bag 360, Blantyre, Malawi, ³Ministry of Health, P O Box 30205, Lusaka, Zambia, ⁴Department of Statistics and Population Studies, University of Namibia, Windhoek, Namibia

Analysis of Zero Altered and Inflated Data: Application to Human Helminths

Michael Give Chipeta, ¹Malawi Liverpool - Wellcome Trust Clinical Research Programme, P O Box 30096, Blantyre, Malawi

Post-Marketing Surveillance of Active Pharmaceutical Ingredients in Antimalarial Drugs Used in Malawi

Ibrahim Chikowe¹, ¹University of Ghana

Monitoring changes in chemical compositions of some herbal medicines under storage conditions used by some traditional healers in Zomba, Malawi.

¹ Andrew G. K. Mtewa*, ¹Timothy T. Biswick, ¹Jonas F. Mwatseteza, ¹University of Malawi, Chancellor College, Department of Chemistry. P.O.Box 280, Zomba, Malawi.

Models for Multivariate Longitudinal Data with informative drop-out with application to HIV disease dynamics

Artz G Luwanda¹ and Henry G Mwambi¹, ¹School of Mathematics, Statistics and Computer Science, University of KwaZulu-Natal (PMB Campus), Private Bag X01, Scottsville 3201, Pietermaritzburg, SOUTH AFRICA

Equity of Access to Essential Health Package in Malawi: A perspective on Uptake of Maternal Healthcare

I. Kazanga¹, A. Munthali², and H. Mannan³, ¹College of Medicine, ²Center for Social Research, University of Malawi, ³Trinity College Dublin, Ireland. Email: ikazanga@medcol.mw. Phone: 0999626889

The determinants of and changes in socioeconomic inequality in infant mortality in Malawi

¹Dominic Albert Nkhoma, ¹Health Economics Research Unit, University of Aberdeen, Scotland, AB25 2ZD

Normalisation of Maternal Complications: The Case of Mang'nja Tribe in Malawi

Collins O.F. Zamawe¹, ¹Parent and Child Health Initiative (PACHI) Research Centre

The Persistence of Cholera in Malawi

Juliana Mwangairo¹ and Ndaru Kaluwa¹, ¹Community Health Sciences Unit, Lilongwe, HRCIS Interns

Modelling Covariates of Infant and Child Mortality in Malawi

Clara Iemani,

Evaluating the Usability of District Health Information Software (DHIS2) in Malawi.

¹Annie Tionge Kaonga, ¹University of Malawi

Appendix 6

Examples of some relevant publications by evaluation team

Bates I. Akoto AY, Ansong D, Karikari P, Bedu-Addo G, Critchley J, Agbenyega T, Nsiah-Asare A. Evaluating Health Research Capacity Building: An Evidence-Based Tool *PLoS Medicine / Public Library of Science*. 3(8):e299, 2006

Bates I, Ansong D, Bedu-Addo G, Agbenyega T, Akoto AY, Nsiah-Asare A, Karikari P. Evaluation of a learner-designed course for teaching health research skills in Ghana *BMC Medical Education* 2007, 7:18

Bates I, Taegtmeier M, Squire SB, Ansong D, Nhlema-Simwaka B, Baba A, Theobald S. Indicators of sustainable capacity building for health research: analysis of four African case studies. *Health Research Policy and Systems* 2011, 9(1), 14 (doi:10.1186/1478-4505-9-14)

Bates I, Phillips R, Martin-Pepurah R, Kibiki G, Gaye O, Phiri K, Tagbor H, Purnell S. Assessing and strengthening African universities' capacity for doctoral programmes. *PLOS Medicine* 2011 8(9): e1001068. doi:10.1371/journal.pmed.1001068

Cole DC, Crissman C, Orozco AF. Canada's International Development Research Centre's Eco-Health projects with Latin Americans: Origins, development and challenges. *Canadian Journal of Public Health* (Nov-Dec) 2006; 97(6):18-14

Sherwood S, **Cole DC,** Crissman C. Cultural encounters: learning from cross-disciplinary science and development practice over ecosystem health. *Development in Practice*, 2007 (April); 17 (2):179-195

Bondy SJ, Johnson I, **Cole DC,** Bercovitz K. Identifying core competencies for public health epidemiologists. *Can J Public Health* 2008; 99(4): 246-251

Orozco F, **Cole DC.** Development of transdisciplinarity among students placed with a sustainability for health research project. *EcoHealth* 2008; 5(4): 491-503

Masuda J, Poland B, Yupanski T, **Cole DC.** Environmental health equity in Canada: mapping the landscape of research. *Canadian Geographer* 2008;52, no 4:427–450