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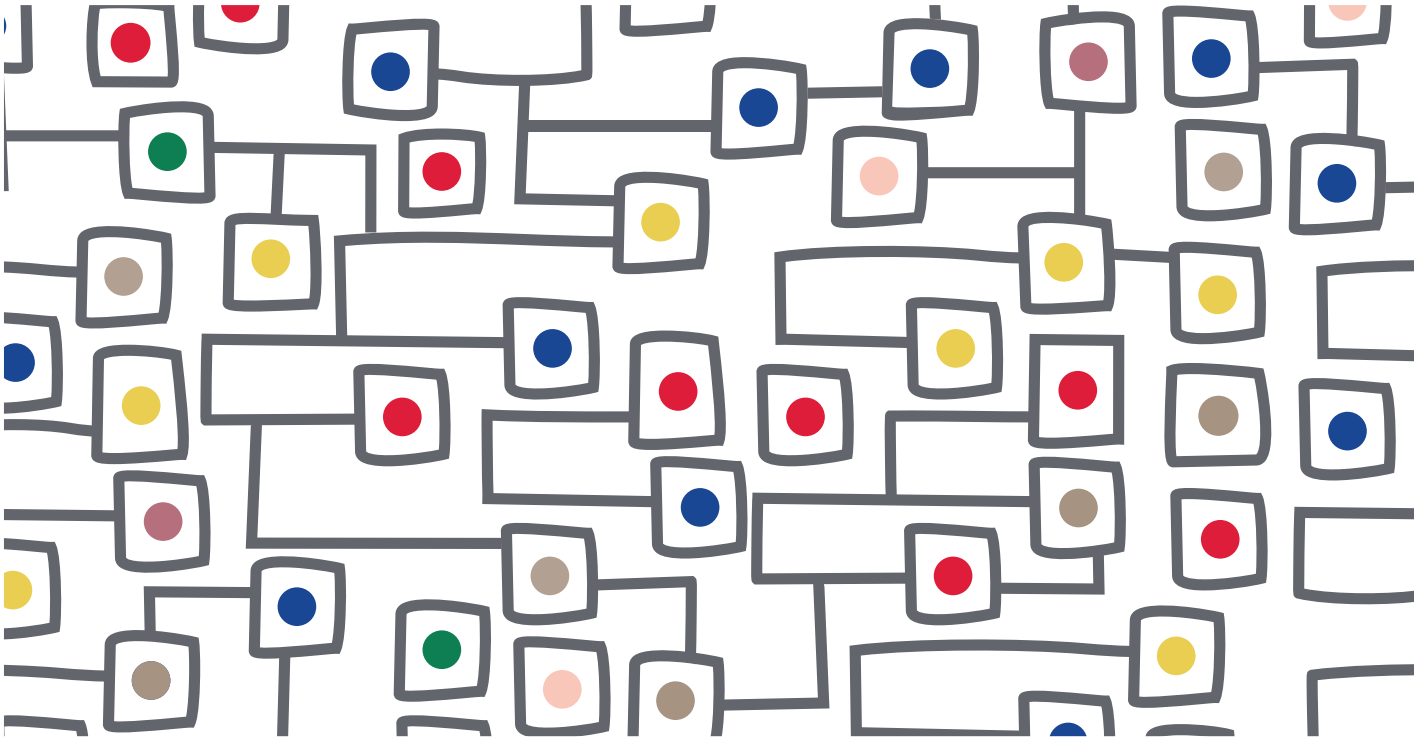

Building institutions through equitable partnerships in global health

Conference report

June 2012

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Contents

Summary

Universities across the world combine strengths in research, education, training and health service delivery, along with access to multiple disciplines within a single institution. International partnerships between universities and other academic institutions in the North and South offer an important way to tackle the global health challenges of the 21st century, including the Millennium Development Goals. They also play an important role in building capacity in research, education, training and health services in developing countries.

Over the past decade there has been a welcome expansion of the number and type of global health partnerships. However, discussion of the optimal role of universities has been limited. Of particular importance is the identification of types of partnership that meet the needs of Southern institutions and build capacity for the future. These considerations led five organisations with active involvement in capacity building and partnerships – the Royal College of Physicians, the Academy of Medical Sciences, the Wellcome Trust, Universities UK and the Bill and Melinda Gates Foundation – to host a conference on this topic. The event brought together leaders from 21 different countries to share best practice and lessons learned. A priority was to ensure Southern voices were heard, with many participants from Africa, South Asia and South America. Although many types of partnership were considered, the conference focused on those between academic institutions.

This report summarises the issues that were discussed at the conference and presents five priorities for action.

Types of partnership

In addition to the traditional North–South partnership, newer models have emerged that include South–South partnerships and networks, multi-institutional research networks and consortia, public–private partnerships, professional society partnerships and technical assistance partnerships. Discussion revealed the following issues:

- The experience with some of these different partnership models is still recent and their relative contributions, as well as benefits and weaknesses, may not be clear for some time.
- There was strong support for the expansion of South–South partnerships with Northern links, as well as partnerships that integrate research, health service delivery, training and capacity development as these represent the most sustainable and equitable type of institutional partnership.
- There is a need for clearer terminology relating to partnerships.
- There is also a need for a forum to facilitate better links between existing networks and to allow institutions and partnerships to share information and experiences. Networking organisations such as the European Academic Global Health Alliance (EAGHA) and the Consortium of Universities for Global Health (CUGH) could play this role.

Benefits of and challenges to partnerships

Partnerships offer considerable mutual benefits both to the Northern and Southern institutions. The most important of these are as follows: access to shared scientific resources, expertise and ideas; mutual learning and knowledge exchange; greater access to financial resources; improved research quality; productivity and impact; and opportunities for individual and institutional capacity building.

The resulting challenges include increased workload, complex management and logistical implications, and imbalance within partnerships owing to inevitable differences in available resources and infrastructure between Northern and Southern institutions. Inequitable

partnerships remain common and there is a need for this to change.

Principles of partnership

A clear conclusion from the conference was that excellent people are the foundation of successful partnerships. Partnerships are about relations between people and research for a purpose. This means that the function of a partnership must be determined at the start. Clear objectives need to be stated, as do the terms of engagement, deliverables, timescales, allocation of funds and resources. This enables a framework for progression, monitoring and evaluation.

Partnerships must be dynamic, relevant and equitable, engaging all parties in a way that is mutually beneficial. This requires an investment from every member of the partnership: researcher, administrator, health practitioner, funder, policymaker or local community member. Opportunities for training and career progression are essential, as is mentorship, financial reward and practical support.

All partners need to recognise and value each other's respective strengths and embrace the opportunity to learn from them. No one partner should dominate and all partners should be able to contribute on the same terms. The research undertaken by the partnership needs to be relevant to the community in which the research is undertaken, focusing on local health priorities rather than perceived needs observed by partners. Governance issues, such as intellectual property, ownership and authorship, require agreement at the start of a partnership, and the evaluative framework should be based on published, recognised models of best practice. Interdisciplinary skills and translational research should also be encouraged.

Priorities for action

The five priority areas for action identified at the conference were as follows:

Priority 1: Nurture postdoctoral fellows and postgraduate students

Postgraduate and postdoctoral training in Southern institutions continues to be challenged by lack of capacity in skilled mentorship, limited research orientated career pathways and poor institutional infrastructure and support. There is a major gap in postdoctoral career structures in Southern institutions that contributes to a brain drain to the North that undermines capacity building and ultimately weakens partnerships. Too often postdoctoral scientists move into responsible administrative and management positions when they need more time to consolidate their research programme. A major priority identified at the conference was the need for additional support from Southern institutions and funders for postdoctoral researchers from the South. Proposals included the following:

- PhD 'finishing schools' to further develop skills in grant and manuscript writing, IT, management and leadership, and building networks.
- Expansion of career development and re-entry fellowship incentive schemes to encourage PhD graduates to undertake postdoctoral work in their home country.
- The need for Southern institutions to provide a supportive environment and introduce more flexibility into their career structure through protected research time and administrative support.
- Measures to 'train the trainers' through courses in mentorship and shared supervision, mentorship between faculty across Southern and Northern institutions, and student and faculty exchanges using regional South–South and South–North networks.

Other opportunities to improve education, training and career development in the South include the following:

- Expansion of the successful model of sandwich and joint PhDs, and short overseas placements.
- Greater development of electronic and distance learning, particularly through affordable access to the distance learning materials of Northern institutions.
- Additional piloting and evaluation of sustainable financing mechanisms for training, such as the social business model.
- Engaging diasporas to support training in their home country.
- Support for early development of interest in science in secondary schools.

Priority 2: Strengthen institutions

Funders and Southern governments should direct more resource to the building of institutional capacity, while Northern institutions can provide support through sharing of systems and expertise. Priority areas for development in the South include the following:

- Establishing central research support centres for research management within institutions.
- Progressive integration of grants and financial management of existing North–South partnerships into central university infrastructures.
- Ensuring a more equitable and transparent arrangement for distribution of overheads to support infrastructure between Southern and Northern institutional partners.
- Providing faculty management training earlier in the career path in areas such as financial and personnel management, and leadership development.
- Creating advocates for global health partnerships and capacity building at senior positions within institutions.
- Developing institutional and national policies on the legal and ethical framework for partnerships, intellectual property and transfer of samples.
- Ensuring Northern universities recognise and support activities of their staff engaged in international capacity building work in Southern institutions.

Priority 3: Engage decision makers and funders from the South

The most successful partnerships are long-term endeavours and require sustained core funding. With the global economic downturn and slowdown in global health funding, sustainable funding for partnerships and capacity building needs to diversify beyond the traditional dependence on external agencies. Southern governments, Southern funders and Southern philanthropists need to be more fully engaged with global health partnerships and capacity building. This might be achieved by demonstrating the benefits of these arrangements. Researchers, universities and funders should encourage those from the South to invest in sustainable global health research partnerships that build research capacity. Key proposals discussed at the meeting included the following:

- The more equitable sharing of overheads between Northern and Southern partners.
- The use of Southern government tax revenue for health research and capacity building.
- Engagement with local business corporate social responsibility funds, philanthropic funds, and public–private partnerships.
- Strategies for more sustainable funding include longer-term project funding schemes as partnerships take time to produce results, a social business model for training initiatives and development of institutional endowment funds.

Priority 4: Develop new evaluation capacity and evaluation techniques

Evidence of the value of global health partnerships and capacity building is limited. Evaluation of partnerships is critical to demonstrate benefits and impact, to assess whether goals have been met, and to develop best practice. However, evaluation of partnerships and capacity building is a new science that currently lacks a strong evidence-base and has few validated measures. Researchers, universities and funders interested in global health research should use existing

resources to develop new methods of evaluation. Additional priorities are as follows:

- To increase capacity by training a cadre of individuals competent in evaluation methodology, especially in the South.
- To unify reporting requirements for different funders to minimise onus on institutions with multiple partnerships. This might be achieved by improving the co-ordination of evaluation tools and indicators through the ESSENCE network, together with consideration of the establishment of a register of the results of the evaluation of major grants.
- To increase submission of high-quality evaluation experiences to peer-reviewed journals.

The following principles were proposed for evaluating partnerships:

- The establishment of plans and funds for rigorous, prospective evaluation at the inception of partnerships.
- Regular evaluation throughout the life of a partnership – at planning, implementation, dissemination and wrap-up.
- Joint development of evaluation tools and indicators (quantitative and qualitative) by partners and regular revision to accommodate changes to the nature of the partnership.
- The inclusion of measures of benefits to local communities.
- The need to build on existing evaluation tools with project specific adaptations.
- Longer-term evaluation as some outcomes of capacity building activity may take many years to show an impact.

Priority 5: Involve new disciplines and places

Growth in partnerships and capacity has been uneven geographically and in the focus of their research and the disciplines involved. The need for interdisciplinary working is driven primarily by the need for a more co-operative approach to addressing complex global health challenges. Universities and associated partnerships offer a unique opportunity for interdisciplinary working through their access to multiple disciplines. Specific strategies to promote interdisciplinary working include the following:

- Expanding interdisciplinary training programmes and research opportunities such as exchange of modules from different courses or distance learning programmes.
- Incorporating interdisciplinary training opportunities at an early stage in career structures.
- Promoting interdisciplinary research funding schemes.
- Increasing representation of social sciences, such as psychology, nutrition and health economics, in existing partnerships.
- Encouraging recognition and reward for interdisciplinary working within the university sector.
- Greater efforts are needed to establish equitable, sustainable partnerships and capacity in both underserved regions such as central Africa, French and Portuguese speaking countries, and fragile states, and in neglected disciplines and topics such as health systems research, nutrition, the social determinants of health and non-communicable diseases.

Progress on global health will depend on commitment to developing partnerships with these priorities in mind. This will involve Northern and Southern institutions, including universities, academies of medical sciences, organisations responsible for professional training and government agencies, as well as research funders.

1 Introduction

1.1 Background

The global health challenges of the 21st century can no longer be defined by nations or geographical regions alone, so they require new collaborations and new ways of collaborating. International partnerships between academic institutions and other organisations in the North and South offer one such approach. They can also play an important role in building research, education, training and health service capacity in developing countries.

Several organisations, as well as individuals, have proposed some principles to help guide the establishment and development of equitable global health partnerships. These organisations and individuals include the following:

- The Commission for Research Partnerships with Developing Countries (KPFE) 'Swiss principles'.[1]
- The Netherlands Development Assistance Research Council (RAWOO) principles.[2]
- Professor Anthony Costello FMedSci and Professor Ali Zumla FMedSci from University College London, UK.[3]
- The Council on Health Research for Development (COHRED).[4]
- The Canadian Coalition for Global Health Research (CCGHR) partnership policy.[5]
- Oxfam GB Partnership Policy and five principles of partnership.[6]

The key principles set out in these reports are detailed in Annex V. However, there are several important gaps, including the following:

- A focus on traditional North–South partnerships.
- Limited input from and perspectives of Southern partners.
- Few actionable steps to achieve the recommended goals for improved partnerships.
- Less focus on evaluation of outcomes, successes and difficulties.

So far, there has also been limited discussion about the optimal role of the university in global health partnerships. Of particular importance are the types of future partnership between Northern and Southern institutions that will meet Southern needs and priorities, as well as building and sustaining capacity for the future.

These considerations led five organisations with active interest in capacity building and partnerships – the Royal College of Physicians, the UK Academy of Medical Sciences, the Wellcome Trust, Universities UK and the Bill and Melinda Gates Foundation – to hold a conference on this topic in April 2011. The meeting and report were developed with the advice of a steering committee, as detailed in Annex I.

1.2 Conference objectives

The conference brought together leaders and researchers from 21 different countries to share best practice and lessons learned in institutional partnerships (see Annex III). Universities, philanthropic organisations, non-governmental organisations (NGOs) and the private sector were represented. The conference included those with established partnerships, as well as those planning to develop such programmes. It was underpinned by several guiding principles:

1 KPFE (1998). *Guidelines for research in partnership with developing countries.* http://www.int.uzh.ch/northsouth/KFPEGuidelines.pdf
2 Netherlands Development Assistance Research Council (2001). *North-South research partnerships: issues and challenges. Trivandrum expert meeting report, 1999*. The Hague, The Netherlands.
3 Costello A & Zumla A (2000). *Moving to research partnerships in developing countries*. BMJ **321**, 827–829.
4 COHRED (2004). *Principles of good partnership for strengthening public health capacity in Africa*. http://www.cohred.org/wp-content/uploads/2011/05/783.pdf
5 *Canadian Coalition for Global Health Research (2007). Building respectful and collaborative partnerships for global health research: learning resource*. http://www.ccghr.ca
6 Oxfam (Unknown). *Working with others. Oxfam GB partnership policy. Five principles of partnership*. http://www.oxfam.org.uk/resources/accounts/downloads/partnership_policy_principles.pdf

- A focus on partnerships between universities and academic institutions at the postgraduate level and on partnerships that involve research, training and health service delivery.
- Inclusion of perspectives of Southern partners and institutions: many of the invited speakers and panellists were from institutions in Africa, Asia and South America, and the meeting sought to address their priorities and concerns.
- The importance of building on previous reports and recommendations on partnerships and to identify new ideas and approaches.

The conference was divided into 11 sessions over 2 days (see Annex IV for the programme). Specific aims of the meeting were as follows.

- To identify and discuss the factors that contribute to both successful, equitable partnerships.
- To identify and discuss the challenges that hinder the development of successful partnerships.
- To address strategies to improve individual and institutional capacity building.
- To address the challenge of securing sustainable, long-term funding for partnerships.
- To address how best to incorporate monitoring and evaluation of partnerships.
- To identify strategies to improve interdisciplinary working.
- To highlight the specific needs of Southern partners and how these can be addressed.

1.3 Nomenclature

The nomenclature used to describe different aspects of global health partnerships is constantly evolving. Some terminology maybe contentious given the understandable sensitivities associated with the inequalities that currently exist between countries. Although this conference report does not seek to provide a definitive nomenclature for global health partnerships, a brief note on three aspects of terminology is given below:

1.3.1 North and South

The terms 'North' and 'South' are frequently used in this report as shorthand for high-income countries and low-income and middle-income countries respectively, or for the 'developed' and 'developing' world. However, the terms are not synonymous and their limitations are acknowledged. Challenges in global health cannot be defined by geography alone. The growth rate of several low- and middle-income countries outpaces many developed economies. There is a focus on Africa in many of the examples presented, reflecting the experiences of participants or speakers, although there were also important models reported from Asia and Latin America.

1.3.2 Capacity building

During the course of the conference, there was some discussion as to whether the term 'capacity building' should be replaced by 'capacity strengthening' or 'capacity development', which better acknowledges existing capacity and expertise. This report adopts the term 'capacity building', as this is the one most commonly used in the literature.

1.3.3 Partnership

The diversity of global health partnerships meant that it would have been difficult to cover every type of partnership in detail during a two-day conference. Although many types of partnership were touched upon at the conference, discussion focused on research partnerships between academic institutions at the postgraduate level and beyond.

1.4 Overview of the report

Chapters 2 and 3 of this report consider the recent expansion of different types of global health partnership and the benefits and challenges associated with them. Chapters 4–8 consider particular challenges that these

partnerships face and strategies to address them in terms of doctoral and postdoctoral training, building institutional capacity, establishing sustainable funding and approaches to evaluation. Chapter 9 offers a brief conclusion. Annexes I and II can be found at the end of the report whereas the remainder can be accessed online at www.acmedsci.ac.uk

This report highlights actionable steps identified at the meeting that will allow partnerships to be better established, maintained and evaluated. These actions are given in the summary section at the beginning of the report and in the concluding sections of each chapter.

Throughout this report, unless otherwise stated, suggestions and recommendations are those put forward and supported by many of the participants. They do not necessarily imply agreement by the entire body of participants and or the corporate positions of the partners that organised the event.

2 The changing landscape of partnerships

2.1 Introduction

Many early global health partnerships developed from the practice of Northern institutions obtaining samples and data from Southern sites.[7] Where partnership existed it was often between those in the North and Northern scientists and administrators based in Southern institutions. Later partnerships involved Northern researchers spending a few weeks in a developing country to collect samples, or were designated sites with expatriates based in Southern countries. Although many of these partnerships involved capacity building they were sometimes inequitable, an issue which is discussed further in Chapter 3.

Several factors, listed in Box 2.1, present new opportunities and challenges for global health partnerships.

Box 2.1 New opportunities and challenges for global health partnerships

1. The rapidly increasing, but now levelling investment, in global health, with increased opportunities for private sector funding (see Chapter 6).
2. Funding schemes specifically aimed at partnerships from organisations such as the Wellcome Trust, European and Developing Countries Clinical Trials Partnership (EDCCTP), National Institutes of Health (NIH) Medical Education Partnerships Initiative (MEPI) programme and the Doris Duke Foundation (see section 2.3.1).
3. Progressive increase in scientific and economic power of emerging economies such as China, India and Brazil.[8]
4. Intense interest and engagement in global health by academic institutions and students, especially in North America.[9]
5. Emergence of inexpensive rapid communications and mobile phone technologies, making it possible for researchers to work together effectively without the need for long-distance travel.
6. Proliferation of stakeholders and organisations involved in global health, including multilateral agencies and think-tanks.
7. A push toward greater country ownership of programmes and for more integration of vertical programmes, which currently focus on particular disease areas.
8. Demographic transition in low- and middle-income countries, and the rising burden of non-communicable diseases.[10]
9. Re-engagement of universities in research, especially in sub-Saharan Africa, reversing a twenty year trend for research leadership by independent institutions.

7 Rathgeber E (2009). *Research partnerships in international health: capitalising on opportunity.* http://berlin.tropika.net/public-access/stakeholders-meeting/background-papers/background-paper.pdf
8 UNESCO (2010). *UNESCO science report 2010.* http://www.unesco.org/new/en/natural-sciences/science-technology/prospective-studies/unesco-science-report/
9 Further details are available from http://www.cugh.org/
10 Further details of the work of the United Nations on non-communicable diseases is available from http://www.un.org/en/ga/president/65/issues/ncdiseases.shtml

2.2 New types of partnership

Over the past 10 years there has been a marked proliferation of many different types of partnership in health and research. Partnerships can be classified by both the focus of their work (clinical care, research, training and capacity building) and the type of partners involved.

The latter includes those between individuals, those between institutions and those involving consortia or networks of institutions (see section 2.3.2). The overall benefits and costs of partnerships are considered in detail in Chapter 3 but, in addition, each of these different models has its own strengths and weaknesses that are summarised in Table 2.1.

2.3 New models of partnership

Within university and research institutions, there has been a marked growth in new types of partnership. These include the following:

- South–South partnerships and networks.
- Multi-institutional research networks and consortia.
- International university branch campuses.
- Public–private partnerships.
- Professional society partnerships.
- Technical assistance partnerships.

These models are described below and many overlap: for example, research consortia may include South–South partnerships and vice versa.

Table 2.1 Advantages and disadvantages of different types of partnership

Type of partnership	Advantages	Disadvantages
Individual to Individual	• Personal choice and commitment. • Mutual benefit for both researchers. • Flexible. • Cost effective.	• No direct institutional strengthening. • Benefits only individual researchers.
Institution to institution	• Sharing resources can be of benefit to both institutions. • Can provide continuity that is not dependent on individuals. • Establishes a framework for research capacity development. • Can establish clear agreements on sensitive issues such as data sharing, IP and publication. • Facilitated by new communications technologies.	• The partnership can be dominated by one institution. • Individual researchers may be pushed into 'forced marriages'. • A formal, time-defined agreement can tie one or other partner into a long-term, unproductive relationship. • Termination of the partnership can be difficult and have wider consequences such as an impact on broader relations between institutions.
Consortium or network	• Prevents duplication of research. • Allow sharing of ideas without fear of competition. • Provides increasing opportunities for Southern leadership.	• Too much investment can go into maintaining the infrastructure of the consortium. • Can stifle scientific competition and inventiveness. • Can cause tensions between partners who do not agree with the 'consortium's view'.

2.3.1 South–South partnerships

South–South partnerships break the model of passive, unidirectional transfer of knowledge and technology from North to South by mobilising the existing capacities and resources of the Southern countries involved. Resources can be pooled to work on shared problems and common priorities, as well as expanding training opportunities regionally to build indigenous research capacity. Shared experience, geography and language frequently contribute to a greater degree of trust, facilitating the development and maintenance of non-competitive partnerships that focus on horizontal cross cutting health issues. Examples are given in Box 2.2.

Box 2.2 Examples of South–South partnerships

The African-led **Initiative to Strengthen Health Research Capacity in Africa (ISHReCA)** is a partnership of health researchers from over 30 African healthcare institutions. It provides a forum for African scientists to share ideas on capacity building and communicate directly with funders. Further details are available from http://ishreca.tropika.net/.

The International Network for the Demographic Evaluation of Populations and Their Health in Developing Countries (INDEPTH) is a global network of members who conduct longitudinal health and demographic evaluation of populations in low- and middle-income countries. INDEPTH aims to strengthen global capacity for Health and Demographic Surveillance Systems (HDSS), and to mount multi-site research to guide health priorities and policies in low- and middle-income countries, based on up-to-date scientific evidence. Further details are available from http://www.indepth-network.org/.

A partnership linking the **Union de Naciones Suramericanas (UNASUR) and the Community of Lusophonic Countries (CPLP)** has led to the development of joint UNASUR/CPLP health councils and capacity building initiatives including the following:

- Fiocruz Master programmes in Public Health and Biomedical Sciences at institutes in Mozambique, Angola and Argentina.
- PhD and Masters programmes for CPLP and UNASUR students at Fiocruz, incorporating 'sandwich' placements in partnership countries.
- An innovative training project whereby Technical School teachers teach the teachers of partner countries.

Participants welcomed the recent establishment of funding schemes to support South–South partnerships from organisations such as the Wellcome Trust, US National Institutes of Health (NIH), Doris Duke Foundation and the European and Developing Countries Clinical Trials Partnership (EDTCP). Many of these South–South schemes continue to involve Northern partners to support specific activities. Examples include the Wellcome Trust African Institutions Initiative (detailed in Box 2.3) and the various training initiatives of the Public Health Foundation of India (PHFI).[11] Many participants agreed that institutional partnerships that integrate research, service delivery, education and capacity development are the most valued type of partnership.

11 Further details of the Public Health Foundation of India can be found at http//www.phfi.org/

Box 2.3 Wellcome Trust African Institutions Initiative

The £30 million African Institutions Initiative aims to develop institutional capacity to support and conduct health-related research vital to enhancing health, lives and livelihoods in sub-Saharan Africa. It aims to strengthen Africa's universities and research institutions, and to help in the development of networks for health-related research.

More than 50 institutions from 18 African countries are partnered in seven international and pan-African consortia. Each is led by an African institution and includes research and higher education partners as well as research institutes from Europe, the USA and Australia.

Each of the consortia operates independently and sets its own agenda. Activities include leadership training and professional development, PhD and postdoctoral fellowships, improved infrastructure, competitive grant schemes and the provision of up-to-date equipment. Further information is available from http://www.wellcome.ac.uk/Funding/International/WTX055734.htm.

2.3.2 Research networks and consortia

Although university partnerships continue to form the basis of many collaborative initiatives, research focused multi-institutional networks and consortia are becoming more prevalent, with specific funding schemes for networks of excellence and large consortia through the European Union, NIH and Gates Grand Challenge Programmes.[12] By their very nature, research consortia may also involve partnership between a wide range of stakeholders, including hospitals, government agencies, charitable foundations and the private sector. These complex partnerships are able to realise research goals beyond the scope of smaller collaborations, such as the completion of expensive, large-scale late-phase clinical trials. Examples include the following:

- The Stillbirth Alliance[13]
- The Malaria Capacity Development Consortium (MCDC)[14]
- The ALPHA HIV Cohort Network[15]
- The TB Vaccine Consortium[16]

Frequently directed at HIV, tuberculosis and malaria, research consortia offer a co-ordinated approach to the design and execution of a focused programme of research. Consortia offer shared facilities, ideas, mentorship, training schemes and data management that build on the research strengths of individual groups, as well as providing funding for regular teleconference and workshops. Key advantages are that they provide a stimulating environment and critical mass for development and sharing of research ideas without fear of competition, prevent research duplication, even out the power imbalances between institutions, and provide increasing opportunities for Southern leadership. Challenges include stagnation due to lack of competition, the time-consuming distraction of multiple network-related teleconferences and meetings, and the reluctance of some partners to be co-ordinated.[17]

12 Further details of the Grand Challenges can be found at http//www.grandchallenges.org/Pages/Default.aspx
13 Further details on the International Stillbirth Alliance are available from http//www.stillbirthalliance.org/
14 Further details of the MCDC are available from http//www.mcdconsortium.org/index.php
15 Further details of the ALPHA HIV cohort network are available from http//www.lshtm.ac.uk/eph/psd/alpha/
16 Further details of the TB Vaccine Consortium are available from http://www.tbvi.eu/
17 Dockrell H (2010). *The role of research networks in tackling major challenges in international health.* International Health **2(3)**, 181–185.

2.3.3 International university branch campuses

Over recent years there has been a rapid expansion in the number of university branch campuses based overseas, with 162 operating globally in 51 different countries according to a 2009 survey.[18] This represents a 43% increase from 2006. Half of these are branches linked with US institutions, 11% with Australian institutions and 10% with UK institutions. There are also 11 Indian institutions with external campuses, mainly in the United Arab Emirates. There is often confusion between university branch campuses and other types of global health partnership.

2.3.4 Public Private Partnerships

Public Private Partnerships (PPPs) involve private companies as well as other partners such as governments, foundations and funders. Examples of large PPPs include the Global Alliance for Vaccination and Immunisation (GAVI), which focuses on enhancing access to vaccines in 72 countries, and the Global Fund to Fight AIDS, Tuberculosis and Malaria, a major financier of health programmes for these three diseases around the world, with US$22.6 billion committed to programmes in 150 countries.[19,20] Other PPPs include the Drugs for Neglected Diseases initiative (DNDi) and the Programme for Appropriate Technology in Health (PATH).[21,22]

The pharmaceutical industry contributes in other ways. For example, Pfizer is involved in several partnerships including the following:

- Building and sustaining regional clinical laboratory and medical training for diagnosis, treatment and prevention of HIV/AIDS at the Infectious Disease Institute in Kampala, Uganda.[23]
- The Diflucan partnership provides fluconazole free of charge to government and non-government agencies in Africa to treat opportunistic infection associated with HIV/AIDS.[24]
- AMPATH Pfizer Oncology Group Partnership is developing human capacity in Western Kenya for treatment of cancer patients, and has funded the establishment of a radiation oncology facility, and provided equipment and staff training.[25]

Lessons learned from these initiatives are the importance of communicating the impact of these programmes externally, and reliance on strong local leadership and experience. There is also a need to plan for a long-term commitment, to provide resources beyond finance, and to integrate the partnership into the company's business plans while ensuring that key internal support is maintained.

2.3.5 Professional societies

Many professional societies in Europe and North America are also building partnerships. One example of such a partnership is the collaborative programme between the West African College of Physicians (WACP) and the UK's Royal College of Physicians (Box 2.4).

2.3.6 Technical assistance partnerships with governmental and non-governmental organisations

A key example of this type of partnership is the US Centers for Disease Control (CDC) provision of technical assistance to Ministries of Health, multilateral organisations (e.g. the World Health Organization (WHO), Global Fund, UNICEF, UNAIDS and World Bank) and global NGOs (e.g. CARE, Red Cross, Rotary International

18 The Observatory on Borderless Higher Education (2009). *International branch campuses: markets and strategies.* http://www.obhe.ac.uk/documents/view_details?id=770
19 Further details of GAVI are available from http//www.gavialliance.org/
20 Further details of the Global Fund are available from http//www.theglobalfund.org/en/
21 Further details of DNDi are available from http//www.dndi.org/
22 Further details of PATH are available from http//www.path.org/index.php
23 Further details are available from http//www.pfizer.com/responsibility/global_health/infectious_diseases_institute.jsp
24 Further details are available from http//directrelief.org/DiflucanPartnership/EN/DiflucanProgramOverview.aspx
25 Further details are available from http://www.ampathkenya.org/our-programs/primary-care-chronic-diseases/oncology/

Box 2.4 West African College of Physicians (WACP) and UK Royal College of Physicians Partnership

In 2008, the WACP and Royal College of Physicians (London) signed a formal agreement to improve standards of training in West Africa, with the broader aim of advancing medicine and improving patient care.

The partnership focuses on strengthening the capacity of the WACP to train physicians in two main areas: medical education and clinical sub-specialty skills. The three-year project was launched in 2009 and works in those countries with WACP membership: Nigeria, Ghana, The Gambia, Sierra Leone, Liberia, Cote d'Ivoire, Benin and Senegal. The main activities supported through the WACP include faculty development, clinical training, distribution of learning resources and a joint scientific meeting.

The following lessons have emerged from this partnership:

- Partnerships work well when organisations have similar roles and culture. In this case the two colleges are involved in examinations, postgraduate training and postgraduate curriculum development, have a strong membership and a strong ethos of volunteering.
- Partnerships around a specific project provide the opportunity to forge broader organisational alliances, and to attract additional outside funding.
- A major challenge has been the lack of a strong administrative infrastructure and capacity at the WACP.

Further details are available from http://www.rcplondon.ac.uk/international/africa/rcp-and-wacp.

and GAVI Alliance). A wide range of technical assistance is provided that includes building laboratory expertise and capacity, conducting epidemiological investigations, programme monitoring and evaluation, building surveillance systems, training in-country personnel and development of public health leaders and managers, and conducting applied research to support activities and programmes.

The University of Washington International Training and Education Center for Health (I-TECH) is another example of a multidisciplinary technical assistance partnership, and is described further in Box 8.1.

2.3.7 Other types of partnership

Other types of partnership mentioned at the conference include the following:

- Clinical partnerships between hospitals supported by the UK-based Tropical Health Education Trust (THET).[26]
- Organisational networks with a focus on global health, such as the European Academic Alliance for Global Health and the CUGH.[27,28] These networks offer considerable opportunities but there is a need to avoid excessive top-down co-ordination that could stifle creativity.

26 Further details are available from http://www.thet.org/
27 Further details on the EAGHA are available from http://www.eagha.org/
28 Further details on the CUGH are available from http://www.cugh.org/

2.4 Conclusion

Over the past 20 years there has been a considerable and welcome expansion in the number, nature and size of global health partnerships. In addition to the traditional North–South partnership, newer models have emerged that include South–South partnerships and networks, multi-institutional research networks and consortia, public–private partnerships, professional society partnerships and technical assistance partnerships. Discussions concluded the following:

- **The experience with some of these different partnerships models is still recent, and their relative contributions as well as benefits and weaknesses may not be clear for some time.**
- **There was strong support for the expansion of South–South partnerships with Northern links, as well as partnerships that integrate research, service delivery, and training and capacity development as they represent the most sustainable and equitable type of institutional partnership.**
- **There is a need for clearer terminology relating to partnerships.**
- **There is a need for a forum to facilitate better links between existing networks and to allow institutions and partnerships to share information and experiences. Networking organisations such as EAGHA and CUGH could play this role.**

3 Benefits of and challenges to institutional partnerships

3.1 Introduction

This chapter considers the benefits of and challenges to institutional partnerships. Two challenges that received particular attention are the difficulty in establishing equitable partnerships, and governance issues with multiple partnerships.

3.2 Benefits

Participants outlined the wide range of benefits for the Northern and Southern institutions, which are summarised in Box 3.1 and detailed in Annex VI. It was widely agreed that for partnerships to be sustainable benefits needed to be experienced by all partners.

3.3 Challenges

Although partnerships offer substantial benefits, they are also accompanied by potential disadvantages and challenges, which multiply with the number of partners involved and as the alliance becomes more complex. Box 3.2 outlines the major problems with partnerships encountered by participants at the conference. The relative advantages and disadvantages depend on the nature of the partnership and whether it is at the level of the individual researcher, institution and consortium (see Table 2.1.)

Box 3.1 Benefits

- Greater access to financial resources.
- Better access to scientific resources (laboratories, equipment, expertise) and talent.
- Capacity building for individuals, institutions and national research systems.
- Improved quality, cost efficiency and productivity of research programmes.
- Enhanced research impact.
- Improved institutional profile and esteem.
- Mutual learning and knowledge exchange between partners that may lead to broadened perspectives and new solutions to key challenges.
- Long-term relationship and continuity that is not dependent on individuals

Box 3.2 Challenges

- More complex management and decision-making processes.
- Additional workload required to maintain the partnership over and above existing responsibilities.
- Higher financial costs and difficulty in overhead recovery (see Chapter 5).
- Power imbalance and research agenda dominated by the Northern institution.
- Diversion of staff and resources away from parts of the Southern institution not involved in the partnership.
- Logistical challenges (visas, international travel, difficulty transporting samples between countries).
- Tensions due to cultural differences.
- The wider political and social context.

3.4 Achieving equity within partnerships

The substantial economic and scientific inequalities between countries are often reflected in the structure of the partnerships between both researchers and institutions. Inequitable partnerships can create problems, with the potential for the wealthier partner to dominate the research agenda, the decision-making process and access to funds. This is illustrated by the substantial difference in overheads received by institutions in the North and South (see Chapter 5). Northern researchers frequently take the lead on publications, often because Southern researchers are over-stretched. This can lead to a sense of disenfranchisement with the Southern partners in some partnerships relegated to second, third or middle author.

Inequitable partnerships can lead to disputes over intellectual property and ownership of results, specimens and equipment. 'Weaker' partners may feel frustrated by a relative paucity of resources and infrastructure relative to the 'stronger' partner. A major concern is that individuals may become isolated from other researchers in their own institution or national network when they have access to substantially greater resources than their peers. Concerns were raised that memoranda of understanding too often favour the richer partner and the nature of the transactions can be unfamiliar to Southern partners. Collectively this leads to frustration and fragmentation. Inequalities can fuel distrust within the local academic community. This is especially acute when partnerships are not linked to sustainable local health service development or do not focus on local needs. Although inequities can occur within any geographical framework, they are most commonly found in North–South partnerships. However, the rapid but uneven increase in scientific capability in different countries may lead to these tensions becoming more apparent in South–South alliances.[29]

3.4.1 Principles for equitable partnerships

Many agreed that partners from the South should have a real voice in partnerships and that there should be benefits for all those involved. In particular, Northern partners need to acknowledge the critical contribution the Southern partners bring, particularly through community engagement and the translation of research into practice and policy. Several principles of ensuring equitable partnerships at individual and institutional level were supported, and include the following:

- Mutual recognition of respective strengths of various partners.
- Mutual bi-directional learning; and recognition that Northern partners have as much to learn from their colleagues in the South.
- Mutual trust and respect.
- Shared decision making on issues such as values and purpose, objectives, credit for achievements, generation of resources, accountability and joint products.

Key principles highlighted in previous reports on partnerships are given in Annex V.

3.5 Governance of multiple partnerships

Participants from some major Southern institutions described being approached by multiple prospective partners from the North. Managing multiple partnerships can present significant challenges including the following:

- Additional workload required to establish and manage each partnership.
- Creation of parallel systems for managing different partnerships.
- Establishment of mini-institutions within an institution that may undermine rather than strengthen core infrastructure and institutional growth.
- Duplication and competition for resources.

29 UNESCO (2010). *UNESCO science report.* http://www.unesco.org/new/en/natural-sciences/science-technology/prospective-studies/unesco-science-report/

- Lack of harmonisation of procedures and governance arrangements.
- Fragmentation of capacity-building efforts.

Several participants expressed a clear preference for two or three really strong partners that provide considerable support, rather than partners who 'dip and in out and get more out of it than us'. Another approach was for institutions to establish partnerships to address specific issues based on institutional priorities, and for the number of partnerships to be determined by the availability and capacity of partners to help address them.

3.6 Conclusion

Partnerships offer considerable mutual benefits both to the Northern and Southern institutions. Key benefits include access to shared scientific resources, expertise and ideas; mutual learning and knowledge exchange; greater access to financial resources; improved research quality, productivity and impact; and opportunities for individual and institutional capacity building. The greatest challenge to partnerships, apart from increased workload and more complex management, is the power imbalance within partnerships because of inevitable differences in available resources and infrastructure between Northern and Southern institutions. Inequitable partnerships remain common and there is a critical need for this to change. Participants agreed the following:

- **Key principles for achieving more equitable partnerships are mutual trust and respect with recognition of partners respective strengths, mutual bi-directional learning and shared decision making.**
- **The management of multiple partnerships with an institution is a further challenge that may undermine rather than strengthen core infrastructure and institutional growth. This requires a clear institutional strategy and agreed criteria for selection of partnerships.**

4 Education, training and career development

4.1 Introduction

This chapter focuses on the challenges of and several approaches to improving individual training and career development in Southern institutions. The specific issues of institutional capacity building and interdisciplinary education are considered in Chapters 5 and 8.

There was support at the conference for the principle that excellent well-trained people are the foundation of any effective research enterprise or healthcare system. Although much progress has been made in developing health professional and research leaders in Southern institutions, there remains a considerable lack of capacity. This is a major reason why too little research is initiated and led by researchers from the South and there have been too few high-quality research outputs from these places.

High-quality training and career development is vital to the desired outcome of a cadre of Southern researchers who can:

- Execute and lead international level research and clinical care.
- Define the research agenda for their region.
- Direct local and regional research and health service capacity building.
- Negotiate with governments for increased investment in research and in implementation of research findings.
- Collaborate effectively with international networks.

Training and career development initiatives also need to take into account the changing expectations of researchers and healthcare professionals highlighted in The Lancet commission '*Health professionals for a new century*'. This report stressed the need for increased emphasis on interdisciplinarity, health systems connectivity, problem-based learning, national capacity building and international partnerships.[30]

4.2 Challenges in Masters and doctoral training

Key challenges for Masters and doctoral students from Southern institutions that were identified by participants include the following:

- Weak systems for PhD registration and support.
- Didactic teaching methods.
- Lack of experienced mentors in PhD supervision.
- Lack of basic research and technical skills among some students.
- Limited government funding for training and research in Southern institutions.
- Limited opportunities for regional or international co-operation.
- Poor linkages between training and career development in many of the Southern institutions.
- That PhD's are often viewed as an endpoint, rather than the beginning of a career.

4.3 Challenges in postdoctoral career development

Postdoctoral fellows in the South face considerable hurdles in sustaining their training and career development. Once they have finished their PhD, researchers frequently find themselves without a desk, IT access, research funding, laboratories or mentorship. The lack of research-oriented career paths and flexibility to employ scientists on fixed-term contracts using 'soft' money means that PhDs at many Southern institutions are often appointed as lecturers soon after receiving their PhDs. This means that they then need to balance the competing demands of heavy teaching and/or clinical work with consolidating their research programme. These factors, together with ill-defined career paths, limited job security and poor pay, contribute to a high attrition rate. Many researchers from the

30 Frenk, *et al.* (2011). *Health professionals for a new century: transforming education to strengthen health systems in an interdependent world.* http://www.caipe.org.uk/silo/files/health-professionals-for-a-new-century.pdf

South emigrate for better paid, better structured jobs elsewhere, often to those countries in the North where they received education and training. A further driver to migration is the mismatch between skills acquired and limited opportunities upon returning home.

Several leaders of Southern institutions highlighted the need for change or at least flexibility in the rigid career structures within African and Asian institutions and for the establishment of postdoctoral positions with protected time and administrative support in the university structure.

4.4 Strategies to improve doctoral training and postdoctoral career development

4.4.1 Joint or sandwich PhD and postdoctoral programmes

Several types of partnership-led training programmes were considered at the conference, including the following:

- Access to research degrees and training in Northern institutions.
- Joint or sandwich PhD programmes between Northern and Southern institutions.
- Short-term overseas attachments for specific skills training.
- Short visits or staff exchanges.
- Informal mentoring and mentorship training.

Sandwich or joint PhD schemes vary from a few months at the Northern institution to a full year. Examples raised at the conference include the following programmes:

- The University of Malawi/Liverpool University.
- Public Health Foundation of India.
- Makerere University and Karolinska Institute scheme (detailed in Box 4.1).

Box 4.1: Makerere University and Karolinska Institute sandwich PhD and postdoctoral programme

This collaboration started in 2001 with the Swedish International Development Agency (SIDA) funding twinning supervisors in five research areas with 20 PhD students. It has subsequently expanded to cover more students and more areas of research.

The scheme involves joint supervision by faculty at Makerere University, the Karolinska Institute and other universities in one of over seven areas of research. Students are awarded a joint PhD degree between Makerere University and Karolinska Institute, the first being in June 2005. The collaboration has grown to include teacher and student exchange, and has attracted several research grants beyond the initial SIDA funding. The collaboration is now being developed towards a long-term university partnership.

In 2001, a sandwich programme for postdoctoral fellows was also developed as part of the Makerere University and Karolinska Institute collaboration, as well as a joint course on leading change in education of health professions at both institutions.

Further details are available from http://ki.se/ki/jsp/polopoly.jsp?d=38539&a=2477&l=en

A further variant on the sandwich programme is the pan-African INDEPTH network capacity-building Masters programme in field epidemiology in collaboration with Wits University in South Africa. As part of this programme, MSc students undertake their research work at several field sites outside their own country.

At postgraduate level, a one-year overseas training placement is offered by the Post-Graduate Institute of Medicine (PGIM) training scheme in microbiology and parasitology at the University of Colombo, Sri Lanka.[31] Specific challenges encountered in this programme include higher costs, difficulties in finding overseas training placements and obtaining visas, lack of opportunities for non-medical trainees and a high attrition rate.

Such partnership-led training programmes offer those involved considerable mutual benefits and opportunities. For example, less experienced partners benefit from the credibility of an established partner's academic programme, whereas stronger Northern partners benefit from the kudos, and the skills and local knowledge of their partners.

There was an increasing recognition of the need to establish locally owned in-country Masters level and doctoral level programmes, as illustrated by the recently established Masters in Public Health programme at the University of Malawi, with programme development and faculty joint with external research partners.

4.4.2 PhD finishing schools and re-entry incentive schemes

'PhD finishing schools' that offer institutional links, IT, mentorship and grant-writing and advocacy skills were proposed as another potentially useful approach to help develop the careers of postdoctoral fellows and retain them in research in their home country. Some relevant initiatives already exist. For example, the Consortium for Advanced Research Training in Africa (CARTA) offers a series of seminars aimed at helping PhD students find postdoctoral fellowships.[32] Re-entry incentive schemes are also being undertaken by organisations such as the Gates Malaria Partnership, Gates Malaria Capacity Development Consortium, Special Programme for Research and Training in Tropical Diseases (TDR) and the Public Health Foundation of India.[33] The University of Malawi's joint PhD programme with Liverpool University also provides a re-entry incentive scheme, including ethics training, paper- and grant-writing skills, and IT support. Another helpful resource for postdoctoral students returning home is 'Excellence everywhere', a handbook produced by the Burroughs Wellcome Fund.[34]

4.4.3 Enhancing retention through social business models

Much can be learnt about retention of skilled staff from social business models, such as the Grameen Bank-funded Bangladeshi nurse training scheme that offers well paid, guaranteed jobs in exchange for career development opportunities and interest-free loans (see Box 6.1). Another example comes from the Philippines where most local health professionals emigrate. Here a tripartite model sees villagers support the medical training of local students at the University of the Philippines. The scheme guarantees graduates a local job, and if endorsed by the community, a chance to gain further qualifications. In operation since 1976, this particular model has been a notable success: 90% of programme graduates stay working within the Philippines and infant mortality rates have dropped.

31 Further details as the PGIM can be found at http://www.cmb.ac.lk/pgim/
32 Further information is available from http://www.aphrc.org/insidepage/?articleid=417
33 Further details of the Malaria Capacity Development re-entry scheme can be found at http://www.mcdconsortium.org/phd-programme/re-entry-grants.php
34 Burroughs Wellcome Fund (2009). *Excellence everywhere.* http://www.excellenceeverywhere.org/images/book/excellence_everywhere.pdf

4.4.4 Distance learning and mobile technologies

Improved communications have catalysed the use of electronic, mobile and distance learning as part of global health partnerships. One approach pioneered by the London School of Hygiene and Tropical Medicine has been to license their distance learning material to institutions in low-income countries to adapt and use as they wish. This has helped institutions like the University of Ghana to start new courses without the extensive preparatory work involved in generating new teaching materials. Other examples include the following:

- Kenyan nurses obtaining their course notes and answers to questions by mobile phone to enable them to upgrade from certificate to diploma level.
- Online interdisciplinary distance learning programmes at the University of Edinburgh Global Health Academy (see Chapter 8).[35]

Difficulties inherent in the delivery of distance learning material in resource-poor countries include the following:

- Limited bandwidth that makes the download of complex images slow.
- Inadequate IT support locally.
- Unreliable cost and supply of electricity.

Despite the success of these approaches some individuals highlighted the specific benefits of overseas training at another institution that would not be obtained from e-learning alone. These included the following:

- Direct observation and experience of organising research.
- Effective collaboration between the university and local public health department.
- The opportunities presented by analysis of electronic medical records.

4.5 Regional networks

The increasing importance of regional co-operation in both training and research was highlighted at the conference. Examples included the following:

- Two major externally funded partnership projects of the Indian Institute of Public Health: the South Asian Network on Chronic Diseases, funded by the Wellcome Trust and the Centre of Excellence for Chronic Disease Prevention Control, across India, Pakistan, Bangladesh and Sri Lanka, funded through an NIH grant.[36]
- The Association of Public Health in Africa, which aims to link universities and schools of public health, as well as public health researchers and specialists to develop an environment for improved public health training together. A major limitation continues to be the shortage of funds for regional travel and networking.
- The PHFI has established a web portal for linking up many institutions in low- and middle-income countries to share resources. Additional distance learning programmes in epidemiology, public health nutrition, health promotion and research methodology are also offered.
- In Latin America, a Masters programme in public health and biomedical sciences, organised by the CPLP comprises eight countries and four continents (South America, Portugal, five countries in Africa and East Timor in Asia), is stationed at the Mozambique National Institute of Health and in Angola.

35 Further details can be found at http://www.ed.ac.uk/schools-departments/global-health
36 Further details of the South Asian Network for Chronic Disease can be found at http://www.sancd.org/

4.6 Training the trainers

A significant educational challenge is that many of those from the South who train others in biomedical and health research have themselves had inadequate formal training in teaching. To this end, the West African Biomedical Education Network, a partnership of African and British universities and professional societies, offers a two-year part-time modular MSc course for biomedical teachers in six West African universities.[37] Participants continue teaching in their home institutions, while using e-learning to complete a programme that includes curriculum design, assessments and exams, and quality assurance. The scheme makes use of expertise from two Northern universities, Liverpool and Swansea, and the regional postgraduate colleges of the West African College of Physicians and Surgeons. The United Nations of the South and the Community of Lusophonic Countries have tackled the same problem by developing an innovative 'training the trainers' rotational programme, whereby those from technical schools train teachers from partner countries (see Box 2.2).

Specific challenges reported are the differing regulations between institutions and countries, poor IT and communications infrastructure in partner institutions, insufficient number of trained medical educators to serve as tutors, and the need for extensive, expensive travel within the region to mobilise support. The sustainability of such programmes requires a demonstration that course graduates are more effective teachers.

4.7 Strengthening pre-university education systems

Although the conference focused on higher education and career development, the importance of enhancing earlier stages of science education was recognised. Without strong primary and secondary education systems there will not be a pipeline of individuals to undertake higher education and research. Although there are models of excellence, participants commented on the persistence of didactic teaching methods. Schoolchildren need to be instilled with excitement about science through a more problem-based approach to teaching, exposure to hands on experimentation, or internships in research programmes for pre-university students.[38]

4.8 Engaging diasporas

The diaspora of trained researchers from the South who have settled in the North can also make a potentially valuable contribution to training in their country of birth. Although many such migrants may not plan to return home permanently, Southern institutions need to be creative about arrangements and conditions to encourage them to return home for short periods to help with teaching and in establishing institutional links. This has been successfully achieved by several Chinese institutions, and other countries might learn much from their experience.[39]

37 Further details are available from http://acp-edulink.eu/content/teaching-skills-west-african-medical-and-nursing-schools
38 Whitworth J, Sewankambo N & Snewin V (2010). *Improving implementation: building research capacity in maternal, neonatal, and child health in Africa. PLoS Medicine.* **7(7)**, e1000299.
39 Wilsdon J & Keeley J (2007). *China: the next science superpower*. http://www.demos.co.uk/files/China_Final.pdf?1240939425

4.9 Building global health into UK medical education and careers

Barriers to global health education, training and career development that impede partnerships and capacity building exist in the North as well as the South. In the UK, some of these hurdles concern the constraints and requirements of training programmes, rather than the lack of funding or resources. For example, concerns were raised about the increasingly inflexible approach to postgraduate medical trainees taking time out of their programmes to work abroad.

- **The need for Southern institutions to provide a supportive environment and introduce more flexibility into their career structure through protected research time and administrative support.**
- **Measures to 'train the trainers' including courses in mentorship and shared supervision, mentorship between faculty across Southern and Northern institutions, and student and faculty exchanges using regional South–South and South–North networks.**

4.10 Conclusion

Doctoral and postdoctoral training in Southern institutions continues to be challenged by lack of capacity in skilled mentorship, limited research-oriented career pathways, and poor institutional infrastructure and support. A major priority identified at the conference was the need for additional support from Southern institutions and funders for postdoctoral researchers from the South. Proposals included the following:

- **PhD 'finishing schools' to develop further the skills of PhDs in grant and manuscript writing, IT, management and leadership skills and building networks.**
- **Expansion of career development and re-entry fellowships incentive schemes to encourage PhD graduates to undertake postdoctoral work in their home country.**

Other opportunities to improve education, training and career development include the following:

- **Expansion of the successful model of sandwich and joint PhDs, and short overseas placements.**
- **Greater development of electronic and distance learning, particularly through Northern institutions facilitating affordable access to their distance learning materials.**
- **Additional piloting and evaluation of sustainable financing mechanisms for training, such as the social business model.**
- **Engaging diasporas to support training in their home country.**
- **Support for early development of interest in science through for secondary school students.**

5 Building institutional capacity

5.1 Introduction

Although many successful global health partnerships are driven by relationships between individuals, academic institutions must also be able to provide the necessary infrastructure and support. Participants noted that previously partnerships have focused largely on individual capacity development and neglected the essential institutional and non-academic structures and capacity. This includes areas such as the following:

- Financial management.
- Human resources and staff development.
- Contract negotiation.
- Grants administration.
- Ethics procedures.
- Intellectual property management.
- IT and data management.
- Degree administration and quality assessment.
- Legal and regulatory frameworks.

More recent partnership initiatives are beginning to tackle these issues and to integrate individual with institutional development. Examples include the following:[40,41,42,43]

- The Maastricht University Centre for International Cooperation in Academic Development (MUNDO).
- The Malaria Capacity Development Consortium.
- EDCTP Networks of Excellence in Clinical Trials (see Box 7.1).
- The Wellcome Trust African Institutions Initiative (see Box 2.2).

5.2 Financial and research administration and infrastructure

A major challenge for global health partnerships and capacity building raised at the conference is the limited capacity and weak infrastructure in research management and financial administration in Southern institutions. In taking forward their pioneering work to build research capacity in Africa through the African Institutions Initiative, the Wellcome Trust found that most institutions had limited experience of grants and research management, as well as weak financial planning and audit. These weaknesses placed a high management load on the Wellcome Trust. The need for greater financial management capacity in partnerships was illustrated by one participant who needed over 350 receipts processed and accounted for after a single three-month trip to Bangladesh.

Limited administrative capacity is further exacerbated by high staff turnover in areas such as finance and human resources. Several participants reported the experience of administrative staff trained in Southern institutions promptly leaving for the private sector, which offers greater financial rewards. This creates gaps in the institutional memory, making good record keeping and development of standard operating procedures even more important. An additional challenge is the tendency of North–South partnerships to establish their own parallel administrative structures to circumvent central institutional bureaucracies perceived as too cumbersome.[44] Although this practice may improve efficiency in the short-term, it undermines local capacity. Instead, greater efforts should be made to build Southern administrative capacity.

40 Further details of MUNDO can be found at http://www.maastrichtuniversity.nl/web/show/id=1131643/langid=42/
41 Further details of the Malaria Capacity Development Consortium can be found at http://www.mcdconsortium.org/
42 Further details of the EDCTP Networks of Excellence in Clinical Trials are available from http://www.edctp.org/Networks_of_Excellence.641.0.html
43 Further details of the Wellcome Trust African Institutions Initiative are available from http://www.wellcome.ac.uk/Funding/Biomedical-science/Funding-schemes/Strategic-awards-and-initiatives/WTD028338.htm
44 Crane J (2010). *Scrambling for Africa? Universities and global health.* The Lancet **377**(9775), 1388-1390.

The establishment of research support centres that assist with matters such as budgetary review, contract negotiation, grant writing and ethics was one strategy identified at the conference to help build institutional capacity. For example, the University of Malawi has established such an office that helps with these tasks, as well as disseminating research calls from external funders, providing standard operating procedures on how to submit projects and helping researchers to get the best out of awards letters.[45] The office is now beginning to put together a data management system with standard operating procedures that adhere to international standards.

5.3 Overhead recovery

The funding available for research, including that conducted by global health partnerships, can broadly be divided into two categories: funding for direct costs such as staff and equipment, and indirect costs or overheads taken as a percentage of the overall grant for maintenance of buildings and equipment, grants management and human resources. Overhead recovery should be an important source of longer-term investment into improving university structures but is a particular challenge for institutions in the South. This is because science budgets in poorer countries often do not cover many essential costs, and Southern institutions receive a much smaller proportion of the total grant as indirect overheads (typically less than 10%) compared with institutions in the North (up to or in excess of 50%). When coupled with limited institutional support from Southern governments, global health partnerships may weaken institutions in the South if limited central funds are diverted to maintain the partnership infrastructure. Many participants agreed that a greater proportion of Southern infrastructural costs may need to be covered either through improved direct support for institutions or a more equitable distribution of the overhead allocation to the Southern institution.

An inadequate allocation of overheads can also create challenges for institutions in the North, where it is sometimes perceived that they are effectively subsidising Southern institutions through their partnerships. Such a financial drain can be a major disincentive for universities to engage in partnerships, and for vice chancellors to limit the number of partnerships, especially in the case of smaller organisations.

5.4 Faculty development

Academics are not usually trained or selected for their broader leadership skills until they reach senior positions. This contrasts with the experience in industry, where staff are selected for a management track much earlier in their careers, and given an important foundation in areas such as governance, health and safety, and financial management. This deficiency applies to institutions in both the North and South; however, at Northern institutions, faculty development and leadership and management training programmes are now becoming more commonplace. Although it was acknowledged that not all leadership skills can be taught, many participants endorsed the value of core management training in budget management, mentoring and appraising staff, personnel management, and time and project management. An example involves senior administrators from Liverpool University who are working with researchers at Malawi University to share skills, giving both partners the opportunity to learn about leadership and governance issues.

Another concern raised at the conference is that women remain poorly represented in the upper echelons of institutions and in global health research, policymaking and management in both the North and South. The under–representation of women in leadership roles means a considerable pool of potential talent is not being used, and that there are few role models or mentors for talented young female researchers.

45 Further details of the Research Support Centre at the University of Malawi College of Medicine can be found at http://www.medcol.mw/rsc/

5.5 Engaging senior management

High-level institutional buy-in was identified by participants as a major ingredient in the success of global health partnerships that allows institutions to take a more strategic approach. The support of deans and vice chancellors is particularly important as the time and energy required to conduct global health research through partnerships may come at the expense of teaching or service delivery. This is particularly relevant to staff appraisal and promotion, where partnership activities may be less well regarded and rewarded than the more traditional outputs of publications and grants.

Of particular value is a champion at the executive level within the institutional hierarchy who recognises (in the case of a Northern university) that international activity goes beyond attracting fees from foreign students, and who can advocate for the value of institutional partnerships. Several Southern institutions such as Makerere University, the University of Nairobi, the University of Ghana and the College of Medicine in Malawi have established positions of deputy vice chancellor of research and development, and there is an expectation that these roles will help place institutional partnerships for capacity building and research higher in the institutional agenda.

Even when there is institutional buy-in, the turnover of senior staff means that it can swiftly be lost. Deans of postgraduate and research studies have limited terms of office.

5.6 Local and national governance

Good governance is essential if efforts to build partnerships and capacity at both the individual and institutional level are to be successful. Strong steering committees or management boards need to be set up early on to help establish a mutually agreed research agenda and monitor outcomes. All partners need to assess the institutional capacity requirements and gaps at the beginning of their relationship, and to establish explicit agreement on legal and ethical frameworks and consensus on budget and resource allocation. Methods to facilitate the dissemination of research, such as conferences, newsletters and paper-writing skills, are also needed.

The experience of participants was that high levels of local involvement in the daily running of partnerships enable them to operate smoothly. Governance structures need to be explicit, transparent, flexible and able to respond to emerging requirements. Documents such as memoranda of understanding and standard operating procedures are useful to promote clarity in these arrangements, and to frame and record governance structures. It was also noted that often partnerships do not have their own legal status. This can mean that some of the legal liabilities fall on individuals rather than the institution. Such legal inconsistencies need to be addressed and built into the governance structure of partnerships, ideally at the design stage.

Governance also needs to be strengthened at the national level. Legislation in many African countries, for example, needs to be modernised to protect intellectual property rights, facilitate the exchange of materials and data, and support the conduct of research.[46] In addition, governments need to support research by strengthening research governance frameworks nationally and providing strategic planning for health service development.

Participants highlighted several recently established funding schemes that offer financial support to improve governance and research management. The EDTCP is helping to foster partnerships and build capacity by creating an enabling environment for the conduct of clinical trials through support of regulatory framework,

46 Whitworth J, Sewankambo N & Snewin V (2010). *Improving implementation: building research capacity in maternal, neonatal, and child health in Africa.* PLoS Medicine **7(7)**, e1000299.

ethics committees, and support for the Pan African Clinical Trials Registry (PACTR).[47] Another example is the Netherlands-African Partnership for Capacity Development (NACCAP).[48] However, the general experience was that it is difficult to obtain funding for this sort of activity.

5.7 Integrated solutions

Institutional capacity building may require multiple approaches. This multi-pronged approach to specific institutional infrastructural challenges has been the strategy of the College of Medicine at the University of Malawi, detailed in Table 5.1.

Table 5.1 The College of Medicine at the University of Malawi's approach to institutional capacity building

Challenges	Solutions
1. Weak research co-ordination.	1. Establishment of a Research Support Centre. 2. Research policy implemented through guidelines and standard operating procedures.
2. Weak research administration.	1. Grant management positions created in the Research Support Centre. 2. Grants management training through organisations such as European and Developing Countries Clinical Trials Partnership (EDCTP). 3. Clinical Trial Support Services.
3. Ineffective dissemination of research findings; weak communications department.	1. Annual research dissemination conference. 2. Quarterly newsletters.

5.8 Conclusion

Development of institutional infrastructure and governance to address the limited capacity and weak infrastructure in research and financial management has been a neglected area of capacity building. Funders and Southern governments should direct more resource to the building of institutional capacity, whereas Northern institutions can provide support through sharing of systems and expertise. Priority areas for development include the following:

- **Establishing central research support centres for research management within institutions.**
- **Progressive integration of grants and financial management of existing North–South partnerships into central university infrastructures.**
- **Ensuring a more equitable and transparent arrangement for distribution of overheads between Southern and Northern institutional partners to support infrastructure.**
- **Providing faculty management training earlier in the career path, in areas such as financial and personnel management, and leadership development.**
- **Creating advocates for global health partnerships and capacity building at senior positions within institutions.**
- **Developing institutional and national policies on the legal and ethical framework for partnerships, intellectual property and transfer of samples.**
- **Ensuring Northern universities recognise and support activities of their staff engaged in international capacity-building work in Southern institutions.**

47 Further details are available from http://www.pactr.org/
48 Further details are available from http://www.edctp.org/ and http://www.nwo.nl/nwohome.nsf/pages/NWOP_5VWBMM_Eng

6 Funding and sustainability

6.1 Introduction

Participants at the conference heard that over the past 30 years global health has experienced substantial and increasing levels of funding from a wide range of sources.[49] Major funders, such as the World Bank and the Global Fund, have donated tens of billions of dollars, enabling many countries to achieve remarkable results, whereas the GAVI Alliance has transformed the way global health is financed and delivered.

However, there are some recent worrying trends. First, not surprisingly given the global economic downturn, the rate of growth in global health funding is declining. In 2007 the annual growth rate of global health expenditure was around 17% but by 2010 it had fallen to 6%.[50] Second, the United Nations system is becoming an increasingly smaller component of that spend, raising concerns about the future of multilateral institutions. Specifically WHO is experiencing financial difficulties with budget cuts and closure of some of its programmes as part of its reform agenda. Third, the Global Funding of Innovation of Neglected Diseases (G-Finder) report showed that although there has been an overall modest increase in research for global health, most has been for basic research.[51]

6.2 Funding for partnerships

Currently only a small fraction of scientific funding is devoted to encouraging international scientific collaboration through partnerships, indicating that policymakers have not always recognised the importance of these linkages.[52] However, a series of new funding initiatives specifically for partnerships have been developed that include EDCTP, the Wellcome Trust African Initiatives, NIH/Fogarty funded MEPI and the Doris Duke Foundation partnerships scheme.[53,54,55,56]

Bilateral funding agencies, such as the Department for International Development (DfID), United States Agency for International Development (USAID) and the Australian Agency for International Development (AusAID), can bring much more than money to partnerships through their access to policymakers and cross- and inter-governmental networks. The limitations of their financial support include a shorter-term budgetary and political cycle, with the need to demonstrate results relatively quickly, and changing government priorities – a problem for long-term relationships, and the constraints of the donor's agenda. This has led to the view that it is preferable for bilateral agencies to invest through multilateral vehicles like TDR or Global Fund, so that if one donor pulls out, the activity can be maintained.

One concern raised at the meeting was the lack of funding to support those aspects of partnership activity that are performed by institutions in the North. Although funders are often prepared to support core activities in Southern countries, they are less willing to support the collaborative supporting activities of staff in the Northern institutions.

6.3 Engaging Southern funders

Funding for capacity building and partnerships need to be diversified beyond the usual international foundations and agencies.[57]

49 Murray CJL, *et al.* (2011). *Development assistance for health: trends and prospects*. The Lancet **378(9785)**, 8–10
50 Murray CJL, *et al.* (2011). *Development assistance for health: trends and prospects*. The Lancet **378(9785)**, 8–10
51 George Institute (2009). *Global funding of innovation for neglected diseases: G finder.* George Institute, Sydney, Australia
52 The Royal Society (2011). *Knowledge, networks and nations.* http://royalsociety.org/policy/reports/knowledge-networks-nations/
53 Further information on the EDTCP is available from http://www.edctp.org/
54 Further information on the Wellcome Trust African Institutions Initiative is available from http://www.wellcome.ac.uk/Funding/Biomedical-science/Funding-schemes/Strategic-awards-and-initiatives/WTD028338.htm
55 Further information on the NIH/Fogarty funded MEPI is available from http://www.fic.nih.gov/Programs/Pages/medical-education-africa.aspx
56 Further information is available at http://www.ddcf.org/Medical-Research/Program-Strategies/African-Health-Research/
57 Whitworth J, Sewankambo NK & Snewin VA (2010). *Improving implementation: building research capacity in maternal, neonatal and child health in Africa.* PLoS Medicine **7(7)**, e1000299.

Although some countries such as South Africa, Kenya and Egypt are beginning to provide government funding for academic institutions and research in the South, many conference participants considered that there was insufficient Southern support with most African R&D being funded through external sources. Southern governments, philanthropists, private and business sectors, faith-based organisations, civil society and NGOs represent a large and as yet relatively untapped source of funding. For example, India is home to 55 US dollar billionaires, Africa is home to 20 US dollar billionaires and many Southern countries such as India, Brazil and China are experiencing rapid economic growth.[58,59] Yet at present Southern philanthropic and private sector investment is low.[60,61] This current lack of Southern funding contributes to North–South partnership inequities, skewing ownership and research agendas.

There is, however, encouraging evidence of change, with some government ministers beginning to show an interest in global health partnerships and capacity building, and several initiatives outlined below.

- For the past 10 years in Ghana, 2.5% of VAT has gone towards the Ghana Educational Trust Fund (GET). This now represents a substantial resource, although so far none of the money has been earmarked for research.[62]
- Philanthropic and private sector investment, although scarce, is becoming more common. One speaker highlighted several examples of wealthy Africans putting resources into medical research, notably in Nigeria.
- Local Southern businesses are increasingly investing in building health capacity through corporate 'social responsibility' funds such as that provided by the Kenyan EQUITY bank, which sponsors and employs top high-school students before entrance to university.[63] It is likely that similar organisations can also be persuaded to invest in health and national governments could help incentivise this sort of activity.
- The African Network for Drugs and Diagnostics Innovation (ANDi) was launched in 2008 to promote and support health product R&D led by African institutions for diseases that are highly prevalent in the continent.[64] Two key features of ANDI are efforts to engage the private sector and the direct involvement of Ministers from South Africa, Egypt, Kenya and Nigeria. The performance and impact of this and other similar models will need careful evaluation over the coming years to determine whether this is an approach that should be more widely replicated.
- Endowment funds are beginning to emerge, although are still rare in Africa because of funders' regulations on how money can be spent. A notable example is the African Science, Technology and Innovation Endowment Fund (ASTIEF), established by United Nations Economic Commission for Africa (UNECA) that aims to fund and support both enterprising individuals and African R&D centres. So far several business leaders, firms and institutions have contributed to the fund, including UNECA and the African Business Round Table. In addition President Kagame of Rwanda, a strong supporter of science and technology, is keen to establish this kind of an endowment fund to tackle some of the health challenges in his country.

6.4 Long-term sustainability

Successful global health partnerships are usually long-term endeavours that require significant

58 Forbes (2011). *The worlds billionaires.* http://www.forbes.com/wealth/billionaires
59 Economist (2011). *Outputs*, *prices* and *jobs*. http://www.economist.com/node/21524899
60 Forbes (2011). *The worlds billionaires.* http://www.forbes.com/wealth/billionaires
61 Economist (2011). *Outputs*, *prices* and *jobs*. http://www.economist.com/node/21524899
62 Further information is available from http://www.gra.gov.gh/docs/info/ge_trust_fund_act.pdf
63 Further information about the educational work of the Kenyan Equity bank can be found at http://www.equitybank.co.ke/about.php?subcat=9
64 Further information about ANDI is available from http://www.andi-africa.org/

funding over long periods. Key challenges to sustainability identified at the conference included the following:

- The capacity-building component of partnerships is often undertaken off the back of existing project and programme funding.
- Difficulty in obtaining funding for partnerships that only involve institutions from the South.
- Funding streams typically last only three to five years.
- Short-term budgetary cycles of government and business and rapid turnover of ministers and CEOs relative to long-term global health goals.

Several strategies to address these challenges are outlined below.

6.4.1 Longer-term funding

Longer-term, more flexible core funding allows investigators to tackle areas that present higher risk but potentially greater reward. One example is an NIH-funded scheme that provides funding for up to seven years through its International Centres for Malaria Research (ICEMR) scheme.[65] Long-term funding does not have to come from the same source. Indeed, if funders continue to support one particular initiative, they would not be able to fund new programmes. Risk assessments of funding need to be conducted early in the development of global health partnerships to plan a sustainable funding strategy.

6.4.2 Social business model

Social businesses, such as the Grameen Bank-funded Bangladeshi Nurse Training detailed in Box 6.1, offer another more sustainable model of funding. This approach is based on the philosophy that no institution dealing with local community problems and health issues should be reliant on external aid.

Social businesses are less reliant on intermittent and changing donor funding as they are non-loss, non-dividend companies that generate a modest profit for reinvestment. Another similar sort of approach has been undertaken at the University of the Philippines and is detailed in section 4.4.3.

Box 6.1: Training nurses in Bangladesh: a model of sustainability?

In 2009, a new partnership offering young, rural women the opportunity to train as nurses was established in Bangladesh. This not-for-profit scheme offers women from Grameen Bank borrower families a four-year interest-free loan to cover training fees, accommodation and living expenses while they complete nursing training. Newly trained nurses are guaranteed a job with the Grameen organisation on the same pay as doctors, and after a year's grace, the loan is paid back at 5% interest. At present, there are over 70 students and the income generated represents just 25% of overall costs. It is estimated that 600 nurses will need to be enrolled to achieve full sustainability and it is thought this will happen by 2014.

The programme, which aims to help break the cycle of poverty for women, is a three-way partnership between the Grameen Healthcare Trust, Glasgow Caledonian University and the NIKE Foundation. The partnership strives to balance vision from the South with leadership from the North, and has created role models, a new curriculum, a permanent college and living accommodation for the students. But it does far more than just train nurses. The scheme empowers women to become leaders and agents of change, capable of influencing global health on many different levels. And it highlights the possibilities of social business models to promote sustainable, capacity-building endeavours.

Further details of this initiative are available from http://www.gcu.ac.uk/grameencaledonianpartnership/

65 Further details can be found at http://www.niaid.nih.gov/LabsAndResources/resources/icemr/Pages/programOverview.aspx

6.4.3 Overhead sharing and recovery

The challenge of the lower rate of overhead recovery for institutions in the South compared with those in the developed world has been discussed in Chapter 5. Achieving long-term institutional capacity strengthening will require the more effective sharing and disbursement of project or research grant overheads.

6.4.4 Engagement with national governments and links to policy generation

Governments have to make hard choices about where to spend limited tax revenues. A decision to invest in global health partnerships, rather than education or transport infrastructure, requires evidence from evaluations, which are often lacking. Participants noted that it is the public and researchers from Southern countries who are best placed to engage and lobby Southern governments and other potential funders. This is discussed further in Chapter 7.

Several examples were presented at the conference of how effective engagement with national government and policy generation had sustained the partnership and had other secondary benefits. For example, the activities of the 'One Health' programme (see section 8.1) has been incorporated into the Ugandan governments five-year plan 'Prosperity for all'. A recent Palestinian national health strategy was developed and shaped through a longstanding fifteen year partnership between the University of Oslo, the departments of medicine and public health at Birzeit University and the local public health community. Similarly, the partnership between the University of Washington Global Health program and Washington State has been boosted by the clear demonstration of the contribution made by global health work of the university to job creation and the state economy.

6.5 Conclusion

The most successful partnerships are long-term endeavours that require sustained core funding. With the global economic downturn and slowdown in global health funding, sustainable funding for partnerships and capacity building needs to diversify beyond the traditional dependence on external agencies. Southern governments, Southern funders and Southern philanthropists are not yet fully engaged with global health partnerships and capacity building by demonstrating the direct benefits of partnerships. Researchers, universities and funders should encourage those from the South to invest in sustainable global health research partnerships that build research capacity. Key proposals discussed at the meeting included the following:

- **The more equitable sharing of overheads between Northern and Southern partners.**
- **The use of Southern government tax revenue for health research and capacity building.**
- **Engagement with local business corporate social responsibility funds, philanthropic funds and public-private partnerships.**
- **Strategies for more sustainable funding include longer-term project funding schemes as partnerships take time to produce results, a social business model for training initiatives and development of institutional endowment funds.**

7 Evaluation of partnerships

7.1 Introduction

Not all partnerships are equally successful. Evaluation offers an opportunity to find out why and is an essential part of developing best practice. With the establishment of so many institutional partnerships over the past 10 years there is a pressing need to evaluate whether their research, service or capacity-building goals have been achieved, and to share learning from these experiences, using robust and generalisable methods.[66] However, the literature is sparse and there are relatively few examples of well-designed evaluations. Too often, evaluation is added in as an afterthought when funds and resources are already stretched.

It is important to note that monitoring and evaluation represent two distinct but inter-related activities. The focus at the conference was on evaluation rather than monitoring.

7.2 Challenges to building the science of evaluation

Evaluation is a relatively new science that requires a rigorous experimental approach. Dissatisfaction was expressed at the meeting with existing approaches and several key challenges were identified:

- A weak evidence base; evaluations of 'real-life' capacity development interventions are almost non-existent.
- Those studies that do exist often lack methodological rigor with the use of non-validated tools, limited pilot testing of existing tools and indicators, retrospective data collection and biased sampling.
- Most current indicators are perceived as too broad, lack specificity for the programme objectives and are focused on quantitative measures only, such as the number of publications or PhDs.
- Poor integration between quantitative and qualitative methodologies.
- Lack of a common language to describe the science of evaluation.
- Lack of experts (capacity) in evaluation science, particularly in the South, resulting in partners from the North undertaking most of the work.
- The widely held view that evaluation research is both hard to fund and publish because it often does not involve rigorous randomised controlled trials.

These challenges are illustrated by a systematic review of the capacity-building literature in 2010 that identified 593 potentially relevant evaluations, of which only 31 were primary research studies that used acceptable methodology, and only four were from low- and middle-income countries.[67]

Yet, funding for evaluation is available, especially from larger funders who may incorporate evaluation as a prerequisite for funding. The NIH, for example, allocates around 1% of its budget to evaluation; the Global Fund recommends grantees set aside 5-10% of their budgets for evaluation and monitoring, although the resources available to this organisation are increasingly constrained.

66 Whitworth J, Sewankambo N & Snewin V (2010). *Improving implementation: building research capacity in maternal, neonatal, and child health in Africa.* PLoS Medicine **7(7)**, e1000299
67 Cole D, *et al.* (2011) *Searching for Evidence on Effectiveness of Health Research Capacity Development initiatives with Lower and Middle Income Countries (abstract 0292).* Global Health Conference 2011.

7.3 What, when and how to evaluate

7.3.1 What to evaluate

There are many measures of evaluation that might be used. The choice will depend on the nature of the programme (see Table 7.1).

Frequently evaluation uses quantitative methods. Qualitative indicators are used less often yet provide important information that cannot be captured easily quantitatively. There was general agreement that there is a need for a more mixed-methods approach to evaluation that integrates quantitative and qualitative measures.

7.3.2 When to evaluate

Plans for evaluation should be developed at the outset of a partnership. Evaluation and monitoring should occur at several stages: planning, implementation, conclusion and dissemination. Although there was consensus that evaluation should occur regularly throughout the partnership's life, there were also concerns that too early an evaluation could miss important outcomes. Studies indicate that medical research can take up to 17 years to move from the bench to the bedside, and the careers of those who receive training last a lifetime.[68] The NIH Fogarty Fellows AIDS International Training and Research Programme (ATRIP) programme was highlighted as an example of how an investment early in a career can generate huge dividends decades later but where too early an evaluation might misleadingly indicate a poor outcome.

Outcomes such as changes to policy can take a long time, so intermediate indicators may be used such as increases in the level of policy dialogue and requests for evidence from policymakers. It is also often difficult to disentangle the impact of the many different contributions to policy change, which can make the evaluation of particular initiatives more difficult.

Table 7.1 Quantitative and qualitative indicators for use in evaluation

Quantitative indicators	Qualitative indicators
• Number of degrees (Masters, PhDs, postdoctoral). • Number of started/completed graduate programmes. • Number of conference presentations. • Number of postgraduate researchers. • Number of publications in international, local and national journals. • Number of research grants (individual and institutional). • Number of staff also employed at government agencies and NGOs. • Number of research staff. • Average time for PhD completion. • Completed assignments and projects. • Access to mentors. • Career trajectories and promotions.	• Academic freedom (nature of faculty employment, security of faculty employment, nature of reward or remuneration, level of control over teaching and freedom to pursue any line of inquiry). • Programme quality (leadership, decision making). • Teaching quality indicators (teaching efficacy, teaching methods). • Learning quality indicators (learning attitude, ability to use knowledge). • Learner's confidence and competence in research outcomes (attitudes, intentions and actions towards research).

68 Academy of Medical Sciences, Medical Research Council & Wellcome Trust (2008). *Medical research: what's it worth?* http://www.acmedsci.ac.uk/p99puid137.html

7.3.3 How to evaluate

In addition to the immediate need for evaluation checklists for ongoing evaluations, it is recognised that methods for the evaluation of capacity building are still at an early stage of development. Existing tools need to be tested, and where a new more complex activity needs to be captured, new methodologies may need to be designed, which will also need testing. Indicators also need to be revised regularly to accommodate the changing nature of partnerships.

The value of learning about evaluation tools from other more experienced sectors, such as business and economics, which already possess tools for quality assurance systems, was highlighted. There is also a need to use the expertise from these other areas, such as system specialists in designing evaluation around complex interventions. The development of expertise in evaluation science was seen as a major opportunity for Southern institutions and in the short-term more resources need to be directed into training and building this expertise.

7.3.4 Evaluation toolkits and frameworks

There are several recently developed toolkits and checklists available for use in ongoing evaluations that all offer advice on how to set up and run successful partnerships from inception, implementation and dissemination. These include 'The Partnership Assessment Toolkit', 'The Partnering Toolbook' and 'Making an impact'.[69,70,71] They provide practical advice on establishing a vision for the partnership, governance and management, roles and responsibilities, ensuring good communication and nurturing of the partnership over the lifespan of the programme. A particular feature of the Partnering Toolkit is a series of modifiable forms and templates, including a partner assessment form, a sample partnering agreement, guidelines for partnering conversations and partners review template, a case study template, and finally a communication check list. There is the potential to adapt these tools and templates to help evaluate specific projects.

A framework for evaluation of different types of EDCTP project is presented in Box 7.1.

69 Afsana K, *et al.* (2009). *Partnership assessment toolkit.* http://www.ccghr.ca/docs/PAT_Interactive_e.pdf
70 Tennyson R (2003). *The partnering toolbook.* http://thepartneringinitiative.org/docs/tpi/pt/PartneringToolbookEng.pdf
71 Canadian Academy of Health Sciences (2009). *Making an impact: a preferred framework and indicators to measure returns on investment in health research report.* http://www.cahs-acss.ca/wp content/uploads/2011/09/ROI_FullReport.pdf

Box 7.1 Evaluation at the European and Developing Countries Clinical Trials Partnership (EDCTP)

The EDCTP was created in 2003 as a European response to the global health crisis caused by three important poverty-related diseases: HIV/AIDS, malaria and tuberculosis. The mission of the EDTCP is to accelerate the development of new or improved drugs, vaccines, microbicides and diagnostics against HIV/AIDS, malaria and tuberculosis, with a focus on phase II and III clinical trials in sub-Saharan Africa.

Further details about EDTCP can be found at http://www.edctp.org/Home.162.0.html

Three principles underpin the monitoring and evaluation of EDTCP.

1. Outputs and outcomes are agreed in advance and included in contracts.
2. Expected results are Specific, Measurable, Achievable, Relevant and Timely (SMART).
3. The need to change mechanisms of monitoring and evaluation as the partnership evolves is recognised.

The monitoring and evaluation tools used by the EDCTP are as follows.

Capacity-building activity	Verification process
Individual capacity building	
Short-term training, project management, financial management, GCP/GCLP.	Periodic reports, site visits by financial director and finance team, audits.
Long-term training (MSc, PhD), fellowships (junior, senior).	Reports, certificates, publications, theses.
Institutional capacity building	
Infrastructure (renovations, laboratory upgrades, IT, etc.).	Periodic reports, site visits, audits, questionnaires, inventories 'before and after' photographs, accreditations.
Personnel (project managers, financial administrators, nurses, etc.; training or hiring).	Periodic reports.
Institutional review boards.	Periodic reports, Council on Health Research and Development (COHRED) mapping, accreditation.
National capacity building	
National ethics committees.	Reports, site visits, mapping, African Vaccine Regulatory Forum (AVAREF), activity reports.
National regulatory authorities.	AVAREF activity reports, commissioning of COHERED to undertake mapping.
Regional/supranational	
Networks of excellence.	Periodic reports, quarterly teleconferences, questionnaires, site visits, publications, face to face meetings
Pan-African clinical trials registry.	Periodic reports, publications, inventories, annual forum.
African Vaccines Regulators Forum.	Annual forum, joint reviews.

7.4 Communicating and translating the results of evaluations into policy and practice

Evaluations should be communicated to stakeholders and the results translated into policy and practice. Too often, however, evaluation reports are published only as internal reports and go unnoticed. Several participants also reported difficulties in getting their evaluations published. Several medical journals such as the Lancet, Public Library of Science (PLoS) Medicine and the British Medical Journal (BMJ) have supported the publication of evaluative research especially from the South, but there remains a lack of high-quality papers. In addition, engaging ministers and policymakers on long-term issues such the evaluation of global health partnerships and capacity building may be difficult if they are only in post for a few years.

7.5 Co-ordinating evaluation

On a global level, evaluation requires better co-ordination. Currently there are no internationally accepted evaluation tools, and different funders have different reporting requirements. Institutions can get overloaded with multiple monitoring and evaluation schemes from different funding organisations. The transaction costs associated with evaluation can be significant. Agreement on methods and harmonisation of some of these processes will be necessary to minimise the burden on institutions with multiple partnerships.

Co-ordination might be improved through a synthesis of evidence and lessons learnt to provide a more robust basis for future evaluations, and a publicly available registry of major grants and independent evaluations. It was noted, however, that this might be challenging given the need to maintain anonymity. An example of an initiative established to co-ordinate evaluation is Enhancing Support for Strengthening the Effectiveness of National Capacity Efforts (ESSENCE), which is detailed in Box 7.2.

Box 7.2 Enhancing Support for Strengthening the Effectiveness of National Capacity Efforts (ESSENCE)

ESSENCE on Health Research is an initiative between funding agencies to scale up co-ordination and harmonisation of research capacity investments.[72] It aims to improve the impact of investments in institutions and people, and provides enabling mechanisms that address needs and priorities within national strategies on research for health.

ESSENCE members embrace the principles of donor harmonisation and country alignment, as expressed in the Paris Declaration on Aid Effectiveness in 2005 and enhanced by the Accra Agenda for Action in 2008, both produced in collaboration with the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC).

The ESSENCE collaboration has begun to collate different evaluation approaches (indicators and summary narratives) by different funders. The aim is that in the future, interested parties can select which ones are relevant for their particular purpose, and develop an adapted tool.

Further details are available from http://apps.who.int/tdr/svc/partnerships/initiatives/essence.

72 ESSENCE (2011). *Planning, monitoring and evaluating framework for capacity strengthening in health research.* http://apps.who.int/tdr/publications/non-tdr-publications/essence-framework/pdf/essence_framework.pdf

7.6 Ensuring accountability

Partnerships need to be accountable for their outcomes and be able to demonstrate that their funds are being spent appropriately. This accountability is to individuals within the partnership, institutions, governments and countries. Evaluation can help increase accountability and can play an important role in attracting future funds and ensure initiatives are sustainable.

Participants took the view that partnerships should be accountable to the local communities in which they conduct their work. Communities often donate the land on which institutions are built, as well as contribute directly to data and samples on which research is undertaken. Given the important role local communities have in the success of partnerships, many participants asserted that they should be able to expect direct health and economic benefits from the research conducted by the partnership. Local engagement is more likely to help encourage support from Southern governments and funders, as previously discussed in Chapter 6.

7.7 Conclusion

Evaluation of partnerships is critical to demonstrate benefits and impact, to assess whether goals have been met and to develop best practice. However, evaluation is a new science that currently lacks a strong evidence base with few validated measures. Researchers, universities and funders interested in global health research should develop new methods of evaluation for global health partnerships and capacity building, along with a cadre of experts in this field.

Key principles proposed for evaluating partnerships included the following:

- **The establishment of plans and funds for rigorous, prospective evaluation at the inception of partnerships.**
- **Regular evaluation throughout the life of a partnership: at planning, implementation, dissemination and wrap-up.**
- **Joint development of evaluation tools and indicators (quantitative and qualitative) by partners and regular revision to accommodate changes to the nature of the partnership.**
- **The inclusion of measures of benefits to local communities.**
- **The need to build on existing evaluation tools with project-specific adaptations.**
- **Longer-term evaluation as some outcomes of capacity-building activity may take many years to show impact.**

Additional priorities are as follows:

- **To increase capacity with a cadre of individuals trained in evaluation methodology, especially in the South.**
- **To unify reporting requirements for different funders to minimise onus on institutions with multiple partnerships.**
- **To improve co-ordination of evaluation tools and indicators through ESSENCE.**
- **To increase submission of high-quality evaluation experiences to peer-reviewed journals.**

8 Engaging new disciplines, new topics and new places

8.1 Introduction

Participants highlighted new opportunities to broaden global health partnerships and capacity building beyond their existing boundaries. Two areas that received particular attention were engaging new disciplines and engaging new places.

8.2 Engaging new disciplines

Disease-centred biomedical research alone will not provide solutions to the complex global health challenges of the 21st century. A more co-operative interdisciplinary approach is now required that involves a better understanding of the many socio-cultural, economic and environmental determinants of health. This should integrate local knowledge with research methodologies and expertise from different areas including economics, social and environmental science, engineering and mathematics.

Many participants believed that interdisciplinarity has a greater potential for policy impact. For example, senior decision makers, such as ministers of finance, often do not have medical backgrounds so are more likely to be persuaded by the consensus view from an interdisciplinary group. Moreover, there may be insufficient evidence from any one discipline to forge policy as different disciplines working alone may reach different conclusions on the same question.

Box 8.1 describes approaches that have been developed by three universities in the North to enhance interdisciplinary working in global health at their institutions. Lessons learnt from experience at these centres include the following:

- There is an enthusiasm among non-biomedical disciplines to work in global health, but also distrust and concern that it will be dominated by biomedical scientists.
- One approach to overcoming these concerns about ownership and control is to articulate more clearly the benefits of collaboration, and where necessary to provide resources to another department to work on joint projects, such as through salary support for a member of their staff.
- It is preferable to keep collaborators based in structures that encompass a critical mass in their area of expertise rather than placing them in new structures.
- High-level support from a university vice chancellor or provost is important to support the process.

Other successful examples of multisectorial interdisciplinary groups working for global health include the following:

- One Health.[73]
- Stamp Out Sleeping Sickness.[74]
- Integrated Control of Neglected Diseases (ICONZ).[75]

Despite the benefits of interdisciplinary research, efforts to engage with other disciplines can meet with resistance. There are concerns about the potential impact of interdisciplinary working on career development, and that the current university career advancement and reward system discourages applied collaborative research. In addition, there remains a general lack of skills among existing staff and trainees in the use of appropriate terminology for effective communication across disciplines.

There was broad consensus that an interdisciplinary research ethos and related skills should be incorporated into academic training and career development as early as possible. Interdisciplinary training programmes and research opportunities, such as those

73 Further details of the One Health initiative are available from http://www.onehealthinitiative.com/
74 Further details are available from http://www.stampoutsleepingsickness.com/
75 Further details of the Integrated Control of Neglected Diseases are available from http://www.iconzafrica.org/

Box 8.1 Interdisciplinary centres for global heath

University of Washington

Four years ago the University of Washington set up a new interdisciplinary Department of Global Health in collaboration with 17 other schools and colleges within the University, housed jointly by the Schools of Medicine and Public Health. This has led to the creation of 19 interdisciplinary centres or programmes, around 60 courses and over 300 projects in 82 countries, including the multidisciplinary International Training and Education Center for Health (I-TECH) partnership. I-TECH is one of the world's largest health workforce training programmes, with offices throughout Africa, Asia and the Caribbean.

Recent I-TECH developments include partnerships with the University of Namibia to strengthen the Schools of Public Health, Medicine and Nursing, curriculum development in the new school of Pharmacy, and a new Clinical Centre at University of Gondar, Ethiopia, that has involved University of Washington architects and engineers.

Further information is available from http://www.go2itech.org/.

University College London Centre for Health and International Development (CIHD)

CIHD is an interdisciplinary collaboration of leading academics working on health and development in a global context based at the Institute of Child Health, University College London. It was established in October 2006 when the UCL Centre for International Child Health, the UCL International Perinatal Care Unit and the UCL International Health & Medical Education Centre united to become UCL CIHD.

It also houses and works closely with the UCL Institute for Global Health that supports the work of UCL's Grand Challenges. CIHD collaborates with a range of international agencies and NGOs promoting the use of evidence-based good practice.

Further information is available from http://www.ucl.ac.uk/cihd/.

Global Health Academy at the University of Edinburgh

The Global Health Academy brings together a wide portfolio of postgraduate Masters degrees relevant to global health from across the university, across different disciplines and across other educational partnerships. It offers a range of qualifications in a variety of formats. One strength is that students can take modules from other course and programmes. For example, a student studying for a Masters in biodiversity, wildlife and ecosystem health can also take the social determinants in public health module, which is part of the Masters in Public Health.

Further information is available from http://www.ed.ac.uk/schools-departments/global-health

discussed in Box 8.1, should be encouraged. Social sciences, such as economics, geography and psychology, are well placed to help shape healthcare research. For example, understanding human settlement patterns is important for understanding many zoonotic diseases such as sleeping sickness. Yet these disciplines are often under-represented in interdisciplinary research partnerships, particularly in Africa. Gaps in these key disciplines need to be plugged.

Participants mentioned that even within the

biomedical sciences, global health research partnerships have often focused on some areas more than others. It was noted that even though there is considerable support for HIV/AIDS, tuberculosis and malaria, there are fewer partnership initiatives aimed at areas such as non-communicable diseases, nutrition, the social determinants of health, health systems research and evaluation methodology (see Chapter 7). One challenge in engaging new disciplines flagged by funders was that these areas often lack a cadre of high-quality scientists able to apply for funding and take the research forward.

In developing interdisciplinary research, the principles of good partnership discussed in Chapter 3 apply. However, interdisciplinarity faces the additional challenge of uniting different disciplines, often with disparate languages and research methodologies. Ideas need to be represented by a 'language' that avoids unnecessary use of jargon and is accessible to all involved. To this end, physical proximity, strong leadership and enabling policies are valuable. Most importantly, different sources and levels of knowledge and training need to be treated with the same level of respect. Finally, the experience of Training for Health Equity network (THEnet) and One Health is that if a key goal is to implement and scale up findings, early involvement of partners experienced in community engagement, community development, translation into policy and practice is critical.

Many participants highlighted the need for more funding for interdisciplinary research projects. Joint funding initiatives, such as the Environmental and Social Ecology of Human Infectious Diseases Programme funded by some of the UK Research Councils, should be encouraged in other areas.[76]

Universities offer unique opportunities for interdisciplinary working through their access to multiple disciplines within a single institution. A key challenge raised by participants is to how to move from multidisciplinarity approaches, where individual disciplines provide input, to interdisciplinarity approaches, where disciplines work together more synergistically.

8.3 Engaging new places

Global health partnerships span many different geographical regions, but there are major gaps (see Figure 8.1). Many partnerships on the African continent are clustered in West Africa, East Africa and Southern Africa, with an absence of partnerships in the centre of the continent. There is also insufficient engagement with French- and Portuguese-speaking countries. Often such circumstances arise because Northern institutions tend to engage with Southern institutions that are already well known, rather than seeking new partners in new places. Such gaps are exacerbated by language difficulties, challenges in travelling between East Africa and West Africa, and the problems in obtaining resources to facilitate collaborations between institutions in the South.
For example, several African participants commented that it is easier for Southern researchers to find resources to visit the USA or Europe than neighbouring African countries. This opinion is supported by a recent survey of scientific authorship between 2004 and 2008 that showed 77% of African biomedical research papers were produced with international partners, whereas just 5% were the result of collaborations with another African country.[77]

There was debate about whether the strategy to address this should be to fill geographical gaps by concentrating resources in a few excellent institutions, or by spreading resources more evenly. One suggested approach was a hub-and-spoke model, with centres of excellence in the South as the hub, and other, less strong Southern institutions as spokes, as pioneered by the Wellcome Trust African Institutions Initiative

76 Further details are available from http://www.mrc.ac.uk/Fundingopportunities/Calls/ESEI/index.htm
77 Royal Society (2011). *Knowledge, networks and nations.* http://royalsociety.org/policy/reports/knowledge-networks-nations/

and the EDCTP Centres of Excellence in Clinical Trials.

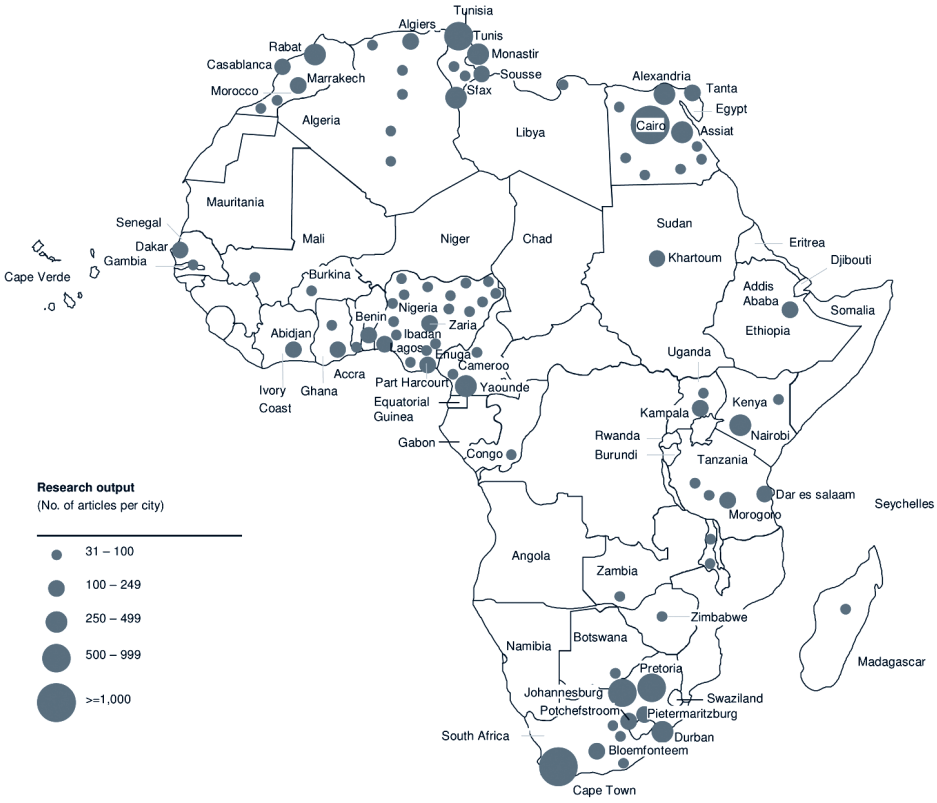
8.3.1 Capacity building in fragile states

A major unrealised need and opportunity is the establishment of global health partnerships and capacity building in fragile states, states emerging from conflict, or other low-income countries with weak state institutions.

It was estimated at the conference that perhaps one-fifth of the world's population lives in fragile states. Capacity building is critical here, because these regions contain around one-third of the world's poor, one-third of all those living with HIV/AIDS and around one-third of the burden of maternal, newborn and child mortality. Yet, according to one speaker, these states receive 40% less aid than that predicted on the basis of their development indicators.

One speaker estimated that around 15% of

Figure 8.1: Distribution of biomedical R&D capacity in Africa[78]



global research output comes from fragile states but this is largely because of the existence of a few outstanding institutions that continue to support and attract research training and capacity development in the face of crisis. Such institutions must build and retain critical mass, deal with issues of supply and infrastructure, and overcome many financial and practical problems with limited support from elsewhere.

Institutions in fragile states can represent a worthy investment. Uganda, for example, suffered decades of conflict, yet now has one of the best biomedical research structures in Africa. Conflict and challenge can spawn resilience and ingenuity. Some of the most innovative research partnerships have emerged from countries facing crisis. Participants heard that currently fragile states are not a priority for funders but many believe that they should be for research, although training might be better undertaken in more stable environments.

78 Nwaka S, *et al.* (2010). *Developing ANDI: A Novel Approach to Health Product R&D in Africa.* PLoS Medicine, **7(6)**, e1000293.

8.4 Conclusion

Growth in partnerships and capacity has been uneven both geographically and in the focus of their research and the disciplines involved. The need for interdisciplinary working is driven primarily by the need for a more co-operative approach to address complex global health challenges. Universities and associated partnerships offer a unique opportunity for interdisciplinary working through their ready access to multiple disciplines. Specific strategies to promote interdisciplinary working include the following:

- **Expanding interdisciplinary training programmes and research opportunities such as exchange of modules from different courses or distance learning programmes.**
- **Incorporating interdisciplinary training opportunities early into career structures.**
- **Promoting interdisciplinary research funding schemes.**
- **Increasing representation of social sciences, such as psychology, nutrition and health economics, in existing partnerships.**
- **Encouraging recognition and reward for interdisciplinary working within the university sector.**
- **Greater efforts are needed to establish equitable, sustainable partnerships and capacity in both underserved regions such as central Africa, French- and Portuguese-speaking countries, and fragile states, and in neglected disciplines and topics such as health systems research, nutrition, the social determinants of health and non-communicable diseases.**

9 Conclusion

Over the past decade or so there has been a rapid increase in the number and variety of global health partnerships between academic institutions. These new alliances offer considerable benefits to participants as well as the opportunity to tackle the Millennium Development Goals and build research, education and health service capacity, particularly in the South. They are, however, accompanied by costs with inequity and sustainability as major barriers to success.

Five priority areas for action emerged from the conference.

- Nurturing postdoctoral fellows and postgraduate students.
- Strengthening institutions.
- Engaging decision makers and funders from the South.
- Developing evaluation.
- Involving new disciplines and new places.

For global health partnerships to flourish, these priorities must be taken forward by individuals and institutions in the North and South, national academies of medical science, professional bodies, funders, industry, government agencies, local communities, charities and NGOs.

Inevitably the conference was limited in what it could showcase. Although there was a strong representation from Africa, other regions such as the Middle East and China were less well represented. Many of the partnerships covered at the conference concerned infectious diseases whereas fewer concerned non-communicable diseases. These might be addressed through future activities.

Annex I: Organising and Steering committees

Organising Committee

- Professor Philippa Easterbrook, Associate Director of Global Health, Royal College of Physicians (Co-Chair and Conference Organiser)
- Professor Robert Souhami CBE FMedSci, Foreign Secretary, Academy of Medical Sciences (Co- Chair and Conference Organiser)
- Neva Frecheville, International Officer, Royal College of Physicians
- Laurie Smith, Policy Manager, Academy of Medical Sciences

Steering Committee

- Professor Philippa Easterbrook, Associate Director of Global Health, Royal College of Physicians (Co-Chair and Conference Organiser)
- Professor Robert Souhami CBE FMedSci, Foreign Secretary, Academy of Medical Sciences (Co-Chair and Conference Organiser)
- Dr Fiona Adshead, Director of Health Advice, PriceWaterhouseCoopers
- Sue Bernhauser, Dean of the School of Human and Health Sciences, University of Huddersfield
- Joe Cerell, Director of Europe Office, Bill and Melinda Gates Foundation
- Professor Jonathan Cohen FMedSci, Dean, Brighton and Sussex Medical School
- Professor Tumani Corrah, Unit Director, MRC the Gambia
- Professor Anthony Costello FMedSci, Director of UCL Institute for Global Health, University College London
- Dr Nina Desai, Deputy Director, The George Institute for Global Health
- Professor Alan Fenwick, Director of the Schistosomiasis Control Initiative, Imperial College London
- Professor Andrew Green, Professor of International Health Planning, University of Leeds
- Professor Sir Andrew Haines FMedSci, Professor of Public Health and Primary Care, London School of Hygiene and Tropical Medicine
- Professor Janet Hemingway FRS FMedSci, Director, Liverpool School Tropical Medicine
- Dr Richard Horton FMedSci, Editor, The Lancet
- Eve Jagusiewicz, Policy Advisor, Universities UK
- Professor Anne Johnson FMedSci, Head of Division for Public Health, University College London
- Professor David Lalloo, Director Wellcome Trust Tropical Centre, Liverpool School of Tropical Medicine
- Professor Anthony Mbewu, Former Director, Global Forum on Health Research
- Professor Charles Mgone, Chief Executive, European and Developing Countries Clinical Trials Partnership
- Professor Robyn Norton, Principal Director, George Institute for Global Health
- Professor Barbara Parfitt, Director Global Health Development, Glasgow Caledonian University
- Professor Vikram Patel FMedSci, Professor of International Mental Health, Goa, and Institute of Psychiatry
- Professor Neslon Sewankambo, Principal, College of Health Sciences, Makerere University
- Professor Chris Whitty FMedSci, Chief Scientific Advisor and Head of Research, Department for International Development
- Professor James Whitworth FMedSci, Head of International Activities, The Wellcome Trust

The first draft of the report was prepared by Dr Helen Pilcher.

Annex II: Acronyms and abbreviations

ANDi	African Network for Drugs and Diagnostics Innovation
ASTIEF	African Science, Technology and Innovation Endowment Fund
ATRIP	AIDS International Training and Research Programme
AusAID	Australian Agency for International Development
BMJ	British Medical Journal
CARTA	Consortium for Advanced Research Training in Africa
CCGHR	The Canadian Coalition for Global Health Research
CDC	US Centers for Disease Control
CIHD	Centre for Health and International Development
COHRED	The Council on Health Research for Development
CPLP	Community of Lusophonic Countries
CUGH	Consortium of Universities for Global Health
DAC	Development Assistance Committee
DfID	Department for International Development
DNDi	Drugs for Neglected Diseases initiative
EAGHA	European Academic Global Health Alliance
EDCCTP	European and Developing Countries Clinical Trials Partnership
ESSENCE	Enhancing Support for Strengthening the Effectiveness of National Capacity Efforts
G-Finder	Global Funding of Innovation of Neglected Diseases
GAVI	Global Alliance for Vaccination and Immunisation
GET	Ghana Educational Trust Fund
HDSS	Health and Demographic Surveillance Systems
I-TECH	International Training and Education Center for Health
ICEMR	International Centres for Malaria Research
ICONZ	Integrated Control of Neglected Diseases
INDEPTH	The International Network for the Demographic Evaluation of Populations and Their Health in Developing Countries
ISHReCA	Initiative to Strengthen Health Research Capacity in Africa
KPFE	The Commission for Research Partnerships with Developing Countries
MCDC	The Malaria Capacity Development Consortium
MUNDO	Maastricht University Centre for International Cooperation in Academic Development
NGOs	non-governmental organisations
MEPI	Medical Education Partnerships Initiative
NACCAP	Netherlands-African Partnership for Capacity Development
NIH	National Institutes of Health
OECD	Organisation for Economic Co-operation and Development
PACTR	Pan African Clinical Trials Registry
PATH	Programme for Appropriate Technology in Health
PGIM	Post-Graduate Institute of Medicine
PHFI	Public Health Foundation of India
PLoS	Public Library of Science
PPPs	Public Private Partnerships
RAWOO	The Netherlands Development Assistance Research Council
SIDA	Swedish International Development Agency
SMART	Specific, Measurable, Achievable, Relevant and Timely

TDR	Special Programme for Research and Training in Tropical Diseases
THEnet	Training for Health Equity network
THET	Tropical Health Education Trust
UNASUR	Union de Naciones Suramericanas
UNECA	United Nations Economic Commission for Africa
USAID	United States Agency for International Development
WACP	West African College of Physicians
WHO	World Health Organization

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