RECAP-SL
RESEARCH CAPACITY BUILDING

Evaluation of the "Institutional capacity development for multi-disciplinary health research to support the health system ReBUILDing phase in Sierra Leone" (RECAP-SL) project

Date: July 2018

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E D C T P

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ACKNOWLEDGEMENTS

This work was supported by the European and Developing Countries Clinical Trials Partnership under grant agreement number: RECAP-SL CSA-Ebola-2015-355. We are grateful to all College of Medicine and Allied Health Sciences (COMAHS) staff and students, Ministry of Health and Sanitation staff and Liverpool School of Tropical Medicine (LSTM) staff who contributed to this evaluation.

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INTRODUCTION

RECAP-SL – "Institutional capacity development for multi-disciplinary health research to support the health system ReBUILDing phase in Sierra Leone" is a €250,000 two-year funded project under the 2nd European & Developing Countries Clinical Trials Partnership (EDCTP2) programme. This project started in August 2016 and was led by the College of Medicine and Allied Health Sciences (COMAHS), University of Sierra Leone in partnership with the Health Systems and Workforce Strengthening Team and the Capacity Research Unit in the Liverpool School of Tropical Medicine (LSTM).

The 2014-16 Ebola disease outbreak highlighted the need for responsive and resilient health systems within and beyond Sierra Leone. Development or ReBUILDing of health systems should be informed by policies based on evidence. In the immediate post Ebola phase, health research capacity in Sierra Leone to inform policy and practice was limited to a number of research projects at COMAHS. With COMAHS taking the lead in the generation of evidence there is a need for sustainable approaches to building capacity for national multi-disciplinary health research in country.

The overall aim of the RECAP-SL project was to establish a research centre within COMAHS that will serve as a research coordinating centre, and lead on health systems research and capacity strengthening within Sierra Leone and deliver credible, relevant research for effective policy making and practice. The specific objectives of RECAP-SL included:

1) To apply the 5-step approach to strengthen the institutional research capacity of COMAHS capacity for multi-disciplinary research;
2) To develop the research centre at COMAHS to ensure coordination between researchers, health practitioners and policy makers;
3) To attract, support, mentor and retain four multidisciplinary health research fellows to undertake their own research;
4) To support the MPH course offered at COMAHS and help develop modules in health systems research and clinical research tailored to the local context and focusing on Ebola, emergency response and responsive health systems; and
5) To support the capacity of the existing National Ethics Committee to respond swiftly and appropriately to the increased demand for ethical review of multi-disciplinary research.

The evaluation of the RECAP-SL project was conducted in June and July 2018. Its objectives were: to document the capacity strengthening activities conducting during the project; to explore the effects of these activities on individuals and the organisation; and develop recommendations for future capacity strengthening activities.

This report describes the activities implemented in support of each objective during the course of the RECAP- SL project and the outcomes achieved. The report concludes with a series of recommendations based on the RECAP-SL experience that similar research capacity strengthening initiatives may wish to draw and build upon to support sustainable continued institutional research capacity building at COMAHS.

METHOD

The content of this report was primarily informed by key informant interviews (KIIs) completed with RECAP-SL investigators and mentors from COMAHS and LSTM, RECAP-SL fellows, RECAP-SL project staff and COMAHS Faculty (N=10) and a focus group discussion (FGD) completed with COMAHS medical students (N=12). The KIIs and FGD were completed in June 2018, one month prior to the completion of the RECAP-SL project. The majority of KIIs and the FGD were completed in-person in Sierra Leone. A small number were completed at LSTM, UK. A structured topic guide was used to inform all KIIs and the FGD (see Annex 1). The majority of interviews were completed by a senior staff member from the Capacity Research Unit, LSTM, who was also part of the team that carried out the baseline assessment of the research capacity at COMAHS at the start of the RECAP-SL project. All interviewees provided written informed consent. KII and FGD data were supplemented by document review and by the reflective input of the RECAP-SL Co-Principal Investigators. A framework analysis approach was used to analyse the data, using the five RECAP-SL objectives as the basis for organising and presenting the collected information. The RECAP-SL project, inclusive of programme evaluation, was approved by the LSTM Research Ethics Committee and the Sierra Leone Ethics and Scientific Review Committee.

RESULTS

Objective 1: Conduct an Institutional Research Capacity Strengthening Assessment

An institutional research capacity assessment (IRCA) of COMAHS was completed in October 2016. The ICRA was designed to:

1. Inform an initial 'action plan' to address the gaps, including objectives, activities, deliverables, indicators and measures to facilitate the development of a sustainable health systems focused research centre within COMAHS;

2. Support the capacity of the existing Sierra Leone Ethics and Scientific Review Committee to respond swiftly and appropriately to the increased demand for ethical review of multi-disciplinary research.

The capacity assessment was conducted by LSTM's Capacity Research Unit following the '5 step' approach to research capacity strengthening[1]. Data were collected on-site at the wider USL and COMAHS (covering both research staff and research support staff) and from partner institutes by key informant interviews with purposively selected individuals (n=23), document review and observations of facilities. All key informants provided written informed consent and, as far as possible, all information was obtained from at least two independent sources to enhance validity. The capacity assessment was approved by the LSTM Research Ethics Committee and the Sierra Leone Ethics and Scientific Review Committee. The subsequent report (see Annex 2) highlighted a wide range of capacity gaps in health research and research management and support systems at COMAHS and presented a number of recommendations for addressing them. The report also recommended the re-establishment of a COMAHS research ethics committee. The report was circulated among the RECAP-SL team, inclusive of the COMAHS Provost, to inform the development of a RECAP-SL-specific action plan to address priority capacity gaps within the remaining project timeframe. The resulting plan identified priority actions, timelines, designated responsibilities, deliverables and a stated means of verification (see Annex 3 for action plan). The action plan was also designed to encompass and complement the original five RECAP-SL objectives. Overall, the priority action plan identified 32 short-term priority actions of which 25 were achieved within the project timeline. Two of the remaining 7 actions not achieved were no longer applicable to the RECAP-SL project, and measures were put in place to achieve the remaining five using resources from other projects at COMAHS.

The IRCA report was not only used to inform RECAP-SL planning. A COMAHS interviewee noted that the IRCA report has been widely disseminated across the COMAHS Faculty and other national and international partners. The report is also routinely presented to potential new partners as an independent assessment of existing capacities. The intent in sharing the report widely is threefold: 1) it ensures current and new partners are aware of the challenges COMAHS currently face in terms

1. Bates I, Boyd A, Smith H, Cole D. A practical and systematic approach to organisational capacity strengthening for research in the health sector in Africa. Health Res Policy Syst. 2014: 12: (11) doi:10.1186/1478-4505-12-11.

of their health research and research support capacities, which in turn helps ensure partnership and delivery expectations are set to an appropriate level; 2) it provides a platform to negotiate what types of support development and research partners might contribute to COMAHS to strengthen capacity gaps in independently assessed priority areas; and 3) it provides a framework to ensure support provided by development and research partners is coordinated and strategically spread across a range of priority areas. One interviewee noted that based on the lack of PhD-level qualified academic staff at COMAHS outlined in the IRCA report, COMAHS were able to negotiate support for three PhD studentships with a new project partner. Coincidentally, two of the RECAP-SL fellows were successful in obtaining two of these scholarships having been encouraged and supported in their applications through their national RECAP-SL mentor. These unanticipated benefits of the IRCA report have arisen as a result of the COMAHS commitment to openness and transparency in their capacity strengthening endeavours and suggest periodic 're-assessments' of existing institutional research capacity gaps and re-prioritisation of capacity strengthening priorities may be a useful exercise.

Objective 2. To Develop a Research Centre at COMAHS

We developed a physical research centre in October 2016 within COMAHS to provide support services to academics, creating an enabling environment for research; in particular, leadership, career development, infrastructure, and access to information. A Research Manager was appointed to manage the centre and ensure that there is coordination between the researchers and the wider research community. An administrative officer was appointed on a 50% FTE basis to provide logistic and financial administrative support to the centre and service committees. The administrative officer had previous experience working on research projects and was an employee of COMAHS (her other 50%). When interviewed, the administrative officer noted that she was acquiring new skills with each project she participated on so felt her capacity to provide effective administrative support was growing. However, she also identified areas in which she would like to receive training or more intensive support, such as financial management and programme reporting. She further reported that training for administrative staff was rarely available at COMAHS and was largely only accessible if programmed in to externally funded project budgets.

The research centre was established in the New England Site of COMAHS, it's administrative campus, in the newly constructed building developed for the CDC funded Sierra Leone Trial to Introduce a Vaccine against Ebola (STRIVE) clinical trial. The centre included space for researchers to meet, have discussions and work individually, a collection of physical resources, and internet connection. It also displayed research outputs from researchers at COMAHS such as posters, papers and briefs, current relevant continued professional development opportunities (also shared via email and social media platforms), as a way of showcasing and supporting the evolving research landscape. The research centre also developed a website for RECAP-SL (www.recap.sl) which included a repository of the research grants secured and publications produced by COMAHS staff, as well as documents such as the COMAHS Research Strategy and blogs on research centre activities. The website was developed by an external contractor using project funding. It was intended that research training materials offered to students on the student engagement platform (discussed below) would also be made available on the website. Unfortunately, there was only sufficient funding to cover the initial development and set-up of the website, so the RECAP-SL team were unable to pay to have the site regularly updated. COMAHS Information Technology and Communication support staff were

unwilling to support regular maintenance/updates of the site as it was not an official University site and the technical expertise to do so was not available among the RECAP-SL team. Thus, in future, it may be better to develop a generic COMAHS health research website that individual projects can support (as opposed to project-specific sites) and/or utilise the existing USL web platform.

A change in leadership in COMAHS resulted in the space used as the research centre being appropriated for a different function in mid-2017. The RECAP-SL team struggled to find another space within COMAHS, and so the research centre continued as a virtual centre, using different platforms including social media and email to disseminate continued professional development opportunities and research outputs to staff members, students and the wider research audience in Sierra Leone. However, efforts to construct a purposeful building to serve as a dedicated research centre for COMAHS and the wider USL are ongoing. A dedicated physical space was considered by many interviewees as essential to ensuring continued progress in health research capacity strengthening and for consolidating gains achieved. One interviewee noted that the loss of the research centre highlights the dynamic political environment within COMAHS and Sierra Leone more broadly, where changes in leadership can lead to substantial and sudden changes in the operating environment. These changes may be both positive or negative, but the potential for radical change in the operating environment depending upon the prevailing leadership's priorities is a challenge to long-term planning.

A steering committee was established to provide oversight of the project activities and help in monitoring and evaluation, and in particular inform the research centre's work programme, ensure that the research centre delivers credible, relevant research for effective policy making and practice, advise the research centre about national health research priorities, support the research centre to retain the research fellows and facilitate collaboration between the research centre and Ministry of Health and Sanitation (MoHS) in order to intensify research-policy links. The committee comprised academics from COMAHS, MoHS representatives, academics external to COMAHS such as from USL, Njala University and Sierra Leone Health and Biomedical Research Association (HBIOMED-SL) and donor organisation representatives. The research manager communicated regularly with the committee members, receiving valuable advice and ideas about developing the research centre programme and activities. However, bringing together all members for meetings was challenging due to a variety of reasons including busy workloads, frequent travel, last minute calls to meetings, and the lack of a central space to hold the meetings. While a budget was available to convene meetings, the competing demands on steering committee members time meant that funding to cover meeting costs (e.g. per diem and accommodation) was insufficient in itself to overcome barriers to participation. In the future, it may therefore be more productive to align steering group meetings with major activities that are more likely to ensure engagement with high-level committee members (e.g. national research symposium).

Objective 3. To Mentor and Retain Four Multidisciplinary Health Research Fellows

Four RECAP-SL research fellows were recruited for an 18-month period between February 2017 to July 2018. The aim of the fellowships was to provide intensive training, 'hands on' learning and mentorship in health systems research to a cohort of the COMAHS teaching faculty. The fellowships were 50% appointments, competitive and open to all COMAHS teaching staff. Successful fellows were expected to participate in a 2-week experiential learning visit to LSTM, create and maintain an

individual researcher development portfolio over the course of the fellowship and complete an individual research project. Each fellow was assigned a local (COMAHS) and an LSTM mentor to support completion of their individual research project. In addition, three of the research fellows were included as team members on larger health systems research projects. For example, two of the fellows supported a project focusing on the experience of community health workers (CHWs) and the impact of the newly launched CHW policy in Sierra Leone under the ReBUILD programme[2], one supported a gender, disability and access to health project under the ReBUILD programme, and the fourth was tasked with developing an institutional health research repository for COMAHS.

Four fellows were successfully recruited from a pool of 10 COMAHS applicants. The process of recruitment involved development of job descriptions and person specifications for the fellows posts, which were then advertised across COMAHS. Members of the RECAP-SL steering committee shortlisted and interviewed the candidates. The successful fellows included three Pharmacists and one junior Doctor. Of the 10 applicants, eight were pharmacists, suggesting a disproportionate interest among this cadre of academicians despite COMAHS providing training in medicine, pharmacy, nursing, public health and biomedical science. There was an even gender balance among fellows (two males and two females) and all four were at a pre-PhD level (Master's graduates). The decision to limit applications to COMAHS teaching staff was deliberate, given the aim of RECAP-SL was to develop health research capacity within COMAHS itself, and the quality of applicants was considered strong. However, as will be discussed in more detail below, all four fellows struggled to adequately balance their existing professional responsibilities with the additional demands of the fellowship suggesting similar initiatives in the future could potentially benefit from expanding the applicant pool. A broader applicant pool might potentially include professionals in health or health-related disciplines working outside of COMAHS (including staff from the MoHS may also improve links between COMAHS and MoHS) and/or new graduates who have yet to enter the workforce. The four successful fellows were asked what they had expected to gain/learn from the fellowship opportunity during the key informant interviews. The fellows rarely reported having specific learning expectations; rather, broad reference to 'professional development' and improving research skills or knowledge were noted. It was also noted that improving research performance was important for promotion within COMAHS and that opportunities to develop practical research skills were limited for both staff and students. One fellow reported that she hoped to improve her scientific writing skills.

[2] ReBUILD programme - Research for building pro-poor health systems during the recovery from conflict. This programme is funded by UK Aid.

The four RECAP-SL research fellows

The 2-week LSTM visit was completed early on in the fellowship (July 2017) and was structured as a form of 'case study' in research proposal development. The visit consisted of several sessions each pertaining to a different aspect relevant to research proposal development and included such things as study design, interview guide development, literature searching and referencing, data handling and analysis, financial management and ethics submission (See Annex 4 for timetable of visit). Each session started with a discussion of the fellows' experiences about the topic, relevant literature, and then a practical application of this learning to the case study. Sessions were provided by experts in specialised fields (e.g. librarians led sessions on literature search methodologies and referencing) and fellows were exposed to the full range of specialist research and research support services involved in research proposal development at LSTM, including non-participant observation of LSTM Research Ethics Committee deliberations. Fellows were also assigned and introduced to their LSTM mentors during this visit. The four fellows rated the LSTM visit in highly favourable terms. All sessions were considered to be a valuable learning experience and the exposure to the comparatively advanced LSTM resources and research support systems were described as an 'eye opener' and served to provide a deeper understanding of what a high functioning research environment looks like. However, the sessions that were most valued were those that provided practical instruction that could be immediately applied with all four fellows identifying the sessions on PubMed and Endnote as being of most use. These sessions were rated highly as not only were the fellows able to immediately put their new-found literature searching and referencing skills to use when developing their individual research projects, they were also able to apply them to other (non-RECAP-SL) activities and, equally importantly, they were able to readily transfer this newfound knowledge to their own students. Thus, the fellows felt the attainment of these practical skills improved their capacity as both a research practitioner and as a supervisor of student research. When asked what additional support they might like to have received during this 2-week visit the fellows variously suggested practical instruction on completing a systematic literature review,

practical instruction on qualitative data analysis and instruction on completing mixed methods research projects.

The four fellows were also tasked with completing an individual researcher development portfolio in the initial stages of the fellowship. The portfolio was a structured instrument (see Annex 5) based on a PhD development pathway and included a list of the various competencies an independent researcher would be expected to know and develop. Each fellow was tasked with rating their own level of experience and competency against each indicator and this was then revisited on a quarterly basis over the course of the fellowship. Without exception all four fellows considered the portfolio development a useful exercise. Fellows variously reported that the portfolio content provided them with: a clearer understanding of what types of skills and experiences were necessary to develop if one wanted to pursue a successful research career; a clear 'marker' of their progress and development during the course of the fellowship; a transferable tool that they could apply with their own students. Thus, the research portfolio exercise seemed to be valued because it provided a further opportunity to develop and use practical skills and tools that the fellows could readily apply for both their own and their students benefit.

The individual research projects were the most time intensive component of the fellowship. Fellows were supported to develop a GANTT chart detailing the activities, timeframes and deliverables for their respective projects during their LSTM visit. Each fellow was expected to develop a brief health systems-related research proposal in an area of interest to them and of relevance to the Sierra Leonean context. Once developed, the fellows were then expected to obtain ethical approval through the Sierra Leone National Medical Research Ethics Council and lead on all aspects of research implementation from data collection, analysis, publication and further dissemination. All projects were expected to be completed within the timeframe of the RECAP-SL fellowship. It was not possible to comment on the nature and quality of the resulting outcomes at the time of interview (June 2018) as all four fellows had yet to complete their respective projects; they had completed data collection and preliminary analysis and were currently finalising analysis and write up. However, all four fellows reported that the hands-on experience of leading their own research project had been an invaluable learning experience. While all four had engaged in some form of research practice prior to commencing the fellowship, the individual project was their first experience of leading a study through all key components of the research process. Importantly, it was hands on exposure to, and responsibility for, each element of the research process that the fellows appreciated the most irrespective of the subsequent challenges faced.

Left: RECAP-SL fellow describing the research project she conducted on ART among pregnant women in Sierra Leone
Right: RECAP-SL fellow presenting his draft paper based on his research project

Time constraints was the primary challenge to project completion reported by fellows with all four experiencing considerable delays to their original project time lines. The delays were attributed to the competing demands on the fellows' time, all of whom retained considerable teaching and professional commitments, although were also the result of fellows underestimating the level of effort required to complete certain tasks to the required standard (e.g. prepare a well-designed study proposal or an ethics submission). Three fellows also reported experiencing delays due to problems related to the National elections which coincided with their data collection activities. While somewhat frustrating, it was exactly this type of experience-based learning that the fellows reported appreciating the most. In this case, gaining a more realistic understanding of the time and effort required to prepare a study proposal or to properly account for the elements of a research project that may be outside of their direct control (e.g. underestimating the likely duration of data collection). All four fellows reported high levels of satisfaction with the mentorship arrangements put in place, although not all fellows utilised the available support in the same ways. For example, one fellow did not utilise the LSTM mentor to a great degree, preferring face to face contact with the local mentor, other fellows or local contacts outside of the RECAP-SL programme. The other fellows reported regular contact with their LSTM mentors despite communication difficulties. Most contact with LSTM mentors was via WhatsApp voice call or text which was found to be more reliable than Skype. Fellows did not report any dissatisfaction with this type of remote contact, although the mentors themselves considered the few opportunities in which face-to-face contact with the fellows was possible to have been the most productive sessions. All fellows reported a good rapport among themselves, and – as noted above – one fellow identified one of her peers as a key source of support; however, fellows were unable to meet with each other on a regular basis due to the various demands placed on their time from their lecturing and clinical responsibilities and due to the lack of

a common meeting facility. This lack of peer-contact appears to have been a lost support and development opportunity.

Face-to-face meeting opportunities between fellows and mentors were primarily limited to the LSTM visit; however, two LSTM mentors made onsite visits to COMAHS in support of a related LSTM-COMAHS project (ReBUILD) and one of the fellows (who had supported the CHW project under the ReBUILD project) made subsequent visits to LSTM. The LSTM mentors took advantage of these opportunities to provide additional support to the RECAP-SL fellows which also included extending an invitation to all four fellows to participate in a writing workshop in July 2018, held in Sierra Leone. During this workshop, support was provided in writing papers for publication based on the fellows' individual research projects and on the ReBUILD CHW project. The two fellows who actively participated as members of a multi-member investigative team in a ReBUILD CHW research project, reported that they gained useful knowledge and skills from working under more direct supervision and as part of a larger team in the context of the ReBUILD project that they could then apply to their individual research project. Thus, ReBUILD seemed to provide a complementary learning platform to the RECAP-SL fellows irrespective of whether they were directly involved in it or not. Both the fellows and mentors who were involved in both ReBUILD and RECAP-SL also suggested that it would be beneficial to embed any future iterations of a fellowship scheme within a larger project as it maximises the available resources and learning opportunities available to fellows. One fellow further noted that a list of online research support tools and services provided to him by his Mentor was an especially valuable resource for both him and his students. Fellows were also able to access online LSTM seminars, although this rarely happened as seminars were not scheduled at convenient times for the fellows and securing reliable internet access was difficult.

ReCAP SL fellows supporting CHWs to map their communities as part of the ReBUILD CHW study

ReCAP-SL fellow with Photovoice banner developed through the ReBUILD CHW study

Mentor reports of the fellowship experience mirrored the largely positive appraisals provided by the fellows themselves. LSTM mentors expressed more frustration than the fellows in regard to communication difficulties, would have liked more opportunities to meaningfully engage with the fellows and reported some uncertainty as to the real extent of time fellows were actually able to commit to their projects. COMAHS mentors were an essential source of support, although were perhaps too few in number and were also juggling a wide range of commitments. However, all mentors had first-hand experience of the COMAHS context and the practical realities the fellows and local mentors faced which ensured that expectations of 'success' were appropriately grounded. This common understanding, developed through a longstanding partnership and a shared commitment to sustainable and locally appropriate development, was also considered a key factor in the positive experience reported by all RECAP-SL parties.

While it is not possible to measure the success of the fellowship scheme based on final project deliverables at this stage, clear indicators of success are apparent. Two of the four fellows have secured PhD scholarships which commence in September 2018 and a third has been accepted into the very competitive 3-week Health Systems Global 'Emerging Voices' networking and professional development programme to commence in October 2018. The fourth fellow, the junior doctor, has decided to prioritise her continued clinical training at this stage, although retains an interest in research and hopes to be able to continue to engage in research during her clinical career. Thus, three out of the four fellows will be immediately stepping into further, more advanced capacity strengthening activities and the fourth retains an active interest in future research. All four fellows remain committed to completing their projects and publishing and disseminating the subsequent findings even if these activities take place after the fellowship end date. The continued relationship between LSTM and COMAHS in the context of the REBUILD project is likely to further ensure this happens. All four fellows have, or have plans to, present their work and findings at national and/or international conferences. Perhaps most importantly, given the aims of RECAP-SL, all four fellows

will remain COMAHS staff, all four have enhanced their research capacity and all four have the opportunity and willingness to transfer the knowledge and skills gained to student researchers.

One fellow noted that it would have been appreciated if a PhD scholarship were built into the fellowship programme given both a perceived dearth of opportunity to obtain scholarships elsewhere and the need to develop PhD-level research capacity within COMAHS. This is a valid point and is worthy of consideration, although perhaps the findings from the RECAP-SL experience suggest that for many young COMAHS lecturers the opportunity to lead a small-scale research project under close local and international mentorship maybe a helpful stepping stone prior to engaging in PhD-level research activity. Thus, future fellowship schemes could perhaps consider a PhD scholarship component that follows the successful completion of an initial, smaller scale, independent research project.

Objective 4. To Support the Master's in Public Health Course at COMAHS

We planned to support the delivery of the newly constituted Master's in Public Health (MPH) programme. However, the implementation of the MPH program has faced a number of challenges including a considerable delay in the start of the programme and a lack of appropriated qualified and experienced lecturers. Many of the lectures were delivered by staff from the London School of Hygiene and Tropical Medicine (LSTHM), who were working on other projects in Sierra Leone. It was therefore agreed at the country level that it was best for the research fellows to concentrate on their individual research capacity building and their individual research projects.

Instead of providing support to the MPH program, the RECAP-SL research manager supported a series of research seminars for final year medical and pharmacy students as part of a two-week teaching block in the weeks leading to their final year research project. This initiative was led by the Department of Community Medicine, COMAHS, who recognized the Research Manager as a valuable asset to support this activity. Sessions covered areas such as proposal writing, research ethics and confidentiality, research study designs, data management, sampling (principles of sampling, random and non-random sampling etc.) data analysis (qualitative and quantitative), report writing and referencing styles, critical appraisal and conducting a literature search and review. The method of deliver was in the format of lectures with case studies given in some cases to support the lecture content. These sessions were open to all final year medical students (number of students ranged from 30 to 40 students). The students have found these sessions very useful as they equipped them with useful knowledge and skills to conduct their final year research projects and write up their dissertations. A number of challenges were faced in delivering these lectures as the number of facilitators was very limited and those available had other work commitments.

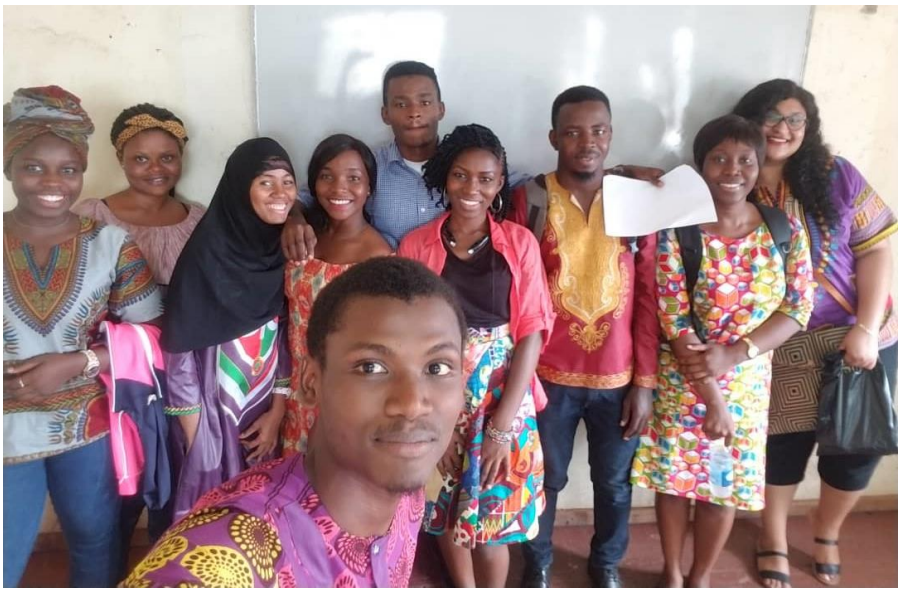
The research manager in collaboration with her counterpart from a complementary EDCTP capacity building programme (RECAST-ID[3]) also implemented voluntary, extracurricular 'student research engagement' sessions open to all undergraduate and postgraduate COMAHS students with an interest in health research. Session content included topics such as ethical research practices,

[3] ReCaSt-ID: Building research capacity in clinical management of Infectious Diseases at two main adult Government Hospitals in Freetown, Sierra Leone. This project is part of the EDCTP2 programme supported by the European Union.

proposal development, qualitative and quantitative research methods, data analysis and report writing. Students were actively encouraged to take ownership of these sessions by proposing content and by running peer-led activities, such as peer to peer learning or journal clubs, wherever possible. However, in practice, the majority of sessions were delivered by the RECAP-SL and RECAST-ID research managers on a somewhat ad hoc basis and visiting academics were invited to deliver sessions whenever possible, furthering contributing to the opportunistic nature of the sessions. This included staff from LSTM where it was possible to combine visits with seminars, for example, Sally Theobald gave an interactive seminar explaining her experience of being a social science and health systems researcher and the projects she is involved with. Participation typically ranged from 4 to 40 students depending upon timing and content, although average attendance was reported to have increased over time.

A focus group discussion was held with 12 medical students who had participated in one or more of the student engagement sessions. Student feedback was largely positive, with all participants reporting that the sessions had increased their interest in, and knowledge of, health research and given them a better sense of research activities and opportunities within COMAHS. Those students engaged in their final year research dissertations also noted that the sessions usefully supported their project work. The FGD participants identified some challenges, noting that the sessions sometimes clashed with their class schedules making it difficult to attend or were held in inconvenient locations. Sustainability was also queried with participants expressing the concern that the majority of sessions were delivered by the same two lecturers and that sessions were not held when these lecturers were unavailable. Participants also noted that the voluntary, extracurricular structure of the sessions led to inconsistent or sporadic attendance resulting in a 'fragmented' approach to individual research capacity strengthening. It was therefore recommended that, in future, sessions could be held at a uniform 'free' time within their respective teaching timetables to encourage greater, more reliable attendance and that session content be made available to students who were unable to attend. Participants also expressed a desire for more practical session content as opposed to taught content and suggested student representatives from each class could be encouraged as 'research ambassadors' to further encourage attendance.

The desire expressed by FGD participants for a more structured, lecturer-led session format is somewhat at odds with the underlying approach adopted by the RECAP-SL team who were aiming to facilitate and support a more student-led learning platform. On the part of the students, this perhaps reflects the ongoing need for quality, well-structured research training, support and mentorship which, when more readily available, may provide the confidence and ability necessary to allow peer-led initiatives to flourish. However, the prioritization of a peer-led approach was in large part a consequence of the competing demands on the research managers time (for both RECAP-SL and RECAST-ID); the research managers simply did not have the time or resources to implement a more structured programme. Thus, moving forward, the student engagement sessions may benefit from an implementation approach that reduces the administrative and support burden from the time-poor and scarce PhD-level lecturing staff, but does not place substantial expectation on student input either. One possibility would be for an administrative staff member to assume a coordination role, drawing on support from lecturing staff, visiting academics and more advanced student peers to provide individual session content. Realistically, the programme is likely to remain somewhat ad hoc and opportunistic unless dedicated resources become available to support implementation of a



Students at the research engagement sessions with the RECAP-SL research manager and visiting lecturers from partner institutions

more structured programme. However, there are also plans to support this student engagement platform via another project at COMAHS, that has funded a full-time capacity building coordinator and will also provide pre-recorded seminars on research methodology with an interactive practical component. These resources will be used to support the student engagement sessions when facilitators are not physically present.

In addition to the student engagement sessions, the RECAP-SL research manager also supported student/young professional research forums when opportunities arose. For example, promoting research at the Sierra Leone Medical Student Association General Assembly in 2017, the National Association of Pharmaceutical Students General Assembly in 2018 and the Junior Doctors Association of Sierra Leone General Assembly in 2018. Support was also given to the Medical Student Association standing committee on research and exchange by facilitating sessions on research and developing their research exchange programme, and providing training on critical appraisal of scientific writing, to support the initiation of their journal club.

The research manager and fellows support many students every year to design, conduct, analyse and write up their dissertation projects. Some of these dissertations include primary data collection, whereas others focus on reviewing existing literature. They have applied the skills and knowledge developed during the formal sessions during the visit to LSTM, mentoring meetings and conducting the ReBUILD research study to support their own students. One lecturer spoke about recently supervising medical and pharmacy final year students who successfully completed their dissertations with 4 out of 6 receiving distinctions.

"Sessions in literature search have helped me to strategically look for both published and grey articles of relevance to my area of study. I find it easier to search now with the lessons and principles learnt. I use those lessons to help students with their research projects."

Objective 5. To Support the Capacity of the Existing National Ethics Committee

One of the original objectives of RECAP-SL was to support the capacity of the existing National Ethics Committee to respond swiftly and appropriately to the increased demand for ethical review of multi-disciplinary research. Three sitting members of the Sierra Leone Ethics and Scientific Review Committee (SLESRC) were interviewed as a part of the institutional research capacity assessment completed by LSTM in October 2016 (described under 'Objective one' above). Based on these interviews, the RECAP-SL team concluded that the SLESRC appeared to have sufficient capacity to process and respond to the current level of submissions in a manner that does not pose administration related barriers to obtaining timely ethical clearance for health-related research in Sierra Leone. Some important capacity gaps were identified, such as a lack of secretariat support and appropriate office space, and further support was needed for a planned conversion to an electronic submission and records management platform. It was also noted that the SLESRC membership were almost all scientists and that it would be beneficial to recruit a broader cross-

section of professionals and lay persons onto the committee as well as striving for a greater gender balance. In addition, there did not appear to be an intensive training programme/package available to support new SLESRC members nor were there refresher courses for existing members. However, support in some of these areas was already being planned through a Kings College London research partnership. It also became apparent during the assessment process that there may be some jurisdictional difficulties in attempting to support the SLESRC through a COMAHS led initiative (ie ReCAP-SL) as SLESRC was attached to the Ministry of Health and Sanitation whilst COMAHS was attached to the Ministry of Education. Accordingly, the RECAP-SL decided it would be a more realistic and worthwhile aim to focus on re-establishing a COMAHS ethical review committee as opposed to supporting an already well functioning and well supported SLESRC.

COMAHS had previously maintained an institutional review board (IRB) tasked with reviewing student and faculty research involving human participants. At the time of the assessment, the COMAHS IRB had been dormant for a number of years. There was no current schedule of IRB meetings, no clear membership nor process of submission, although at Provost and senior researcher level there was acknowledgement that a COMAHS IRB should be re-established and some commitment to do so. In order to facilitate this effort, through RECAP-SL LSTM has provided some support and resources to COMAHS to support IRB re-establishment. During the RECAP-SL fellows' visit to LSTM, they observed and discussed the ethical review process carried out at LSTM, discussed research ethics with key staff, and reviewed LSTM documentation such as information sheet and consent from templates, application forms, guidance notes, terms of reference for ethics committee, and key international guidance documents. In addition, materials used to support the IRB process at LSTM were shared with the RECAP-SL research manager, to be adapted to the context of COMAHS, in supporting the re-establishment of the IRB at COMAHS. However, a strategic decision was made to not proceed with the re-establishment of the IRB until a review of the factors that led to the demise of the original COMAHS IRB has been completed. In this way, a re-establishment plan can be established that simultaneously builds on the strengths of the prior IRB and protects against a repeat failure. This assessment has not been completed at the time of writing. All medical, pharmacy, biomedical, clinical and public health students are required to complete a research dissertation in their final year of studies, yet do not submit their research proposals to SLESRC as it is considered a too complex and time-consuming process for student projects. As neither COMAHS nor the wider University of Sierra Leone convene a health research ethics committee, all student projects currently proceed without any form of ethical review. This practice undermines current attempts to instil a supportive and robust health research culture within COMAHS, undermines the potential publication (and hence dissemination) opportunities for student projects and – most importantly – poses a risk to both Faculty, students and research participants. Supporting the re-establishment of a COMAHS IRB or an IRB that serves all colleges in the University of Sierra Leone is a priority objective, with a proposal to funders currently being drafted.

DISCUSSION & RECOMMENDATIONS

When assessed against the five stated project objectives, RECAP-SL may be considered a partial success: two objectives were completed in full (objective one, institutional capacity assessment and objective three, completion of four fellow-led research projects), one was partially completed (objective two, establishment of a research centre) and two were not (objective four, support for the MPH course and objective five, support to national ethics committee). However, when considered against the overarching aim of developing institutional capacity for multi-disciplinary health research, then a reasonable argument can be made that RECAP-SL achieved considerably more than a strict assessment against these five objectives would suggest. For example, the development of the proposed research centre was derailed half way through the project due to a change in institutional leadership. Rather than suspend operations, the RECAP-SL team demonstrated sufficient flexibility to alter the service delivery model and switch to a virtual operating environment. Similarly, the decision not to pursue objectives four and five as originally stated was made based on emerging evidence and the reality of the encountered contextual situations. Again, rather than suspend or pursue redundant activities for the sake of satisfying a specified objective, the RECAP-SL team demonstrated flexibility to revise the scope of activities in a way consistent with the overarching project aim (to develop institutional health research capacity) and complementary to the original objectives. Flexibility of this type requires robust leadership and decision-making processes to recognise and appropriately respond to new information, a changing operating environment or encountered obstacles, all of which are constant realities in complex, fluid and resource constrained environments such as that in Sierra Leone. Thus, the experience of implementing RECAP-SL and responding in novel ways as the situation requires is an expression of an essential research capacity.

The success of the fellowship programme and, in particular, the progression of two fellows to PhD scholarships exceeds original expectations and ensures a continuing upward trajectory in both individual and institutional research capacity; the latter supported through the fact that the majority of the fellows respective PhD project work will be completed within Sierra Leone and that both will remain formally attached to COMAHS. Institutional capacity strengthening was further evidenced by progress in selected priority areas following the institutional research capacity assessment, the continued functionality of the health research centre, the provision of robust research methodology training to final year medical students and the fostering of student interest and knowledge in health research through the student engagement programme. The coordination of the RECAP-SL project with other capacity strengthening programmes (e.g. ReBUILD and ReCaSt-ID), the attainment of new capacity strengthening programmes (e.g. RECAP[4]) and the intention to maintain the COMAHS-LSTM partnership strongly suggest the capacity gains achieved will be extended upon. The continued involvement and leadership of a core group of COMAHS investigators across all of these initiatives further suggests continued, complementary and strategically driven institutional capacity strengthening can be sustained. With a view towards supporting this development trajectory, what follows are a list of recommendations that future programmes centred on developing research capacity within COMAHS may wish to consider. These recommendations are borne out of the challenges encountered and lessons learned during the course of RECAP-SL implementation.

[4] RECAP: Research capacity strengthening and knowledge generation to support preparedness and response to humanitarian crises and epidemics. This programme is funded by the Global Challenges Research Fund.

Recommendations

Maximising the fellowship model

- The fellowship model adopted by RECAP-SL appears to be a successful method for enhancing individual and institutional research capacity. The experience of leading a small-scale research project may be a particularly useful learning opportunity for COMAHS staff prior to undertaking PhD study.

- Fellows particularly appreciated practical research skills and resources that could be put to immediate use and that could be easily transferred to their own students. COMAHS students also reported interest in practical, interactive research methodology sessions. Designing sessions that are interactive and develop practical research skills is beneficial.

- The experience of leading a small-scale research project from study design through to final dissemination was highly valued by research fellows. However, fellows also reported significant benefit from participating in a larger, multiple-team member research project. Embedding smaller-scale individual research projects within a larger study may, therefore, be a useful individual research capacity strengthening model.

- If a similar fellowship scheme were to be implemented again, then putting mechanisms in place to maximise peer-learning (e.g. scheduled meetings with specific learning objectives) should be considered. This type of initiative would be more likely to succeed if fellows time was better protected (see point below) and if a reliable and convenient meeting space were available.

- Competing demands on the fellows' time was the primary barrier to progress and almost certainly comprised the 'learning potential' of the RECAP-SL fellowships (i.e. fellows could potentially have learnt more if they had less pressure from other commitments). Future individual capacity building initiatives may, therefore, benefit from recruiting applicants from a broader pool (inclusive of new graduates with no other employment) and/or by ensuring fellows time is adequately protected. The latter might be achieved by requiring a written contract from both fellows and their direct line managers that ensures a specified amount of time per week is protected for fellowship activities. This may require the provision of additional resources (inclusive of human resource) to the local institution to provide 'cover' for duties that the fellow will no longer perform (for the period of the fellowship).

- Fellows/developing researchers time may also be protected by providing more 'off-site' learning opportunities, where they are physically removed from the competing demands on their time.

Strengthening mentorship

- Maximising face-to-face mentorship/supervisory/peer-support time is important to individual research capacity development. Local available mentors are therefore essential, although international mentors remain highly valued. The RECAP-SL fellows could potentially play a mentor role to future fellows or junior researchers and would appreciate the opportunity to do so.

Assessing capacity at regular intervals

- Given the reported utility of the independent assessment of COMAHS research capacity, periodic 're-assessments' of existing institutional research capacity gaps and re-prioritisation of capacity strengthening priorities may be a useful exercise.

Supporting and protecting COMAHS staff

- The successes of RECAP-SL were often attributed to underlying positive relationships between the various team members. These included relationships between senior and junior COMAHS staff as well as between COMAHS and international partners and between the fellows themselves. Importantly, these relationships were supportive and sympathetic and strongly grounded within a 'realistic' understanding of what achievement looks like in a complex, resource constrained environment.

- The local leadership needed to ensure RECAP-SL success was provided by a small core of PhD-qualified COMAHS staff. This group were tireless in their contributions, despite shouldering a wide range of responsibilities. Their scarcity, competency and commitment mean this small core group of individuals are in high demand from multiple national and international partners. Considerable care therefore needs to be taken by both COMAHS and the respective national and international partners to ensure these invaluable staff members are adequately supported and protected against overwork and burnout.

- PhD-qualified COMAHS staff are overwhelmed with a wide range of competing demands. However, ensuring reliable and ready access to highly trained, competent researchers is essential to continued health research capacity development. Consideration should therefore be given to placements or secondments of international research staff to COMAHS. This would help address the critical gap in human resource capacity in the short-to-mid-term.

- Meetings that require physical participation from senior COMAHS, Hospital or Ministerial staff may be better attended if aligned with major activities of institutional or national importance (e.g. national research symposium).

Developing administrative and research support staff

- Greater support could be provided to administrative staff, or additional administrative staff employed, to provide the vast array of non-technical duties/responsibilities currently held by the small number of PhD-qualified COMAHS staff. For example, coordination of the student research engagement programme. Secondments of project management and/or research support staff should be considered as well.

- A small number of research support staff at COMAHS are gaining experience and acquiring new skills via their participation in projects such as RECAP-SL (e.g. the 50% administrative officer). Despite effectively being seconded from COMAHS to take up these positions, it is important that projects continue to provide budget for research support roles as well as training and support. This could include site visits to, or placements in, external research support services. COMAHS research support staff would benefit from specialist mentorship and supervision (i.e. from experienced project managers or research support leaders) which would also relieve local PIs of this responsibility (further reducing the many competing demands on their time).

Strengthening research support resources

- Securing a dedicated, sufficiently resourced space is essential to the continued development of a research support centre within COMAHS. Active and continuing support will be needed to secure such a space and to promote it as a focal point of health research activity within the college.

- A central health research and resource repository is still required. Ideally, this would be web-based and not project specific.

- Future projects that have funding to support website development may be better off investing in a generic COMAHS health research website that individual projects can support as opposed to project-specific sites and/or utilise the existing USL web platform.

Re-establishing the COMAHS IRB

- The proposed review of the factors that led to the demise of the original COMAHS IRB should be completed forthwith and the necessary support provided to re-establish and maintain a revised IRB.

Collaborating with other capacity strengthening initiatives and organisations

- COMAHS is engaged in (and is likely to continue to be engaged in) a number of research capacity strengthening initiatives with a number of international partners. The onus is on both COMAHS and the international partners to ensure cohesion across projects so as to maximise the overall capacity gains. However, flexibility and sensitivity to the local context, the competing demands on local COMAHS staff members time and to COMAHS's strategic objectives on the part of the international partners are especially required if a cohesive and sustainable capacity strengthening programme is to be achieved.

- Greater national and international promotion of the success of RECAP-SL and other capacity strengthening initiatives is needed. Given the number of capacity strengthening projects, and the competing demands on peoples' time, it may be preferable to support cross-project showcases. For example, a symposium in which the process and outcomes of multiple capacity strengthening initiatives are presented.

- Success in research capacity building is context dependent. COMAHS staff would benefit from greater exposure to peers and institutions in similar environments, inclusive of those less well developed and those a few steps ahead. Exposure of this type would provide useful perspective on what progress might look like, what progress has been achieved as well as mutually beneficial learning opportunities.

ANNEX 1: RECAP-SL FOLLOW-UP ASSESSMENT: INTERVIEW GUIDE

1. Can you please describe your role in supporting/implementing RECAP-SL?
   Probe: what are your responsibilities? How have these been defined? Who defined them?

2. How did you come to be involved in RECAP-SL?
   Probe: when, how, who?

3. What do you consider the overall goals of RECAP-SL to be? How does your role contribute to this?

4. In terms of your own role, what has worked well? What has worked less well?
   Probe: major achievements/capacity gains to date? Areas that require further work?

5. What factors/supports have contributed to these successes?
   Probe: individual factors, internal & external supports

6. What factors have stalled progress or prevented further success?
   Probe: individual factors, internal & external barriers

7. What additional supports might have allowed further progress and/or could be useful in the future?
   Probe: internal vs external support

8. What other benefits, if any, have you observed or experienced as a result of the ReCAP-SL project?
   Probe: personal benefits, benefits to others, institutional benefits, national benefits

9. Overall, what has been most useful about the ReCAP-SL project? What has been least useful?
   Probe: why?

10. How sustainable are the gains that have been achieved, both personally and overall?
    Probe: threats & enablers

11. In your opinion, what are the priority 'next steps' to ensure gains achieved are sustained and further enhanced?
    Probe: who is responsible? What support needed?

12. Do you have any other comments you would like to make about the ReCAP-SL project and/or your involvement in it?

ANNEX 2: REPORT OF INSTITUTIONAL RESEARCH CAPACITY ASSESSMENT

Report

Research Capacity Assessment of the College of Medicine and Allied Health Sciences (COMAHS), University of Sierra Leone

December 2016

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ACRONYMS

COMAHS	College of Medicine and Allied Health Sciences
CRU	Capacity Research Unit
EDCTP	European and Developing Countries Clinical Trials Partnership
ICT	Information and Communications Technology
IRB	Institutional Review Board
LSTM	Liverpool School of Tropical Medicine
MoHS	Ministry of Health and Sanitation
SLESRC	Sierra Leone Ethics & Scientific Review Committee
USL	University of Sierra Leone

INTRODUCTION

The Liverpool School of Tropical Medicine (LSTM) has been supporting the College of Medicine and Allied Health Sciences (COMAHS), one of the three constituent college of the University of Sierra Leone (USL), to develop Institutional capacity for multi-disciplinary health research since 2011, initially in the frame of the DFID-funded ReBUILD consortium. RECAP SL, an EDCTP-funded grant, extends this LSTM-COMAHS partnership with the aim of establishing a research centre within COMAHS that will:

- serve as a research coordinating centre
- lead on health systems research and capacity strengthening within Sierra Leone and
- deliver credible, relevant research for effective policy making and practice.

In addition, RECAP-SL will provide support to the Sierra Leone Ethics and Scientific Review Committee (SLECRC), by contributing towards build their in-house capacity to deal with the anticipated increase in ethical review in the post Ebola phase.

This report presents the findings and recommendations from a rapid research capacity assessment of COMAHS and the Sierra Leone Ethics and Scientific Review Committee carried out between October 10th-14th, 2016, and designed to:

1. Inform an initial 'action plan' to address the gaps, including objectives, activities, deliverables, indicators and measures to facilitate the development of a sustainable health systems focused research centre within COMAHS;

2. Support the capacity of the existing Sierra Leone Ethics and Scientific Review Committee to respond swiftly and appropriately to the increased demand for ethical review of multi-disciplinary research.

METHODOLOGY

The capacity assessment was conducted by LSTM's Capacity Research Unit (CRU) according to the previously published '5 step' approach to research capacity strengthening[1]. Data were collected by the report authors on-site at the wider University of Sierra Leone and COMAHS (covering research staff and research support staff – i.e. ICT, library, finance and HR) or from partner institutes by key informant interviews with purposively selected individuals (n=23; annex 2), document review and observations of facilities. The focus of the assessment was primarily on 'institutional' rather than 'individual' capacity (i.e. the capacity of COMAHS to support the production and uptake of quality research rather than the capacity of an individual to conduct research). Focal areas of the assessment were derived from a synthesis of relevant global literature pertaining to optimal capacity needed to provide international quality academic, administrative and financial support for research activities. All key informants provided written informed consent and, as far as possible, all information was

1. Bates I, Boyd A, Smith H, Cole D. A practical and systematic approach to organisational capacity strengthening for research in the health sector in Africa. Health Res Policy Syst. 2014: 12: (11) doi:10.1186/1478-4505-12-11.

obtained from at least two independent sources to enhance validity. Preliminary findings were presented to 29 attendees during a debriefing meeting on 20th October, 2016, chaired by the COMAHS Provost. This meeting was used to discuss any discrepancies in information received and to obtain feedback on preliminary recommendations.

The capacity assessment was approved by the LSTM Research Ethics Committee and the Sierra Leone Ethics and Scientific Review Committee.

RESULTS

The results are presented under seven key headings. Each heading represents a topic area examined during the rapid assessment process.

1. INSTITUTIONAL RESEARCH STRATEGY

The University of Sierra Leone (USL) does not have a written research strategy at present and neither does COMAHS. Similarly, there is no formal National Health Research Strategy. Nevertheless, a committee has been formed to develop a research strategy for USL. COMAHS has a strategic plan in which research capacity strengthening is prioritised and a draft National Health Research Strategy has been in development since 2012. Thus, there is recognition at all levels that a defined research strategy is important and there is some evidence of progress in this area. However, it may be some time before written research strategies that cascade from the national- to institutional- to college- level are available.

It was not entirely clear how research priorities are identified in the absence of national, institutional or college research strategies. Several interviewees noted that prior to the Ebola epidemic there was minimal research activity at COMAHS and a negligible 'research culture'. The Ebola outbreak has seemingly spurred a flurry of research activity and interest, driven by the needs of the outbreak itself. Much of the Ebola-related research appears to have been initiated by International partners albeit with substantial input from COMAHS staff or Sierra Leone nationals. A number of COMAHS staff have either formal appointments at the Ministry of Health and Sanitation (MoHS) or a close association with MoHS staff and these links were identified as one means by which research priorities were (or could be) established.

The USL provides no funding to support research internally (e.g. seed funding or competitive grant scheme) and the review team were not made aware of any nationally available research awards. COMAHS has a small number of active research and training collaborations with International partners including (among others) LSTM (UK), London School of Hygiene and Tropical Medicine (UK), Berlin University (Germany) and the US Centres for Disease Control and Prevention (USA). These partnerships have seemingly activated a stronger research interest within COMAHS, have developed human capacity in (primarily health systems research and clinical trials) research and have resulted in new and improved physical infrastructure. However, many of these partnerships were formed in response to the Ebola epidemic and substantial capacity and funding gaps in almost all areas remain (detailed throughout this report). Thus, it may be difficult for COMAHS to maintain or grow current

research activity in areas of identified strategic importance without the continued support of international partners in the short- to mid-term. Establishing and maintaining internal processes and mechanisms to identify and maintain these partnerships in mutually strategic research areas and in a manner that ensures sustainability and national ownership in the long-term may therefore warrant priority attention.

2. Institutional Support Services

There is currently no central systematic scanning, recording or support for international or national research grant opportunities at either the COMAHS or USL level. In addition, there is currently limited support to COMAHS researchers in being able to develop credible proposals to international grant opportunities. Ideally, this would include technical support from senior researchers (internal or external) as well as administrative support including finance, human resources and legal advice. Formal approval, involving authorisation from the COMAHS Provost, is required before grant applications are submitted to a prospective funder. It was unclear to the review team whether this formal approval process also included a detailed technical, financial, strategic and compliance review.

There is a Director of Research at USL level supported by two administrative assistants. All COMAHS research projects are reported to the Director of Research's office by the COMAHS Provost, although at present there is no up to date electronic record of current or completed research projects (attributed to staffing shortage). Similarly, the Director of Research does not maintain an up-to-date record of USL (or College) research outputs (e.g. publications, policy briefs, technical reports). The Director of Research coordinates the 'Project Monitoring Committee' which is tasked (among other things) with overseeing progress on externally funded research grants across all three University colleges as well as compliance with the respective contracts. It was unclear how frequently the Progress Monitoring Committee met, with some interviewees suggesting it was infrequent at best. There is no equivalent position at COMAHS level nor does COMAHS maintain an up to date electronic registry of current or completed research projects or a research output depository.

COMAHS health research projects involving human participants and/or health services are currently submitted to the MoHS-administered Sierra Leone Ethics and Scientific Review Committee (SL ESRC). All interviewees who had submitted an application to the SL ESRC reported that it was an efficient process. There were no reports of lengthy delays in receiving ethical approval. The COMAHS-administered Institutional Review Board (IRB) is currently inactive, although plans are in place to revive it before the end of 2016 primarily to review student research projects.

There is no data management support available to COMAHS or USL staff, with the exception of project-specific support on some current or recent grants. There was also no clear evidence of standard operating procedures for data management and security (again, with the exception of some project-specific procedures) nor were there any servers available to faculty staff for research data back-up and security. Thus, at present, research data (with the exception of clinical trials with dedicated – and seemingly externally facilitated - data

management support and systems) are saved on individual computers and backed-up on private storage devices (e.g. flash drives) at the apparent discretion of individual research staff. There is no central depository for research data.

The Finance Department at COMAHS manages external grant funds alongside routine COMAHS financial management. Government guidelines were used for both unless the external grant specified different rules in which case they were given precedence. External grant funds are typically managed in a project specific bank account. All accounts are currently maintained on Microsoft EXCEL, although USL are in the process of implementing specialist accounting software (Sage) University wide (timeline was not specified). Neither the finance department nor any interviewee reported any issues with the current financial management arrangements. Interviewees involved in current research projects reported receiving financial statements as required or on a regular basis. Guidance on budgeting applicable to external grants was provided by the Finance Department if requested, but they did not have a role in developing or checking specific budgets for research proposals. Whilst currently the finance processes and structures were reported as being fit for purpose for handling both internal finances and external grants future consideration may want to be made about splitting these functions into two teams; one focussed on external grants and the other on internal finances when the volume of external grants increases. The current financial management systems are also likely to be considered inadequate by more stringent international funding agencies and could, therefore, present a barrier to research growth.

A lack of internal funding to support research was identified as a major constraint to research capacity by a majority of interviewees, from senior management to students. A number of interviewees also noted that COMAHS academic staff were more likely to prioritise clinical work over research work as the former provided a better means to supplement University salary. However, examples were given of COMAHS staff receiving additional salary (or salary 'top up') payments for their involvement in some of the larger, more recent research projects. For reasons of transparency, sustainability and livelihood, there may be benefit in drafting a clear policy on research participation remuneration. Similarly, COMAHS may also benefit from formal guidelines on external research grant costings and overheads. The lack of a policy on what should be directly costed and the use of overheads for external research grants can result in under-budgeting of costs and a lack of resources to invest in building research facilities within the College. Such a policy should inform what costs should be fully costed within proposals and what overheads should contribute to. Whilst sometimes it will not be possible to negotiate all items with a donor having such a policy puts the College in a better position in terms of ensuring they maximise revenue for research.

3. RESEARCH FACILITIES

The ICT infrastructure at COMAHS is inadequate to support research activities to a high standard. Students reported that they are unable to access the internet on campus. Many staff made the same comment. While most interviewees reported reliable access to PCs or laptops (although in student's cases these were often privately purchased), there were no servers available to support COMAHS activities, communal computers were insufficient (i.e.

student computer labs) and there were no software licences to support research activities (e.g. NVIVO, EndNote, STATA, anti-virus programmes). The ICT staff at College level were mainly engaged in maintenance work to laptops, desktops, printers and other office machines despite training and experience in more sophisticated ICT functions. Students and staff use private email accounts (e.g. Gmail) as an institutional email account was not available. The future of the Wi-Fi at the COMAHS administration buildings, currently funded by an external research grant, was uncertain at the time of writing as the project funding the service was coming to a close. The COMAHS ICT coordinator had not been involved in the establishment or maintenance of this Wi-Fi service.

COMAHS has three libraries located at various campuses across Freetown. The libraries largely rely on donations for new materials, only some of which they can influence with respect to material content. There is no internet connection within the libraries and books are only available through a manual (librarian controlled) issuing system. An electronic cataloguing system is currently in development; however, progress on this system has stalled as the files were maintained on a single computer that stopped functioning following office relocation. Some electronic resources were donated to the library and can be accessed via a small student computer lab. There is no budget for journal subscription. USL has a HINARI access code, although librarians are reluctant to share the access details with students. Rather, librarians will enter the HINARI access details directly into student computers upon request. Student interviewees reported that they were either unaware of HINARI or did not know how to access it. Student interviewees also identified limited access to current reference material and scientific literature as a primary constraint to their studies. The review team visited one COMAHS library. The physical space was relatively small, with seating and desk space for no more than 20 students, poor lighting and no working fans or air conditioning. The library does not maintain a record or depository of COMAHS publications.

A lack of physical infrastructure, in the form of office, meeting, teaching and study space, was often noted by interviewees. In addition, it was frequently reported that the existing physical infrastructure is widely dispersed across Freetown resulting in travel-related inefficiencies and negatively impacting on communication and physical interaction. Observation and experience during the course of the assessment confirmed these reports. A building at the COMAHS administration had recently been redeveloped by donors to support a multi-site Ebola vaccine clinical trial. The future use of this building had not been established at the time of the review (as the clinical trial was approaching an end). However, it presents as the most appropriate space currently available to house the proposed research centre. Vehicle access was also noted as a limiting factor, especially in regards to support field-based research activity. A visual inspection of the COMAHS fleet also suggested a number of the vehicles may be approaching the end of their operational life.

Laboratory spaces were not examined as a part of this review. However, an experienced senior scientist stated that there were significant capacity gaps in laboratory-based research with current 'in-country' activities primarily limited to sample collection and partial processing of samples. The review team were informed that a new COMAHS laboratory had recently been completed, but were also told that logistical and technical assistance was needed to

support its operation. One interviewee expressed hope that the new laboratory, if properly equipped and supported, would allow COMAHS staff and post graduate students to perform robust, national prevalence studies of infectious and non-infectious diseases (e.g. cardiovascular disease risk factors or type two diabetes).

4. Human Resource Management for Research

There is a total of 254 academic staff and 103 administrative staff across the four COMAHS faculties (basic medical sciences, clinical sciences, pharmaceutical sciences and nursing), inclusive of pre-medical and pre-pharmacy staff. The majority of these positions are internally funded, with only 10 positions paid through partnerships or pro-bono. There are uniform recruitment processes for vacant positions and clear employment criteria for each position. The roles and responsibilities of each academic level (e.g. lecturer, senior lecturer and associate professor) are specified in University legislation as is the academic promotion pathway and process. Appraisal processes are in place for all staff and are completed annually. Staff retention was not reported to be a problem, although it was suggested that senior and/or technical positions were not always easy to recruit. Figures provided by the COMAHS human resource office reflected a lack of senior research expertise, with only five members of the COMAHS academic staff reported to hold a PhD. Academic and administrative staff are actively encouraged to upgrade their qualifications and, in some cases, must do so in order to be eligible for promotion. USL provides fee waivers on USL courses to COMAHS staff and staff can apply for study leave after specified years of service. Staff who take paid study leave are bonded to return to USL at the completion of their studies. USL does not offer PhD level training programmes (i.e. USL staff cannot obtain a PhD qualification through USL fee waiver programme).

Few interviewees commented on the USL salary structure, although it was reportedly a common topic of staff complaint especially given continued depreciation of the local currency. A number of interviewees did suggest that many academic staff preferred to engage in clinical work rather than research as it provided better opportunities for additional remuneration. As previously noted, some of the larger more recent research projects have provided opportunities for additional remuneration, although this was variously described in both positive and negative terms. The negative view was that an expectation may now have been created for staff to be paid in order to actively engage in a research project which may not always be possible (depending on project budget, funders etc). One interviewee also suggested that remuneration for research work dis-incentivised research uptake activities as financial reward was rarely available to support this stage of the research process.

The primary concern raised in relation to human resource management pertained to academic and administrative staff who were employed on temporary contracts while awaiting formal ratification of their position by the USL appointments committee. It was suggested that these staff were denied the full benefits and security of a ratified position, yet were required to work as if they were. Insufficient office space, resulting in COMAHS HR files being located at multiple sites and not readily accessible, was also identified as an issue. HR record management was still largely based on a manual system with limited electronic support (e.g.

Excel files). Use of specialist, digital HR software might improve efficiency and would reduce some of the practical challenges posed by the lack of accessible filing space.

Academic staff hold a large and varied workload consisting of research, teaching and community service. Academic staff are expected to hold an administrative appointment at various stages of their promotion pathway. Many academic staff also hold joint appointments at other institutions (e.g. Hospital, MoHS, military). The substantial workload currently shouldered by the small pool of PhD level academic staff presents a significant threat of 'burnout' and some duties may be compromised as a result. Any growth in research activity, without an equitable increase in the number of post-doctoral staff available to lead and contribute, will likely exacerbate this burnout risk. Additional research support staff, inclusive of specialist project management and data management positions, could potentially relieve academic staff of many aspects of their research-related workload. However, the review team acknowledge that it would require substantial time and effort to recruit and train research support staff to the necessary level to achieve this.

5. Training Activities for Research

There is no regular programme of training for research available to academic or administrative staff at either COMAHS or USL. In addition, there is no mechanism to identify research training needs of staff or a person/office tasked with coordinating training activities or identifying external training opportunities. Internal funding to support staff training is limited. The training opportunities identified by COMAHS staff were typically delivered by external institutions or externally funded projects on an apparently *ad hoc* basis. Many interviewees reported a need for additional training, typically in core research activity areas such as grant writing, data analysis and manuscript preparation. However, the assessment team identified a broader range of training needs covering a wider range of competencies and skills including soft skills, personal effectiveness, project management skills, communication skills and research leadership. Whilst opportunities for training are valued, one-off training, which is limited in length and scope may only have limited impact on researchers' performance. However, a programme of continuous professional development with follow-up, linked to a robust learning framework would be of greater value to academic staff and postgraduate students, potentially contributing to institutional learning and growth. This could also be linked to a professional mentoring programme for both staff and postgraduate students.

There are no PhD programmes at COMAHS. Thus, increasing the number of PhD-qualified academic staff (from the current total of five) will likely require international support (e.g. scholarships) in the short- to mid- term. Developing COMAHS PhD programmes in strategic disciplines will usefully support research growth and is perhaps the most sustainable means to securing reliable access to suitably qualified teaching and research staff. However, given the current gaps in infrastructure and human resource, the development of a PhD programme may be better considered a mid-to long-term priority.

6. External Promotion of Research

The COMAHS is involved in an increasing volume and scope of research in areas of national and regional strategic importance. Platforms to support the dissemination of the resulting research findings are evident. These include direct links to strategic target audiences, such as MoHS and Freetown Hospitals, through inter-personal networks or through joint appointments (e.g. a COMAHS faculty member holding a joint appointment with MoHS or local hospital), membership on national technical working groups at the MOHS and through the publication of research findings in scientific literature. The latter (publications) are also a stipulated requirement for promotion in the USL academic career pathway. A number of COMAHS faculty members attend and present at international scientific meetings.

Despite these existing platforms to support the external promotion of research, the capacity assessment identified a number of important gaps. For example, the review team were unable to find any evidence of a communication strategy or of incentives to communicate research findings by means other than, or in addition to, publication in peer-reviewed journals. In addition, a number of interviewees reported a capacity gap in terms of preparing policy briefs, press statements or lay summaries of their research findings and training to support these activities was seemingly unavailable. A number of academic staff and postgraduate students further expressed interest in additional scientific writing or manuscript preparation training to support peer-reviewed publication. There is currently no USL or COMAHS forum for promoting research findings, such as an annual symposium, nor are there any annual reports or other forms of routine research reporting or communication material. COMAHS does not maintain a communications office. The review team were unclear as to what extent the USL public relations office is actively involved in collecting and promoting USL-generated research outputs (the review team did not interview anyone from this office, although interviewees did not describe any such function). The website, whilst modern in appearance and relatively easy to navigate, could also be used to a greater extent. For example, there is currently no presence for (or links to) COMAHS publications, policy briefs or research reports (or indeed any reference to current research projects). There is a dedicated website technician at USL level who could potentially insert such content if it were provided. It was also of note that, while some COMAHS faculty staff have direct links to strategic audiences, these were often not the product of formal institutional meeting/dissemination forums and were not accessible to all staff.

7. Sierra Leone Ethics & Scientific Review Committee

The interview team met with three sitting members of the SLESRC, but were unable to meet with the coordinator or chairperson. The sitting members reported that the SLESRC had a clear submission process, met regularly (at least monthly) and responded to submitted proposals in a timely manner. These reports were supported by other interviewees who had previously submitted proposals to the SLESRC. Thus, the SLESRC appears to be sufficiently capable of processing and responding to the current level of submissions in a manner that does not pose administration related barriers to obtaining timely ethical clearance for health-related research in Sierra Leone. However, a number of interviewees stated that the SLESRC would benefit from greater secretariat support. Areas of suggested support included a dedicated office space with appropriate filing, secretarial support and conversion to an electronic

submission and records management platform. It was also noted that the SLESRC membership were almost (or were all) scientists and that it would be beneficial to recruit a broader cross-section of professionals and lay persons onto the committee as well as striving for a greater gender balance (females underrepresented at present). In addition, there did not appear to be an intensive training programme/package available to support new SLESRC members nor were there refresher courses for existing members. There was interest in receiving such training from SLESRC members and it was also suggested that an 'attachment' to a more established ethical review committee would be a valued learning experience for SLESRC members. Interviewed SLESRC members reported no instances in which they had received progress- or completion- reports from previously approved submissions during the course of an SLESRC meeting, although both were relatively new members. Given these shortcomings it is possible that, at present, the scope and robustness of the ethical review process and the monitoring and recording of SLESRC submissions may not be as robust as they potentially could be.

In addition to ReCAP-SL, Kings College London are also actively seeking to support capacity development of the SLESRC through the Kings College – Sierra Leone partnership initiative. Thus, the SLESRC appears to have willing partners available on the ground to support capacity development. COMAHS could potentially support the MoHS to best consider how the LSTM and Kings College support could be utilised for maximum advantage and to ensure efforts are not duplicated.

RECOMMENDATIONS

The following recommendations are derived from the rapid capacity assessment described above. The list is not considered exhaustive and prioritises actions that could potentially be achieved within an 18-month timeframe (consistent with the current end date of the RECAP-SL project).

1. DEVELOPMENT OF A HEALTH SYSTEMS FOCUSED RESEARCH CENTRE WITHIN COMAHS

While there is a physical space potentially available to house a research centre within COMAHS and a growing expertise in health systems research among a small pool of COMAHS academic staff, there remain considerable resource and capacity gaps (as detailed in this report) that would likely require substantial time and investment to be addressed. Growing the number of PhD-qualified academic staff within COMAHS, developing a professional cadre of research support staff and investing in ICT infrastructure stand out as essential mid- to long-term development priorities. Nevertheless, a staggered approach to the development of the proposed research centre is advisable. Immediate priority could be given to steps achievable in a relatively short time frame and at relatively minimal cost, yet that actively result in a sustainable and visible improvement in health systems research support, output or impact and that contribute to growing a 'research culture' within COMAHS. A list of possible short-term actions are listed below.

Research Strategy

- Develop a COMAHS research strategy with defined research priorities for a specified period (e.g. 2016-2020) and cascade to the research centre, detailing health-systems related research goals, objectives and targets.
- Once a research strategy for the health systems research centre is developed, map current strengths and weaknesses in relation to this strategy and identify potential national and international partners to support implementation.
- Form a multi-stakeholder steering committee/advisory panel to oversee the development and strategic direction of the health systems research centre. Individuals and/or institutions of recognised strategic importance should be invited to sit on the panel.
- Consider appointment of adjunct professors from established international research institutions to support the research activity of the proposed research centre.
- Consider dedicated positions outside of the USL employment structure to support the growth of health systems research, e.g. postdoctoral fellows. Consideration may also be given to seeking secondments of postdoctoral research staff to COMAHS from international partners.

Research Grant Identification and Preparation

- Develop a COMAHS policy on research costing and overhead payments to support external grant preparation. Consideration may also be given to the development of an internal policy on what proportion of any overhead payments received is allocated to support the operations and continued development of the research centre.
- Establish a research grant information & tracking system as a priority function of research centre. Priority should be given to funding opportunities (and international partnerships) that advance COMAHS's research strategy.
- Establish an internal 'grant review' process designed to strengthen the quality, technical proficiency and financial soundness of research grant proposals prior to submission.

Research-Supportive Resources

- Establish standard operating procedures (SOPs) for data management and work towards the establishment of a central data depository on a secure server.
- Establish a medical and allied health sciences research repository, inclusive of all technical reports, publications and research outputs produced by COMAHS to date as well as an up-to-date listing of current projects. Ideally, this repository would be linked to the COMAHS website.
- Establish a dedicated, communal 'resource' space within the proposed research centre providing access to hardcopies of locally-produced or locally-relevant health research literature and access to HINARI and PubMED. To improve accessibility, the same resources should also be made available across the COMAHS library system.
- Consider purchase of licences for key research software to be made available to research centre staff and associates.
- Consider establishing a competitive, internal research grant scheme to support the development of research projects consistent with COMAHS's research strategy. The grant scheme may be modelled as a 'seed fund' to support promising research ideas that could potentially attract external funding with further development.

Training and Dissemination

- Develop a rolling training programme to support research and supervision competencies. Content of the training programme should be informed by the 'Researcher Development Framework' (annex 4). The programme could be coordinated by the research centre and visiting scholars/local partners (e.g. Kings College – Sierra Leone Partnership, WHO) invited to contribute.
- Develop a mentorship scheme for young/inexperienced COMAHS research staff, possibly involving national or international partners if required.
- Develop a health research-focused COMAHS seminar series open to staff, students and national partners/stakeholders. Visiting scholars/local partners could be invited to present.
- Develop a COMAHS research communication strategy and provide training and technical assistance to support its implementation. The strategy should identify different methods of communication, the roles and responsibilities of COMAHS staff in regards to research communication and target audiences/forums for communication.
- Establish an annual medical and allied health sciences research symposium, coordinated by the research centre, and open to target national and international audiences.

2. Support the Capacity of the SLESRC

- Increase and diversify SLESRC membership, with an emphasis on increased representation from females and non-scientific professions or organisations.
- Develop a comprehensive induction programme for new SLESRC members and a refresher programme for existing members
- Pursue funding opportunities to enhance secretariat (dedicated secretary, physical resources & electronic submission & records management system)
- Re-establish the COMAHS IRB to review student research proposals. In order to reduce the potential burden on senior academic staff, consider delegating responsibility for IRB operations to junior academic and administrative staff with appropriate training and support as required.
- Ensure the ReCAP-SL and Kings College support for the SLESRC is aligned and utilised for maximum advantage.

Acknowledgements

The authors would like to express their gratitude to all individuals who participated in the interviews and to Dr Haja Wurie for her invaluable support during the assessment period. Many thanks to Susan Grice of LSTM for logistics support. The assessment was funded by The European and Developing Countries Clinical Trials Partnership (EDCTP).

ANNEX 1: THE CONSULTANT TEAM

Capacity Research Unit (CRU), Liverpool School of Tropical Medicine (LSTM)

Prof Imelda Bates – Head of CRU. Prof Bates established the Capacity Research Unit at LSTM and is an international expert and leader in capacity strengthening in resource-poor settings. Imelda has built and led diverse multi-country research teams and developed research outputs that have been used to inform international policy. Her current research projects focus on strengthening the capacity of African institutions to deliver postgraduate training and research. These include the Royal Society-DFID Africa Capacity Building Programme (2012-20), Strengthening Research Management and Support Systems (2014-16) and the DFID-funded CouNTDown project (2014-19). Email: Imelda.Bates@lstmed.ac.uk

Dr Justin Pulford – Senior Lecturer. Dr Pulford joined the Capacity Research Unit in February 2016, taking the role of Deputy Head of the Unit. He has worked in health systems research since 2005 across a number of institutions, including AUT University, New Zealand, University of Queensland, Australia and the Papua New Guinea Institute of Medical Research, Papa New Guinea. He has substantial experience in qualitative health research, survey research, program evaluation and operational research using a range of methodologies. Email: Justin.Pulford@lstmed.ac.uk

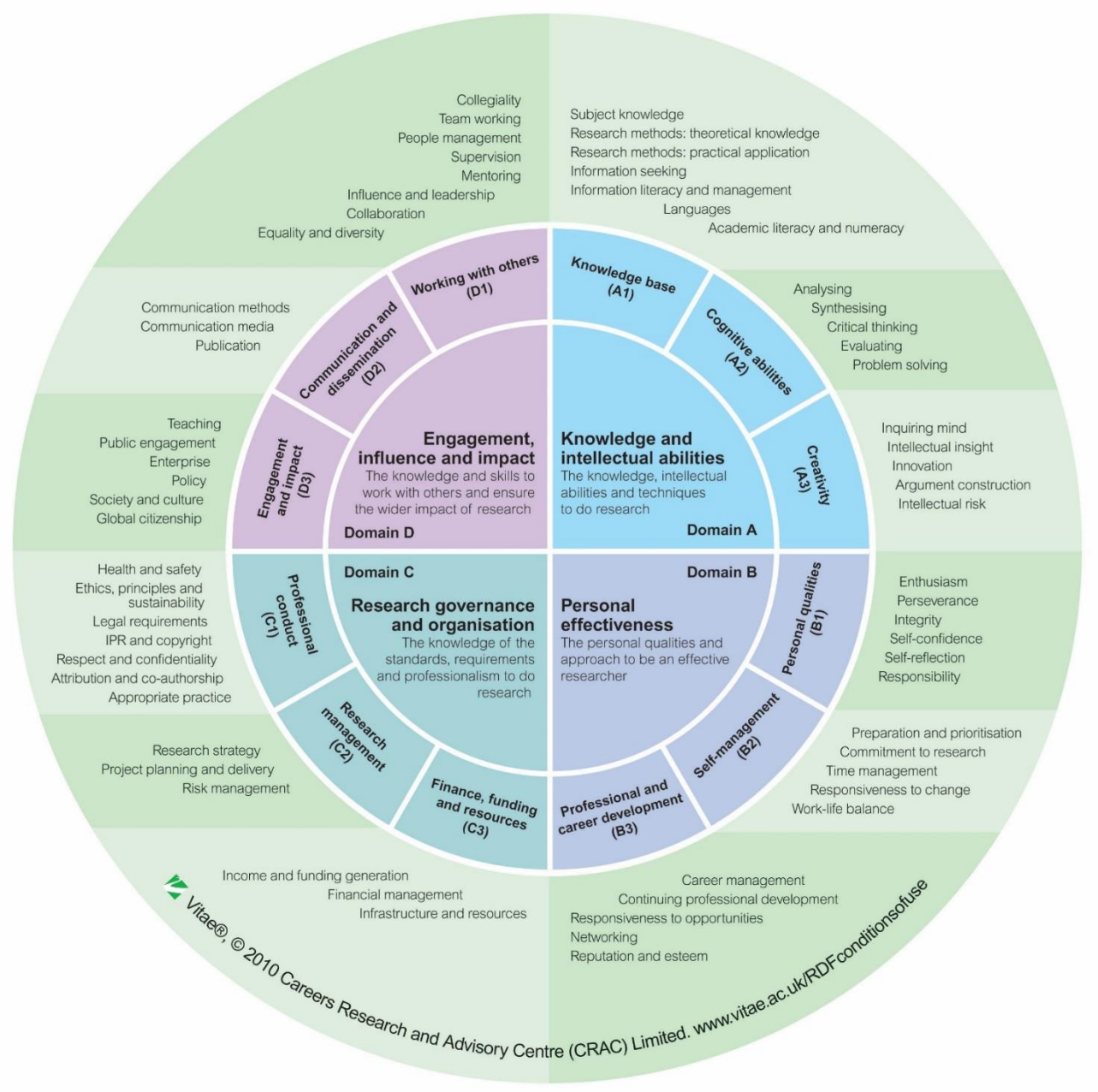
Health Systems and Workforce Strengthening Unit

Dr Joanna Raven – Lecturer. Dr Raven joined the Health Systems and Workforce Strengthening Unit in 2011. She has over 15 years of international experience of research, training and partnership in the areas of health systems, human resources, sexual and reproductive health and gender equity. She has worked with COMAHS since 2011 on the REBUILD programme, and is the LSTM principal investigator for the RECAP-SL project. Email: Joanna.raven@lstmed.acuk

ANNEX 2: LIST OF PEOPLE INTERVIEWED AND FACILITIES VISITED

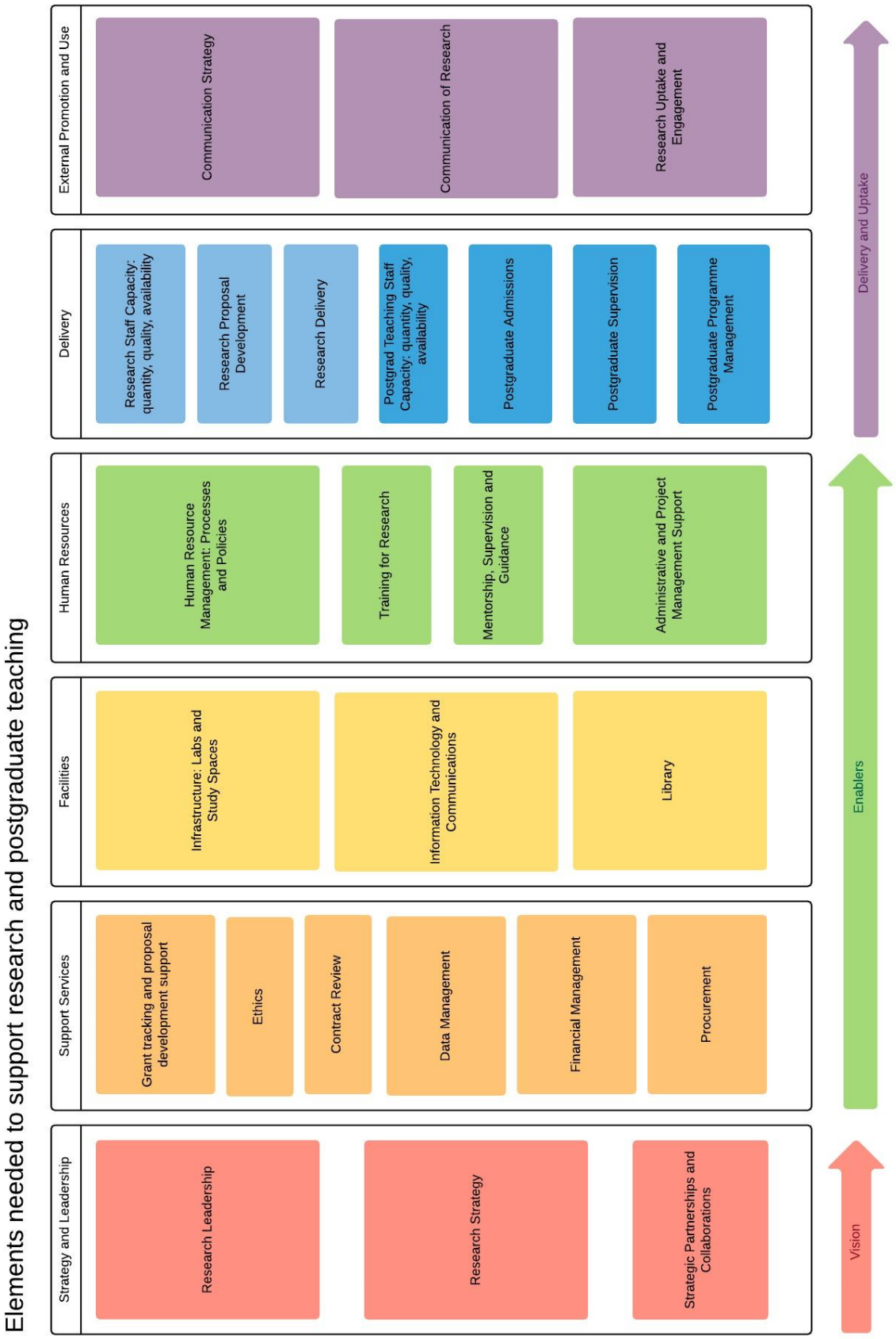
1	Dr Mohamed Samai	Provost, COMAHS
2	Dr Isaac F Palmer	Director of Research, USL
3	Dr Shid M Kargbo	Director of Planning and Human Resources, USL
4	Brigadier Prof. Foday Sahr	Researcher, Head of Microbiology Department COMAHS, Surgeon 34 Military Hospital
5	Haja Dr IsataWurie	APHL Lead consultant, Sierra Leone, Head of Chemical Pathology Department, COMAHS
6	Prof Radcliffe Lisk	Chairman COMAHS IRB, Specialist Doctor
7	Dr Joan H Shepherd	Member, SLESRC
8	Dr James BW Russell	Researcher and Lecturer, COMAHS, Specialist Doctor MOHS
9	Dr Aisha Ibrahim	Member, SLESRC
10	Dr Haja R Wurie	Researcher and Head of Biochemistry Department, COMAHS
11	Mr Winston Webber	Registrar, COMAHS
12	Mrs Elisabeth Kojo-Lansana	Finance Manager, COMAHS
13	Mrs Princess G Macouley	Human Resource Coordinator, COMAHS
14	Mr Michael Gbondo	ICT Technician, COMAHS
15	Mr Saidu Sesay	Head Librarian, COMAHS
16	Mr Mohamed Elsherbiry	Research Manager, King's Sierra Leone Partnership
17	Ms Jasmine Assad	BSc (Hons) student, COMAHS
18	Mr Waheed Awonuya	MBBS student, COMAHS
19	Mr John Smith	BPharm student, COMAHS
20	Fatmata K Jalloh Finda J Sellu Henry S Bangura David K Kargbu	MPH students, COMAHS

ANNEX 3: RESEARCHER DEVELOPMENT FRAMEWORK



https://www.vitae.ac.uk/researchers-professional-development/about-the-vitae-researcher-development-framework

ANNEX 4: ELEMENTS TO SUPPORT RESEARCH AND POSTGRADUATE TEACHING



ANNEX 3: RECAP-SL ACTION PLANS

RECAP-SL Action Plan Short Term

	Action Steps	Responsibilities	Timeline	Means of Verification	Completed during project
	Research Strategy				
1	Develop a COMAHS research strategy to inform operations of the research centre	PMC, Steering Committee and Research Committee at COMAHS	31st July 2017	COMAHS Research Strategy on website	√
2	SWOT analysis in relation to the strategy		31st July 2017		√
3	Identify potential national and international partners to support implementation of the strategy		31st July 2017		√
4	Contribute towards the development of a research strategy at the USL and MOHS level	PMC, Steering Committee (SC) and Research Committee at COMAHS	31st July 2018	Research Strategy at the USL and MOHS level	The discussion was initiated at the MoHS level but the political climate at the time deterred progress. We have re-initiated the discussions again at the MoHS level now that the new Director of Research at the MoHS also doubles up as a key person within the research capacity building space at COMAHS. At the USL level, this will be incorporated into the new grant proposal being developed to support the IRB at USL
	Research support services and data management				
5	Develop good quality research outputs	Research fellows with support from mentors and Research Manager	Upon commencement of field work	Research publications, blogs, presenting findings at annual symposium etc	√

6	Current research and data inventory - develop a structure for the inventory and method for identifying past research proposals, publications and data	Research fellows	On a rolling basis - inventory will be updated regularly	Electronic Copy of research inventory. Data collected from this project will be stored centrally	√
7	Develop/adapt SOP for data management - develop a method for collating documents and data as they are produced - by April 2017; collate the data - from May 2017 and ongoing	Research Manager	31st July 2017	SOP developed	This is being supported by another grant at COMAHS, funded by the National Institute for Health Research (NIHR).
8	Local relevant or produced research on display at the research centre (physical and electronically – latter should be accessible from the library)	Administrative officer	Ongoing (latter when the ICT infrastructure permits) - will be started by April 2017; and then regularly updated	Research display board at the research centre	√
	Research fellows				
9	Maintain Portfolios - develop some guidelines for the fellows to record in the research portfolio	LSTM lead and COMAHS lead	Feb 2017 - July 2018	Portfolios completed by research fellows	√
10	Develop Programme of work - for individual fellows	Research fellows with support from mentors and Research Manager	Feb 2017 - July 2018	Programmes of work developed and reviewed by steering committee	√
11	Mentor research fellows to develop research proposal and for career development	Mentors and research fellows	Feb 2017 - July 2018	Record of mentoring meetings in portfolios; draft proposal	√
12	Participate in educational visit to LSTM	Research fellows	July 17	Portfolios document visit; visit discussed at PMC	√

13	Attend an international conference - identify suitable conference, apply for additional funds to attend,	Research fellows	Jan 2018 - June 2018	Portfolios document attendance; attendance discussed at PMC.	This was somewhat achieved but not within the timeline of the project, as no suitable international conference was identified during the project lifetime. Three of the fellows will attend Health Systems Research Symposium in October 2018. One of these fellows is an Emerging Voice for Global Health 2018 (http://www.ev4gh.net/about/ev4gh/) and will benefit from this additional capacity building programme. The fourth fellow will be attending the HBIOMED-SL conference in Sierra Leone and will be presenting her work.
14	Support the MPH programme at COMAHS - identfiy where fellows could support MPH programme (by June 2017), fellows plan activities with support from manager and mentors (by August 2017), deliver activities (by August 2018)	Research Fellows, Research Manager, LSTM	Feb 2017 - July 2018	Confirmation letter from MPH Programme lead	The implementation of the MPH program has faced a number of challenges to date. Unfortunately this created a non-conducive platform for the fellows to work on.
	Project management				
15	Steering committee and PMC meet regularly	Research Manager and Administrative Officer to coordinate; all PMC members	Throughout the project	Minutes from meetings	**√**
	Financial management				
16	Determine appropriate percentage for grant overhead	Senior Management at COMAHS/Research Committee at COMAHS	December 2016	Figure decided	**√**

		with support from the Financial Manager			
17	Financial management of the project	Finance officer, admin officer and Research Manager	Throughout the project	Correct financial reporting to funders	√
	Research aids				
18	Explore the availability of free key research software to be made available to research centre staff; procure new laptops for research fellows	Research Manager	September 17	Software installed on research fellows project laptops	√
	Research staff development				
19	Develop a training programme for COMAHS to support research and supervision competencies: identify training needs beyond the recently conducted research capacity assessment of COMAHS (e.g. using a short questionnaire - by April 2017); develop a rolling programme based on needs (by June 2017); Implement programme - June 2017 - August 2018	Research Centre staff with support from steering committee and Research Committee at COMAHS	April 2017 - July 2018	Programme developed	√
20	Develop and roll out a PhD programme at COMAHS as part of the research strategy; opportunities for PhD studies will be reviewed for all new large research proposals; the research centre will actively look for PhD funding opportunities	MPH Staff with support from Research Centre Staff and international partners including LSTM	Long term goal as research infrastructure should be adequate, but the process can be initiated during the lifetime of this project	Section on PhDs included in research strategy	√

21	Embed PhD and Masters level training in grants being applied for	Existing COMAHS Researchers/Potential PIs within COMAHS	Ongoing	Research proposals include Masters and PhD opportunities for Sierra Leone researchers	√
22	Provide support to research fellows - see research fellows row above	Mentors (national and international) and Research Manager	Throughout the project		√
23	Provide support to research centre management - e.g. regular discussions with programme managers in other institutions / on other programmes i.e. LSTM, Kings SL; sharing of processes, documents to see how other programmes are run and adapting them to COMAHS context	Research Manager and COMAHS Staff	Throughout the project	Discussions with other institutions; adaptation of materials	√
	Research Uptake				
24	Develop and implement an effective research communication strategy - Develop a communication strategy by June 2017 (centre manager, fellows, PMC); reviewed by steering committee; implement strategy July 2017 - Aug 2018)	Research Centre staff, PMC, Steering Committee	Develop communication strategy by June 2017; Implement strategy throughout the project	Communication strategy developed and on website	√
25	Establish an annual medical research symposium, organise the logistics of the symposium; develop the programme including keynote speakers etc; conduct the symposium	Research Centre staff	by 31 July 2017 and 31 July 2018	Report of symposium with pictures	Unfortunately this was not achieved due to a number of challenges. Several staff strikes at academic institutions made it very difficult to get researchers from all the universities together. However we improvised and

					supported student associations and professional associations with research activities and used these platforms to talk about research. We also supported the organisation of the HBIOMED-SL conference which creates a networking platform for researchers and students
26	Update the website	Research Manager and Webmaster at the University of Sierra Leone	Ongoing	Website updated	√
27	Hold quarterly research seminars in COMAHS	Research Centre staff	Every quarter from January 2017	Pictures from seminar; programme for seminar on webpage; blogs / short reports of seminars on webpage	√
	COMAHS IRB				
28	Re-establish the COMAHS IRB committee and seek the required training for potential committee members (develop / review existing ToR for IRB; identify members of IRB (to include research fellow(s)); identify training needs; develop training programme for IRB members; implement training programme)	Senior Management at COMAHS	Dates cannot be determined at this point in time, as discussion has to be had first with the existing IRB	IRB Functional - documentation of IRB meetings; COMAHS applications reviewed	This was not feasible during the lifetime of this project. We however conducted a quick needs assessment of the current situation of the IRB at COMAHS, which will inform the development of a much more focused proposal to address and support this area.
	National Ethics Committee				
29	Develop refresher training	LSTM, COMAHS, SLESRC	July 2017 - December 2017	Training programme developed and discussed at PMC	The National Ethics Committee has received support from other projects.

30	Deliver and evaluate training	LSTM, COMAHS, SLESRC	January 2018 - June 2018	Record of training; evaluation feedback from members about training	The National Ethics Committee has received support from other projects.
31	Visit LSTM – learn about ethics - attend ethics committee; meet with ethics committee chair, members and secretariat; (this will also help with establishing COMAHS IRB)	Research fellows	Jul-17	Portfolios document visits, visits discussed at PMC.	√
	Evaluation of project				
32	Evaluate project activities	PMC and Steering Committee	June to July 2018	Activities evaluated and discussed at the PMC and SC level; final evaluation report	√

RECAP-SL Action Plan – Long Term

Build a research centre
Equip research centre with the right enablers/working environment (e.g. access to journals, ICT infrastructure) for effective research and it's management
Recruit and train for specialist project and data management functions within the proposed research centre
Set up a research support service
Grants management
Legal advice
Administrative support (i.e, grant information and tracking that support the research strategy
Grant review committee
Research Strategy
Contribute towards the development of a research strategy at the USL and MOHS level
ICT infrastructure development at the College level
COMAHS server
Improve ICT infrastructure across the college particularly the library, with measures in place for ongoing maintenance
Financial Management
Roll out SAGE accounting software
Develop and implement financial management structure recognized by international funders
Research Aids
Research software made available to research staff
Library
Improve library resources and access to research journals
Investment in Research
National, Institutional and College investment in research to support small scale projects to support the development of a research culture at COMAHS
Research Fellows
Retain them the research fellows after the end of the project (August 2018)

ANNEX 4: TIMETABLE FOR RECAP-SL FELLOWS' VISIT TO LSTM

Week 1	Monday 3rd July	Tuesday 4th July	Wednesday 5th July	Thursday 6th July	Friday 7th July
AM	9.15 Welcome and introductions with Jo (M311)	9.30 – 10.30 Research portfolio with Jo (M311)	10.00 – 10.30 RBPS overview with Helen McCormack (RBPS meeting room) 10.30 – 11.30 Pre-award (RBPS meeting room)	9.30 – 12.30 Qualitative research with Sally and Jo (M311)	9.30 – 12.00 Literature search with Alison (Computer lab)
	11-12.30 Qualitative research with Sally and Jo (M311)	11- 12.00 Twitter (Jan)	11.30 – 12.30 Post award (RBPS meeting room)		
Lunch Break	Lunch and meet the mentors (M311)			Ethics Committee (Wolfson 1)	
PM	13.30–14.30 Qualitative research with Sally and Jo (M311)	13.00 – 16.00 Ethics and governance session with Lindsay (Wolfson 7)	14.00 – 15.00 Research information and Converis (RBPS meeting room)	14.00-15.00 Research ethics Discussion with Lindsay and Angela (Wolfson 1)	14.00- 15.30 Equality and diversity with Cecilia (M311)
	15.00– 15.30 Tour of library with Jackie (library)			16.00 –16.30 Institutional repositories with Sarah (M311)	
Evening				Meal	
Week 2	**Monday 10th July**	**Tuesday 11th July**	**Wednesday 12th July**	**Thursday 13th July**	**Friday 14th July**
AM	*CTC topic guides / proposal development (M311)*	9.30 – 11.30 Capacity building visit (Capacity Building Unit)	*CTC ethics application /proposal development (M311)*	9.00- 11.00 Endnote referencing (Alison)	*Proposal development (M311)*
		CTC ethics application /proposal development (M311)		11-12 ReBUILD Researcher Forum (Wolfson 2)	
Lunch Break				Lunch Director, mentors (Wolfson2)	
PM	*CTC ethics application/proposal development (M311)*	14.00-16.00 Research uptake with Nick (M311)	14.00-15.00 Q &A session on qualitative research with Jo (M311)	*CTC literature review / proposal development (M311)*	*Proposal development (M311)* 15.00 Evaluation
		CTC ethics application /proposal development (M311)	15.00 – 16.00 Q & A session on quantitative research & statistics (Caroline)		
Evening			5pm: Tour of Liverpool; 6pm: Meal		

ANNEX 5: RESEARCHER DEVELOPMENT PORTFOLIO TEMPLATE

Research Fellows: Research Development Portfolio

A **Research Development Portfolio** is at the centre of your continuous development as a research professional. It is a process that allows you to review and enhance the skills you have at present and to help you plan for developing your future skills and professional competences. It helps you to map out your future progress ensuring you are prepared for the research environment and equipped for the professional challenges ahead.

The Research Development Portfolios will also be used to monitor and evaluate the effect of the RECAP-SL project. Any extracted data from the portfolios will be coded and names / personal identifiers removed. The portfolios will inform a discussion with the fellows at the end of the project (July 2018).

The Research Development Portfolios will also be sent to EDCTP as a confidential deliverable product of the project (Deliverable 3.1. is: Portfolios of research fellows show skills and knowledge development).

This portfolio is based on the Vitae Researcher Development Framework designed by the UK Research Community and it uses terms that best help researchers to find development opportunities within their subject area and for their personal and professional development.

Below you will find the portfolio sub-divided into themes such as Communication, Research Methods, Ethics and Governance, and Impact. Furthermore, the Core Skills section sets out a comprehensive range of skills and behaviours necessary for the completion of a research project.

How to fill in the Research Development Portfolio

This portfolio will be completed in July 2017 as a baseline, then again in January 2018 and July 2018 to track any progress in development of research skills or areas. However, you can add activities and reflections at any time.

1. **Provide a rating**

   The first stage is to use the Research Development Portfolio to measure your strengths in the different skill areas. Another way to think about this is in terms of your confidence. How confident are you that you are sufficiently experienced in the outlined areas. The Portfolio asks you to give a score for your confidence and skill level. Put a number in the column to show how you view your abilities in the appropriate area. This should be a challenging, self-reflective experience. It should make you think deeply about your capabilities. However, there is no expectation that you reach any particular level and there are no criteria for these levels as such objectivity can be problematic – we ask you to choose a level in order to help discussion with your mentor. The aim, therefore, is to give an indication of how you rate your range of skills and competencies along with your confidence in these areas. For each of the statements below, assess the level of your confidence and how you would rate your skills in each area and give yourself a score out of four, with four being the highest. Then, decide which level of priority you would give to development and training in this area – low, medium or high.

2. **Describe the activities that demonstrate this skill / area**

   Describe activities or any previous experience that demonstrates this skill / area. This could be for example, any training, on-line courses, workshops, reading, discussions with peers, supervisors or mentors, network events, conferences, teaching, or practical experience e.g. field work, analysis of data in this area.

3. Reflections on activities

In this section, we want you to reflect on these activities or experiences and think about: What went well? What was challenging? What would you do differently next time? And what else could you do to develop this skill / area?

4. Discussion with mentor and other key staff in July 2017, January 2018, July 2018

After you have completed the portfolio in July 2017, January 2018, July 2018, you can discuss the skills/ areas, the activities and your reflections with your mentor, and other colleagues such as Haja or Jo. This will help you reflect further on your progress and areas to strengthen, as well as identify ways to support your development as a researcher.

A. CORE SKILLS DEVELOPMENT

Skill/Development Area	Confidence/skill Level 1 – 4	Priority Low / Medium / High	Describe the activities that demonstrate this skill / area	Reflections on activities: What went well? What was challenging? What would you do differently? What else could you do?
I have a good understanding of a variety of research methods, theories and techniques relevant to my research work			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I am familiar with identifying and using Library resources, including electronic sources			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I am used to citing and referencing in a rigorous and correct way			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I understand issues relating to academic integrity, e.g. plagiarism			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I have experience in writing a 'literature review'.			*July 2017 (baseline)*	
			January 2018 (progress)	

			July 2018 (progress)	
I have the information technology skills necessary for my research project			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	

B. RESEARCH PLANNING AND TIME MANAGEMENT

Skill/Development Area	**Level** 1 – 4	**Priority** Low / Medium / High	**Describe the activities that demonstrate this skill / area**	**Reflections on activities: What went well? What was challenging? What would you do differently? What else could you do?**
I have experience of presenting a plan of purposes, stages and outcomes of research			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I have experience in setting targets and timescales for different stages of a research project			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	

C. COMMUNICATION AND NETWORKING SKILLS

Skill/Development Area	**Level** **1 – 4**	**Priority** **Low / Medium / High**	**Describe the activities that demonstrate this skill / area**	**Reflections on activities: What went well? What was challenging? What would you do differently? What else could you do?**
I am able to effectively communicate my research through my writing skills			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I have the necessary English language skills to conduct my research			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	

I am able to verbally present and defend my research			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I have experience of presenting research at conferences			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
(Where research is in non-English language environments) I have the necessary language skills to conduct my research **(This does not refer to English language skills)**			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	

D. ETHICAL AND LEGAL UNDERSTANDING

Skill/Development Area	Level	Priority	Describe the activities that demonstrate this skill / area	Reflections on activities: What went well? What was challenging? What would you do differently? What else could you do?
	1 – 4	Low / Medium / High		
I have experience of submitting my work for ethical approval			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I understand issues relating to privacy and confidentiality			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I have experience of carrying out an informed consent process			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	

E. IMPACT

Skill/Development Area	Level	Priority	Describe the activities that demonstrate this skill / area	Reflections on activities: What went well? What was challenging? What would you do differently? What else could you do?
	1 – 4	Low / Medium / High		
I understand the need to work effectively in a team and how to engage in collaborative activity in, and outside of, academia			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I have knowledge and experience of how to prepare research for publication			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I have the ability to write for different audiences			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I have experience of teaching and demonstrating			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I understand how to make my research count (i.e. impact, outreach and knowledge exchange, civic engagement, research uptake)			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	

F. PERSONAL EFFECTIVENESS

Skill/Development Area	Level	Priority	Describe the activities that demonstrate this skill / area	Reflections on activities: What went well? What was challenging? What would you do differently? What else could you do?
	1 – 4	Low / Medium / High		

I have the enthusiasm, perseverance, integrity and self-confidence required of effective researchers			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	
I am responsive to opportunities, a confident networker and aware of the need to develop my reputation and maintain a work life balance			*July 2017 (baseline)*	
			January 2018 (progress)	
			July 2018 (progress)	