COLLOQUIUM 2013 REPORT:

SUSTAINABLE INVESTMENTS INTO RESEARCH AND INNOVATION

cohredcolloquium3 2013

Sustainable Investments into Research and Innovation for Health.

In Collaboration with the Lancet Commission on Investing in Health

Geneva
26-27
March
2013

Web 4 Development

COHRED Connect

COHRED Think

COHRED Tech

COHRED Africa

COHRED Council on Health Research for Development 20th ANNIVERSARY

COHRED Mission Statement

We aim to improve health, equity and development by supporting countries to develop strong research and innovation systems.

COHRED Tech	COHRED Connect	COHRED Think	COHRED Web4Dev	COHRED Africa
Optimises research and innovation systems for health	Creating partnerships for Action	Ideas, inspiration and intelligence	Information and technology solutions	Optimising research and innovation systems for health in Africa

Find us on:
www.twitter.com/cohred
www.facebook.com/cohredgroup
YouTube: 'cohredgroup'
www.flickr.com/photos/cohred

COHRED
Council on Health Research for Development

COLLOQUIUM 2013 REPORT:

SUSTAINABLE INVESTMENTS INTO RESEARCH AND INNOVATION

Table of contents

Geneva
26-27
March
2013

Published 2013
ISBN 978-92-9226-058-3

Foreword from the Executive Director

COHRED: Pushing for investment in global health research

Funding for research is always a hot topic at any global health conference, and always controversial since healthcare services also clearly require more money. Who shoulders the responsibility for funding R&D, what is the best way to channel research funding, and which research areas are most in need of money are questions that scientists and policymakers are constantly discussing.

These questions have always been pertinent, but in these constrained financial times, it is clear that investment in global health must become sustainable. According to the Institute for Health Metrics and Evaluation (IHME) at the University of Washington, between 2011 and 2012, development assistance for health from the US, the largest donor, dropped by 3.3%, and funding from France and Germany fell by 13% and 9.1% respectively. Donors and funders are taking greater care in how they spend their money, and increasingly when they think about health systems they start to realize that investing in health care delivery is just as important as funding vaccine rollouts. The next logical step from here is to think more about how to ensure that low and middle-income countries become truly self-supporting, through greater investment in their research systems. Low and middle-income countries need to be able to better direct their own health research agendas, which means figuring out ways in which they can invest more in research, identify their critical needs and invest in needed human and institutional capacity.

Alongside other stakeholders, COHRED has been part of the dialogue in understanding what sustainable investment in global health research means, and whether it is possible to move "beyond aid". Our 2011 Colloquium[1] and our 2012 Global Forum in Cape Town[2] explored priorities for low and middle-income countries, and seized on the idea of progressing to a point where global health is not primarily funded by aid.

This 2013 Colloquium, organised in collaboration with the Lancet Commission on Investing in Health[3], is a continuation of those debates. This Colloquium was held to bring together a range of stakeholders – from researchers and policymakers to industry representatives and NGOS – to have a free and frank discussion about directing our focus towards sustainable investments in health research as a critical part of investing in health. This report captures the informal narrative from that event.

COHRED may have facilitated the meeting, but the ideas and recommendations at the end of this report come entirely from the Colloquium participants. I hope that the ideas contributed will spark further inspiration.

1 http://www.cohred.org/wp-content/uploads/2012/03/Syntesis-report_web2012.pdf

2 www.forum2012.org

3 http://www.cddep.org/projects/lancet_commission_investing_health

We may have amassed an enormous knowledge base about preventing and treating disease, but sustainable solutions continue to elude us, and those that do exist are at risk of becoming useless due to factors such as drug resistance. What's more, our understanding of how best to tackle poor health in specific political and geographical contexts – i.e., operational and implementation research – is nowhere near as well developed as it needs to be.

As this report documents, investing in research continues to be a vital strategy for improving global health. However, simply calling for more money is not enough. We need to know what to spend the money on, how to spend it, who should be spending it, and who will carry out the research. These are complex questions, with no easy answers, but dialogue on these issues is urgently needed.

A powerful and convincing case for sustainably increasing investment in research and innovation for health urgently needs to be made. We hope this Colloquium will contribute to that case.

Carel IJsselmuiden
Executive Director: COHRED

About COHRED

The Council on Health Research for Development (COHRED) is a non-profit organisation with headquarters in Geneva, Switzerland. Our board and staff represent low and middle-income countries – the majority are residents and citizens of the countries we work with. COHRED is founded on the belief of 'Health for All' – that health is everyone's right and is essential for individuals, families and countries to develop and prosper, and to plan their own future.

We aim to improve health, equity and development by supporting countries to develop strong research and innovation systems. We work globally, but prioritise low and middle-income countries.

Following the integration of COHRED and the Global Forum for Health Research (GFHR), COHRED's portfolio of services and tools that support countries in strengthening governance and management of research and innovation for health, equity and socio-economic development grew. It now includes the Global Forum's influential international conference on research and innovation for health and its tracking of resource flows to health research. Forum 2012 successfully took place in April 2012 in Cape Town, South Africa and we are now exploring the options for a follow-up Forum 2014.

We have two primary goals:

- To support countries in optimising their research and innovation capacity for the improvement of health, equity and socio-economic progress;
- To engage outside agencies whose actions impact on the research and innovation capacity of low and middle-income countries – with the aim of ensuring that their actions are system supportive.

Given continuing health inequities in both the developing and the developed world, COHRED promotes research for health and innovation that addresses the needs of the disadvantaged.

COHRED works with countries to build the skills and systems required for such essential research. We partner with all individuals and organisations who can support our mission including governments, research and academic institutions, businesses, donors, regional and international organisations and local communities, building on expertise from around the world.

About The Lancet Commission

In 1993, the global heath community was introduced to a new way of measuring and valuing health and interventions to improve health – through an economic lens. The World Bank's World Development Report'93[1] looked at the topic of "Investing in Health," examining the interplay between human health, health policy and economic development. It advocated a three-pronged approach for government action to improve health in low-income countries: (1) governments should foster an economic environment that enables households to improve their own health; (2) government spending on health should be directed to more cost-effective, pro-poor programmes; and (3) governments must promote greater diversity and competition in the delivery of health services. WDR93's analyses and conclusions have featured prominently in the investment planning and policy debates over subsequent years.

A new commission

Distinguished experts[2] in a range of disciplines from around the world have agreed to serve on a Lancet Commission on Investing in Health (CIH) that has been formed to mark the 20th anniversary of WDR93. The Commission is chaired by Professor Lawrence H. Summers[3] from the Harvard Kennedy School (who was chief economist at the World Bank in 1993), and is co-chaired by Dean Jamison[4] from the University of Washington (who was lead author of WDR93). The CIH serves as a 20-year anniversary research and consultative project to reflect on the importance today and for the future of the key findings of the WDR93.

Supported by NORAD, the Bill & Melinda Gates Foundation, and the Harvard Global Health Institute, the Commission is revisiting the methods and conclusions of WDR93 in light of subsequent research findings, technological advances, institutional changes and on-the-ground experience. The ultimate goal of the CIH is to draw lessons from past successes to inform current and future policies for addressing remaining global health problems. The Commission will report its key findings and recommend next steps in a major report in *The Lancet* published on December 3, 2013.

1 http://www.cddep.org/projects/files.dcp2.org/pdf/WorldDevelopmentReport1993.pdf (WDR93)

2 http://www.cddep.org/sites/cddep.org/files/cih_commissioners.pdf

3 http://www.hks.harvard.edu/about/faculty-staff-directory/lawrence-summers

4 http://sph.washington.edu/faculty/fac_bio.asp?url_ID=Jamison_Dean

Background

1

1.1 REDRAWING THE MAP OF GLOBAL HEALTH RESEARCH FINANCING

Financial flows in global health have changed substantially over the past few decades. Many low-income countries are transitioning to become middle-income ones, with some economies such as China and India surging further ahead, both in GDP growth and in healthcare advances, bringing them to the level of serious players in the global pharmaceuticals market.

Lower income countries that have carefully managed their natural resources have done particularly well. For instance, Botswana increased its per capita wealth by 35 per cent between 1995 and 2005.[1] Botswana is now classified as an upper middle income country, although extreme poverty remains an issue. To secure sustainable growth, Botswana is now looking to the stimulation of local innovation as a way forward, through initiatives such as the Botswana Innovation Hub.[2]

Now that the political and economic map has been re-drawn, what does this mean for the financing of global health research? This was traditionally funded in low-income countries by international aid, but in the deepening global economic recession, many high-income countries have taken the decision to reduce aid budgets. Funders are increasingly demanding that recipient countries ensure greater transparency and efficiency in the way that aid is spent.

And what about countries with a GDP too high to continue to be on the donor assistance list? The rapid growth in emerging economies like India has staunched the flow of aid from richer countries. The fact is, however, that the majority of the world's poorest now live in middle-income countries,[3] and despite India's economic growth, it also has half a billion people living below the poverty line with staggeringly high rates of infectious diseases such as rotavirus, which causes fatal childhood diarrhea killing 100,000 children a year in India alone, as well as soaring epidemics of chronic diseases.

1.2 WORLD DEVELOPMENT REPORT 1993: INVESTING IN HEALTH

The World Bank's 1993 Development Report (WDR93) helped put health firmly on the global political landscape and resolutely set health in an economic context. Its central thesis, which represented a watershed in global health thinking, was that spending to improve in health is not a cost but an investment in development, as healthier populations learn better and are more economically productive. However, tackling the health problems of the world's poorest intrinsically needs sound financial management. It showed that, in many low and middle-income countries, money was being spent on interventions that were not very cost-effective, while low-cost approaches to reducing infectious disease (outbreaks of TB, for example), were being ignored. The report also highlighted the grossly inefficient use of financial resources in healthcare, such as the purchase of brand-name drugs instead of generics or the fact that poor

1 The World Bank (2011). The changing wealth of nations: measuring sustainable development in the new millennium. http://issuu.com/world.bank.publications/docs/9780821384886

2 http://www.bih.co.bw/

3 N Perkins (2011). Wealth in middle-income countries could change the nature of aid http://www.guardian.co.uk/global-development/poverty-matters/2011/sep/27/middle-income-countries-future-aid

public health services meant that people spent much more than they should on out-of-pocket payments. For the Bank, the report was extremely timely as it had seen its own investment in health rise sharply over the previous decade.[4] Given that it was investing so heavily in health, the Bank needed to know whether health expenditures were a sound investment: whether a fitter, healthier population would drive greater economic growth.

The report also called for innovative policy measures that are now embedded in global health thinking – educating and empowering women being chief among them. The report was possibly more in privatisation and favour engagement in healthcare, through privatisation of healthcare for example, than some global health experts were comfortable with, but it is worth remembering that this was a report published by the World Bank. It is now clear to anyone in global health that while transparency is paramount in engagement with the private sector in global health, and conflicts of interests must be closely guarded against, one of the most promising ways to effectively finance global healthcare is through both public and private investments; public-private collaborations being especially promising.

WDR93 was heavily influential in global health. It paved the way for Gro Brundtland, then Director-General of the World Health Organization, to launch the Commission on Macroeconomics and Health, chaired by Jeffrey Sachs of the Earth Institute, Columbia University and for Christopher Murray, now at the University of Washington, US, to start the Global Burden of Disease study. Dr Gerald Keusch (National Emerging Infectious Diseases Laboratory, Boston University and COHRED Board co-Chair), in the opening plenary session of the Colloquium, said that while WDR93 made the case for investing in health, the case for investing in health research was not made as strongly as it could have been. The Lancet Commission on Investing in Health is a chance to reinvigorate global health research funding.

1.3 LANCET COMMISSION ON INVESTING IN HEALTH

Though many of WDR93's recommendations are still valid today, the world is considerably different. Professor Dean Jamison at the University of Washington was lead author of that report along with Professor Lawrence H Summers from Harvard University (who was chief economist at the World Bank in 1993), and both are co-chairing a Lancet Commission on Investing in Health (CIH), formed to mark the 20th anniversary of WDR93.

The Commission's goal is to examine WDR93's conclusions and recommendations in the context of subsequent research findings, technological advances, and knowledge garnered from the field. At the end of 2013, the Commission, which is supported by NORAD and the Bill & Melinda Gates Foundation, will produce a report that offers recommendations for addressing future global health problems.

Prof Carel IJsselmuiden

Dr Gerald Keusch

4 http://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2812%2962185-0/fulltext?rss=yes

Dr Gavin Yamey, UCSF

Gavin Yamey, from the Global Health Group at the University of California, San Francisco (UCSF), is one of the CIH Commissioners, and along with Dean Jamison is leading the writing of the report. Yamey told the Colloquium participants that the Commission has a "*bold but achievable and feasible vision for equal infectious, reproductive, maternal, newborn and child health outcomes across countries. We have the technical know-how and financial resources; now we need to make the right investments in R&D.*"

1.4 AIMS OF THE COHRED COLLOQUIUM

COHRED colloquia are designed to break away from formal conference settings. They gather a select group of influential 'change makers' in an interactive and informal setting, encouraging open conversation between all participants.

The two days of the Colloquium included plenary sessions featuring issue-framing presentations followed by breakout discussion sessions to flesh out the complexities. In each session, participants were given a brief to discuss, and asked to explore the nuances and implications of each in an open manner. At the end, there was an attempt to come to some consensus about what the key points of each workshop were. An NGO called Facilitators Without Borders[5] assisted in steering these sessions.

Day 1 of the Colloquium looked back and then forward at the landscape of health research, discussing key questions including:

- Whahave the key research successes been in the fight against mortality since 1993?
- What gaps remain, and what is needed to address them?
- What about the impact of other sectors on health?
- How is the developing agenda for non-communicable diseases different?
- What is the role of the growing S&T capacity of low and middle-income countries?
- What is happening in the international framework for monitoring and coordinating research financing?

Day 2 focused on identifying, and optimising sources of financing for health research, and exploring some of the framework issues associated with financing collaborative research. These issues were analysed from different perspectives, but always with a specific focus on the role, the needs and the responsibilities of low and middle-income countries.

- What can funders do to maximise or optimise available resources?
- How can we show the real value of research and innovation through monitoring and evaluation?
- What is the growing role of the private sector in supporting health research in low-income contexts?
- What are the issues which research institutions in lower income countries face?
- How can we ensure that research contracting between partners of different capacities is fair?

5 http://www.fwb.ca

Past and present: R&D successes and failures

In reflecting on whether an R&D approach has worked or not, it is crucial to remember that a clinical success can be an implementation failure – e.g., recent HIV research has shown us that ARVs can also be used for prophylaxis, and starting ARVs much earlier (at CD_4 counts ‹ 500) can slow disease and transmission. But translating this into reality is difficult since in many African countries, poor access to healthcare services mean that people still commonly present when AIDS is well advanced and the CD_4 count is very low (eg, ‹ 200).

A number of success stories related to investing in research were identified – many by a key contributor to the Colloquium, Peter Hotez of the Baylor College of Medicine, Texas. These stories lie across the broad spectrum of research from basic science discovery and later application to specific health needs, to new ways to manage the development process, to implementation strategies based on research in the community.

2.1 BASIC SCIENCE

Reverse vaccinology

From the very beginning, vaccine development has resulted in highly cost-effective ways of preventing certain infectious diseases. In the case of smallpox, the vaccine was the tool though which the strategy of case detection and ring immunisation around cases led to the eradication of the virus from nature. Ongoing efforts with polio immunisation have reduced the global burden of polio and there are just three countries with continuing transmission in nature. More recently, use of the vaccine developed with recombinant DNA technology for hepatitis B has dramatically reduced the burden of liver carcinoma in Asia and Africa, as well as protecting against hepatitis B liver disease. The discovery that non-infectious highly immunogenic viral-like particles that mimic the immunogenicity of the intact virus can be produced in cell culture has allowed the development of effective new vaccines against human papilloma virus, with the potential to virtually eliminate the risk of cervical cancer associated with HPV types 16 and 18.

The development of new, rapid and relatively inexpensive methods to obtain the complete genome sequence of an organism has opened up the possibility of using genome information to identify genes encoding proteins with the attributes necessary for an effective vaccine, a strategy named reverse vaccinology.[6] The first vaccine to emerge from this powerful approach is for Neisseria meningitis group B, a significant cause of bacterial meningitis, for which vaccine strategies have, up to now, failed. This new meningococcal B vaccine is now in phase 3 trials and could become one of the first licensed products discovered through reverse vaccinology and computer based modelling.

6 Seib K, Zhao X, Rappuoli R. 2012. Developing vaccines in the era of genomics: a decade of reverse vaccinology. Clin Microbiol Infect Suppl 5: 109-16.

In May 2013, investigators led by Philip Dormitzer of Novartis Vaccines and Diagnostics, Cambridge Massachusetts, reported on a new methodology for the very rapid synthesis of influenza vaccine viruses from sequence data that offered the promise of responding to new potentially pandemic virus emergence within weeks rather than months.[7]

Through a system of instantaneous electronic data exchange they described how the discovery phase could be followed up by real-time geographically dispersed vaccine production, one of the major shortcomings of traditional methods for the development of new influenza virus vaccines.

Investing in the future: These three examples represent advances in disease control based on basic science discoveries and their application to practical needs. Major health advances are dependent on relevant basic research, which must continue to be a priority among investments in health systems and health services.

2.2 PRODUCT DEVELOPMENT AND TRANSLATIONAL MEDICINE

MenAfriVac: The Meningococcal A vaccine

Through the activities of PATH Vaccines based in Washington DC and a collaboration with the World Health Organization and a number of private sector vaccine manufacturers, such as the Serum Institute of India in Pune, India, a project to develop a vaccine to target epidemic Meningococcal group A meningitis in the African Sahel was established in 2001 with funding from the Bill & Melinda Gates Foundation.[8] In this case it was known that polysaccharide-protein conjugate vaccines could protect against the pathogen. The problem was to identify ways to bring the necessary expertise together in an effective product development partnership (PDP) to develop a vaccine suitable for the environment in which it would be used. The MenAfriVac produced by Serum Institute of India received Indian market authorisation in December of 2009 and WHO prequalification in June 2010 and was introduced at public health scale in Burkina Faso, Mali, and Niger in Africa's meningitis belt in December 2010. An assessment after the first year of vaccine implementation[9] has already found that "*the conjugate vaccine has substantially reduced the rate of meningitis in people in the target age group, and in the general population because of high coverage and herd immunity. These data suggest that fully implementing the PsA–TT vaccine could end epidemic meningitis of serogroup A in sub-Saharan Africa.*"

Investing in the future: The example shows the power of a PDP mechanism for applied research to produce a needed product without the involvement of a major multinational pharmaceutical company. As part of this, investment in the product development by a middle income country manufacturer has led to a high quality and highly effective product at affordable cost.

7 Dormitzer PR, Suphaphiphat P, Gibson DG et al. Synthetic generation of influenza vaccine viruses for rapid response to pandemics. Sci Transl Med 5: 185r68, 2013.

8 Frasch CE, Preziosi MP, LaForce FM. 2012. Development of a group A meningococcal conjugate vaccine, MenAfricVac ™. Hum Vaccin Immunother 8: 715-24.

9 Novak RT, Kambou JL, Diomandé FV, Tarbangdo TF, Ouédraogo-Traoré R, Sangaré L, Lingani C, Martin SW, Hatcher C, Mayer LW, Laforce FM, Avokey F, Djingarey MH, Messonnier NE, Tiendrébéogo SR, Clark TA. Serogroup A meningococcal conjugate vaccination in Burkina Faso: analysis of national surveillance data. Lancet Infect Dis. 2012 12:757-764. doi: 10.1016/S1473-3099(12)70168-8. Epub 2012 Jul 18.

2.3 IMPLEMENTATION SCIENCE

SAFE Strategy for Trachoma

In the early 1990s it was demonstrated that a single oral dose of azithromycin was as effective as the previously recommended regimen of 6 weeks of daily topical application of tetracycline to treat ocular trachoma infection. Together with other public health measures, including surgery to correct the inturned eyelids associated with trachoma that damage the cornea, yearly antibiotic dosing, facial washing and cleanliness to prevent transmission of infection, and environmental change to improve access to water and sanitation, known as SAFE, there is finally a viable strategy for trachoma elimination. The International Trachoma Initiative, a partnership with Pfizer, which provides the antibiotic, has dramatically reduced the incidence of trachoma and associated blindness. At the same time, additional evidence points to an enormous collateral benefit of yearly azithromycin for yaws, and other bacterial infections, including impetigo, pneumonia and diarrhea.[10]

Investing in the future: The combination of useful public health strategies with a yearly single dose of an effective antibiotic has transformed trachoma control into a highly cost effective strategy for the elimination of this cause of blindness in low-income countries. Moreover, additional collateral benefits of the yearly dose of antibiotic have been noted without significant increases in the prevalence of drug resistance, although that must be monitored by ongoing community surveillance research.[11,12,13,14]

An integrated approach to neglected tropical diseases

In 2005, the concept of bundling together multiple chronic parasitic and related infections into the category of neglected tropical diseases (NTDs) was proposed because they could be targeted simultaneously with a package of low cost and donated drugs. So far, this "rapid impact package" has been deployed to more than 250 million people in low- and middle-income countries through support from USAID and DFID, as well as private support from an END (End Neglected Disease) fund.[15]

Outcomes research has led to the recognition that in many instances in which transmission routes are common (e.g. soil transmitted helminth infections) there is an opportunity to bundle interventions in resource-poor countries, gaining efficiency and reducing cost at the same time. A second lesson learned is the importance of having scientists themselves conduct public advocacy and policy. A third lesson learned is the increasing recognition that NTDs behave more like noncommunicable diseases (NCDs) than infections and that NTDs account for an important portion of the NCD burden in LMICs.

10 A. M Fry, H. C Jha, T. M Lietman, J. S. P Chaudhary, R. C Bhatta, J Elliott, T Hyde, A Schuchat, B Gaynor, S. F Dowell. Adverse and Beneficial Secondary Effects of Mass Treatment with Azithromycin to Eliminate Blindness Due to Trachoma in Nepal. Clin Infect Dis. (2002) 35(4): 395-402 doi:10.1086/341414

11 Bailey RL, Arullendran P, Whittle HC, Mabey DC. 1993. Randomised controlled trial of single-dose azithromycin in treatment of trachoma. Lancet 342: 453-6

12 Emerson PM, Burton M, Solomon A, Bailey R, Mabey D. 2006. The SAFE strategy for trachoma control: using operational research for policy, planning, and implementation. Bull WHO 84: 613-9.

13 Porco TC, Gebre T, Ayele B, House J, et al. 2009. Effect of mass distribution of azithromycin for trachoma control on overall mortality in Ethiopian children: a randomized trial. JAMA 302: 962-8.

14 Mabey D. 2012. Oral azithromycin treatment for yaws. Lancet 379: 295-7.

15 Molyneux DH, Hotez PJ, Fenwick A. 2005. "Rapid impact interventions": how a policy of integrated control for Africa's neglected tropical diseases could benefit the poor. PLOS Med 2: e336.

A second example stems from the observation that NTDs geographically overlap with high prevalence of HIV/AIDS and malaria in some LMICs, and new evidence that female genital schistosomiasis increases the risk of acquiring HIV/AIDS by 3-4 fold, while hookworm exacerbates malarial anaemia. Nonetheless, the major global programmes for HIV/AIDS and malaria remain separated from NTD control, despite the fact that evidence indicates that bednet distribution to prevent malaria increases almost 9-fold when conducted through community drug distribution systems for NTDs.[16]

Investing in the future: Epidemiological population based research is the only way long term outcomes of disease can be assessed as in the case of the role of NTDs in the pathogenesis of certain cancers, and renal, liver, and cardiovascular disease. In this example, research can identify cost-effective ways to prevent later consequences of chronic disease, with a major impact on disease burden. Operational research is essential to identify the best ways to accomplish these goals.

16 Hotez PJ, Mistry N, Rubinstein J, Sachs JD. 2011. Integrating neglected tropical diseases into AIDS, tuberculosis, and malaria control. N Engl J Med 364: 2086-9.

How do we ensure better global health for all?

3.1 WHO SHOULD BE INVESTING IN HEALTH RESEARCH?

If investments in research are essential for improving health outcomes, as the examples in the preceding sections demonstrate, then the next question is who should make the necessary investments? Recipients of international funding or aid money are calling for an ever-greater role in setting their country's research agenda, a demand taking ever greater significance as they are also increasingly required to contribute a proportion of the research funds.

There are dual benefits to low-resource governments taking charge. First, countries can ensure that research being done is in their national interest, either by advancing their technological know-how or by focusing on diseases or health problems which they determine as priorities. Second, when governments contribute some of their own funds to research partnerships, it also means they are, quite literally, invested in ensuring the success of the project and its reach into the decision-making parts of government with the responsibility for healthcare, while showing commitment to funders or donors who may be supplying a portion of the necessary resources.

Jaime Montoya, Executive Director of the Philippine Council for Health Research and Development (PCHRD) talked of the way his country is taking charge of their R&D agenda. The Philippines has established the Philippine National Health Research System to create a distinct national research agenda, and has implemented a universal health care programme. In 2012, a health research hub was set up to implement the research agenda, harmonise financial resources, and ensure that research findings were translated into policy. Crucially, the country is committing financial resources too – the Department of Health has pledged 2% of its budget to health research.

Dr Jaime Montoya, PCHRD

Ensuring that all parties are equally invested also sets the foundation for fairer collaborative research, an issue that was discussed at length at the Colloquium and one that is explored in detail in section 3.2.

Getting governments on board is vital, according to Alioune Dieye of the Institut Pasteur de Dakar, Senegal: "*The West African Health Organization (WAHO) is trying to connect health research across Africa but governments are not as supportive as they need to be. Countries need to invest [in research], but it's like they are always waiting for international assistance.*"

Hannah Akuffo of The Swedish International Development Cooperation Agency (SIDA) talked of the dilemma that donors face: "The sustainability question links well with autonomy. How early do you phase funding out? At SIDA, we are committed to some very long-term projects of 10 or 20 years, but you do need to phase out at some point."

Gerald Keusch talked of the key role that NGOs can play as an intermediary or mediator between countries. “An organisation like COHRED is neutral,” he said “and it could be a trusted broker. It has no vested interests. Ministers come and go, but NGOs can be there long term and have an important role in brokering collaborations if they have the capacity to provide expert assistance.”

3.2 WHAT SHOULD WE INVEST IN?

The discussions at the Colloquium were free-form and, in particular, debates on the priority areas for R&D investment in global health were extremely wide-ranging. Diseases suggested as potential areas for investment ranged from specifics such as an adult TB vaccine and new antimalarials, to broad areas such as adolescent health, ageing, and mental health.

Understanding the mechanics of undertaking research in the form of operational and implementation research often came up in discussions, with participants suggesting the importance of collection of risk pool data for non-communicable diseases, research into understanding why partnerships and collaborations fail, and boosting ethics review capacity.

In line with understanding the context of research, many delegates spoke of the need to focus on social and cultural issues, including communication and public engagement, human rights and ethics, locally relevant behavioral research, and medical anthropology.

Technology is clearly important, with telemedicine, modelling and disease simulation coming out often in discussions

Finally, many of the participants discussed financing in terms of health economics and the need to assess ‘best buys’ in R&D spending, blue-sky research, and better accountability.

In the next pages, we look at the major themes in more depth.

3.2.1 CAPACITY

Scientists

Researchers are the backbone of science, but in many countries the opportunities for advanced degree education are limited, and even when they obtain training, they work in difficult conditions, with poor remuneration, limited research facilities, and with very few staff.

Funding researchers on the basis that they are in a promising line of research is risky, according to Gerald Keusch. “It’s [difficult] to pick winners as it can be surprising where new knowledge comes from. The investigator-initiated approach is the best one because it calls for creativity in developing a research issue and a deep exploration of the design and methodology necessary.”

The diaspora is also a useful but often underused source of human capacity. Rather than viewing researchers leaving the country as ‘brain drain’, it would be more constructive to think of it as ‘brain circulation’. The question is how to accomplish this and take advantage of the fact that scientists in the diaspora can serve as useful bridges between institutions in the high and middle and low-income countries in setting up research collaborations and providing an additional level of credibility for funders.

Researchers in low-resource countries are urgently in need of better salaries, but more than that, scientists need better career prospects and mentoring. Gray Handley, of the US National Institutes of Health (NIH), suggested that such mentoring could form part of research collaborations between high income and lower income organisations.

Dr Pascoal Mocumbi, EDCTP

Pascoal Mocumbi, former Prime Minister of Mozambique, now High Representative of the European and LMICs Clinical Trials Partnership and COHRED Board Member, argued that "*we need to know how to manage investigators – either they teach so much they don't publish, or they don't teach but they publish because of institutional pressure*."

Institutions

Institutions in low and middle-income countries have several urgent needs. They lack the resources to buy or repair equipment, have low ethics capacities, and in many cases barely have enough to pay researcher's salaries let alone fund research.

What would help greatly is if research funders and development donors could join up to provide complementary funding, so that research funding for scientists could be combined with funding that supports the framework of research such as grants for institutional support. Grants to build networks can be particularly useful, according to Alioune Dieye, because "*in many institutions in Africa we don't have a critical mass of researchers, so large networks are important. But you don't see many grants dedicated to building networks. The reason is that most grants won't fund the length of commitment required to grow networks between different institutions and regions*."

Improving connectivity between different types of research is critical, said Dermot Maher at the UK's Wellcome Trust. Maher talked of the need to address capacity strengthening across the research spectrum, from basic science, across translational, clinical and applied research to operational/implementation research and population-based research. Like many funders, the Wellcome Trust is now looking very seriously at increasing grants to operational research and capacity building, and they fund initiatives such as the Health Research Capacity Strengthening Initiative (HRCSI), a project also supported by DFID and IDRC to strengthen health research in Kenya and Malawi[17] and the Africa Institutions Initiative (AII)[18].

Marie-Paule Kieny, WHO

Danny Edwards, COHRED

17 Health Research Capacity Strengthening in Kenya and Malawi. http://www.wellcome.ac.uk/Funding/International/wtdv026103.htm

18 http://www.wellcome.ac.uk/Funding/Biomedical-science/Funding-schemes/Strategic-awards-and-initiatives/WTD028338.htm

3.2.2 OPERATIONAL RESEARCH

The importance of operational research is being increasingly recognised as a critical area for research investment. The growing number of initiatives to strengthen health systems research[19], for example, reflect the realisation among global health experts that understanding how to implement the products of research is as important as basic or clinical research. In fact, without this the products of research are not applied in a timely fashion or in some instances, not applied at all.

However, social science still suffers somewhat from the stigma of being regarded as less robust than 'hard science'. In theory, scientists may want to use operational research to implement their interventions, but in practice, the quality or depth of operational research can be lacking.[20]

The call for more operational research came up repeatedly in the Colloquium. In a video address at the start of the Colloquium, Prof Lawrence Summers called for more social science research to tell us a lot more about how to invest – essentially, how to develop a sound cost-benefit analysis. He called for concrete advice, and the importance of investing in several strands of research simultaneously – research to develop new drugs and vaccines but also research into their implementation – and serious investment in research into the growing global burden of non-communicable diseases in low-resource countries.

However, focusing primarily on operational research would be a mistake, said Gerald Keusch. *"Some people say we already know what to do, let's not waste more money on (basic) research. But implementation is based on earlier knowledge, so this is a dangerous attitude because in 10 years time we'll be 20 years behind. There will be no cutting edge, no improvement".*

3.2.3 FAIR RESEARCH CONTRACTS

Research partnerships between high-income and low and middle-income countries are clearly an important source of financing, and a potential opportunity for capacity building, but this can also exacerbate an unequal power dynamic between the partners. Richer countries, by bringing the funding and scientific expertise, can often call the shots; all too often, researchers in low-resource countries are unaware of their rights as investigators and what they are entitled to, and are at a huge disadvantage because they have constrained or absent legal capacity to negotiate fair research contracts. "*In some countries*" said Konji Sebati from the World Intellectual Property Organization (WIPO), "*institutions find themselves so strapped for financial resources that they will agree to undertake any research simply to bring more money in, rather than with regard to its relevance to the country's national strategy.*"

Thus, countries with more know-how and experience to understand the rights and responsibilities of research partnerships have an obligation to raise awareness in low-resource settings. To the extent that they do not, targeted capacity building by capable and neutral organisations, like COHRED, need to be resourced to step in to fill the gap. The disparity in resources means that collaborations between high and low and middle-income countries may not be equal, but should at least strive to be equitable. Colloquium participants discussed at length the changes needed to ensure fairer research partnerships. COHRED is already involved in developing a programme to address the issue of fair research contracting.[21]

19 http://www.hsr-symposium.org/

20 Ford N and Maher D (2013). Making sure that clinical trial results make a difference: operational research and the hierarchy of evidence. Tropical Medicine and International Health. Doi: 10.1111/tmi.12075.

21 http://www.cohred.org/fair-research-contracting-2/

One of the 'blue sky' ideas was a code of conduct for all parties to sign on to defining fair collaborations within their jurisdiction. But, for this to work, all countries must agree to it, otherwise there is a risk that unethical corporations will 'shop around' to find countries with the most lenient rules. To overcome the lack of knowledge about research rights –what is a fair is a fair reward for the time invested in research, for instance, or who gets to keep the samples generated during a research project– countries could use model contracts that serve as a template that can be modified to suit the circumstances, or perhaps a check list that would highlight the sort of issues that might come up and what the options are to address them. Finally, to be truly fair, these contracts would need to include a jointly agreed upon mechanism for dispute resolution to ensure that conflicts can be settled as swiftly as possible.

Since both sides will have vested interests, an intermediary who can act as an honest broker would be extremely useful in ensuring that the contract serves both parties equally. Building trust through meetings before the research is undertaken is also vital. In devising contracts, said NIH's Gray Handley, "*you also need to pay attention to things like how much local researchers get paid; too little and you're exploiting them, too much and you cause major resentment in local institutions*."

Not only do low-resource countries need to share in the responsibility to develop research proposals, high-income countries must be careful not to assume authority for issues of legality or governance that are not in their domain, said Jennifer Verma, at the Canadian Foundation for Healthcare Improvement.

Jack Watters at Pfizer said that some pharmaceutical companies are trying to make collaborations more equitable. "*We are trying to involve the investigators in writing the protocol. We also need to ensure that people in LMICs have access to the benefits of the research*." In creating fair research partnerships, ethics should be paramount, said Jaime Montoya: "*Not everything that is legal is ethical*."

Transparency and clarity of roles, both for researchers and for patients in clinical trials, is vital. Often, researchers act as healthcare providers because of staff shortages. Trial participants can be confused about what medical care is and what research is. Some scientists at the Colloquium described how difficult it is to explain to trial participants in ways that they understand that some of them may be receiving a placebo, as people have implicit trust in the researchers and may mistakenly believe they are receiving treatment.

3.3 MECHANISMS AND TOOLS FOR BETTER R&D INVESTMENT

3.3.1 NATIONAL RESEARCH FUND

Two ideas came up repeatedly at the Colloquium – the idea of a National Research Agenda that is tied to a National Research Fund. The concept of a national fund, similar to the US National Science Foundation (NSF), is gaining traction in many low and middle-income countries.[22] South Africa, for instance, established a National Research Foundation in 1999 to more effectively disburse funds.[23] One of the major barriers to research is erratic, short-term funding, which can be common in low-income countries where scientists are forced to rely on sporadic grants. Such a fund would ensure that science funding is allocated on a competitive, merit-based scheme; is disbursed by scientists rather than bureaucrats; and is sustainable and long-term. This is the essential counterpart to creating such an organization in order to ensure its independence from political influence, such that science is evaluated by scientists in the most objective manner possible.

22 Nordling L (2012). Donors should focus on national research funds. http://www.universityworldnews.com/article.php?story=20121110143531364.

23 http://www.nrf.ac.za/

Concomitant efforts to improve the independence of national academies of science or medicine, and to engage these bodies in advising government on issues of scientific priorities and strategic reviews of issues of particular relevance, will contribute an independent voice to help ensure objective assessments and advice without political pressure. Part of these efforts are to change the nature of many existing academies in low and middle-income countries from honorific societies to organisations that recognise merit and assume real functions essential to building a culture of science.

3.3.2 MAKING THE CASE FOR INVESTING IN RESEARCH

Governments need to be convinced that putting scarce resources into R&D will reap benefits. The linkages between research and development have been made strongly, but it needs to be made continuously. In many ways, finance ministers can have more of an impact on research than health ministers do, since they control the larger budgets. At the same time it is important to be realistic about economic returns on investments. The first benefits will be in new information that can improve health. It will take time and appropriate policies to develop an industrial base to develop and market health products, provide employment in manufacturing and sales, and generate profits. But, as India has shown us, this is possible when internal and external investments are made and sustained over time. We need strong advocates and champions of research to meet with finance ministers and key staff and policy makers, to speak out for the research they believe is necessary.

HIV is a prime example of how different stakeholders – clinicians, community workers patient advocates, and ethicists – all united to lobby for more research and wider access to antiretrovirals can have huge impact. This kind of dedication and passion needs to be nurtured. Adolfo Martinez-Palomo, Centre for Research and Advanced Studies Centre for Research and Advanced Studies, Mexico said "*People are always talking about capacity building. But what we also need is motivation building*."

3.3.3 AN R&D OBSERVATORY

John-Arne Rottingen, Director General of the Norwegian Knowledge Centre for the Health Services, talked about the challenge in motivating low-income countries to collect data for monitoring and evaluation. The key is to make the case that "by improving data management, you start to create standards. You can't disaggregate R&D data to any great level right now." John Mugabe from the University of Pretoria, agreed, and talked of how many African countries have good policies for health research but weak implementation. "We need monitoring and evaluation to measure efficiency and impact. We can't have effective advocacy if we don't have benchmarks."

Rottingen argued that monitoring global health R&D is becoming critical: "There is still no clear relationship between, for instance, how much a country spends in the public sector on health research and how much it spends on neglected disease R&D." Rottingen chaired WHO's Consultative Expert Working Group (CEWG) on R&D financing and coordination, which recommended the creation of a globally binding convention on R&D financing. This treaty has turned out to be too restrictive for WHO member states to sign up to in the immediate term, but as Marie-Paule Kieny, WHO Assistant Director-General for Health Systems and Innovation, which was the secretariat for the CEWG asked, "what do we have in place of a treaty?"

While this is being worked out, member states are in support of a global R&D observatory, which would at least monitor R&D investments more comprehensively than is currently happening. It could potentially link up different sources of monitoring data, such as that from the Gates-funded G-FINDER survey, which tracks public, private and philanthropic investments into research for neglected diseases and COHRED's Health Research Web (HRWeb), which monitors country-level data.

3.3.4 ACCESS TO DIGITAL INFORMATION

Researchers in low-income countries have traditionally had poor access to science journals, mostly because their institutions cannot afford high subscription rates for leading journals. Initiatives such as HINARI,[24] which was set up by the WHO, offer access to scientists in low-resource countries to many journals, but internet access may be a limiting factor for some institutions. The advent of open-access journals, such as the PLoS journals, publish high-quality research of interest to LMICs, and some other journals have digitised their content and make them available to download after some period of time after publication. While these initiatives are important to increase access, many researchers still struggle to find all the information they need and to be able to download them within reasonable periods of time. Investing in better access to research findings, and also in open-access databases – such as India's open-source drug discovery database[25] – would do much to spur innovation.

As Martin Sepulveda at IBM and a COHRED Board member said, "open-access to data systems is a very efficient and rapid method for propelling innovation. As investments are made to promote research, some thought is needed on how the data is organised and made available to talented researchers, while maintaining the kind of protection that researchers need."

Embracing and investing in new technology is vital, according to Anne Glover, Chief Scientific Adviser to the President, European Commission: "We are in the 21st century and cannot always rely on traditional methods." To do this we must pay attention to the digital world, she said, citing examples of African countries leapfrogging technology by eschewing landlines and using cellphones to access medical information.

3.3.5 PUBLIC ENGAGEMENT

Several speakers spoke of the need to bring the public on board in boosting support for investment in R&D. "If we lose the confidence of the public we don't have much of a chance. We need good stories and the right metrics." said Mary Woolley, of Research America, a public advocacy NGO which regularly surveys public views on public investment in research. Engaging people in science also means educating them about what science is about, how research is done, and why it is important. Only a third of Americans can name a scientist (living or dead), she said, and a similarly low proportion can name where science is done. Anne Glover echoed this: "Social sciences are important. We need trust in a really big way; people have a lack of trust in how we generate and use knowledge."

24 http://www.who.int/hinari/en/

25 http://www.osdd.net/

Looking to the future

4

As Colloquium participants made clear in their discussions, the current framework for health research investment needs fixing. The areas of health research which need investment are legion, and there will inevitably be tensions between those who believe basic science needs to be invested in as a high priority and those who think that we need a greater focus on operational science to implement what we already know. The real debate should be about striking the right balance across the spectrum of research.

It is perhaps yet too soon for many countries to think about graduating from international assistance, but in the immediate future there is much that can be done by lower income governments to strengthen their position. Work should be carried out to ensure that research partnerships become more equal, with greater transparency and accountability. With enhanced monitoring and evaluation, funders of research, whether international or local, will have a clearer idea of where their money goes and be able to justify to their constituencies or boards the many millions spent each year on global health.

While the long-awaited global R&D convention is unlikely to be signed off by WHO member states any time soon, there are actions that low and middle-income countries can take in the meantime, including ensuring they have a national research agenda in place, aligned with a national research fund to support it, while focusing on building stronger science infrastructure coupled with an appropriate regulatory environment. Finally, lower income countries should continue to look to their neighbors – much strength can be drawn from regional collaboration between like minded governments, and the sharing of expertise, facilities and finances.

‘Research and Innovation for Health…building systems, boosting development‘.

2013 will mark the 20th Anniversary of COHRED. To highlight COHRED’s impact on the way research and innovation can positively contribute to health, equity and development, we are collecting narratives (stories of change, case studies, anecdotes, testimonies) and even photos or videos from our partners, friends and colleagues. We would like you to share with us any change you have been a part of, observed, contributed to or benefitted from as a result of COHRED’s activities over the 20 past years. For more, go to our 20th Anniversary webpage (http://www.cohred.org/20th-anniversary/) and/or email us at: cohred20@cohred.org

Council on Health Research for Development (COHRED)
1–5 Route des Morillons
P.O. Box 2100
1211 Geneva 2
Switzerland
Tel. +41 22 591 89 00
Fax +41 22 591 89 10
Email: cohred@cohred.org

COHRED Africa
Boitumelo Mokgatla-Moipolai
Botswana Innovation Hub
Maranyane House, BOTEC Building
Plot 50654, Machel Drive, Fair Grounds
Gaborone
Botswana
Email: mokgatla@cohred.org

South Africa
Contact: Debbie Marais
School of Psychology
University of KwaZulu-Natal
P/Bag X01, Scottsville
Pietermaritzburg, 3209
South Africa
Tel: +27 33 260 6135
Email: marais@cohred.org

Latin America
Contact: Dr Francisco Becerra-Posada
P.O. Box 22–151
Tlalpan
Mexico DF
Mexico 14091
Tel. +52 55 46 22 54 41
Email: becerra@cohred.org

www.cohred.org/colloquium2013/

COHRED Council on Health Research for Development | 20th ANNIVERSARY