Workshop

Whose Priorities Count?
– Empowering Scientific Capacities for Locally Relevant and Sustainable Solutions

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The purpose of this workshop is to examine how the local conditions for conceptualizing and carrying out research can be modified to further empower local scientists to address local and regional infectious disease priorities.

In a world that is increasingly interconnected through technology and infrastructure, and where private and public actors are investing in research and development of new solutions for infectious disease control, there is great potential for scientific collaborations that address complex health challenges across the globe. Nevertheless, it is still the case that many priority infectious diseases garner less attention than they deserve, at the same time as the scientific capacities that are closest to the sites of the problems are disempowered and under-utilized. Nowhere is this problem more acute than in low- and middle-income countries where neglected infectious disease research is underfunded, and where local scientific communities struggle to overcome complex health challenges. Solutions to this double-bind require new forms of synergies between local and international science, as well as between science and society. New and renewed engagements amongst governments, private enterprises, science funders, civil society, and scientists themselves can contribute to improved conditions for human health and sustainable development.

The workshop will address, among others, the following topics:

• If biomedical solutions to infectious disease challenges require stronger connections to the places where the problems arise, then how can these be achieved?
• What are the bottlenecks and blind spots that hamper local research priorities from receiving the attention that they deserve?
• How can new synergies be achieved among local, national, regional and international partners in science that combine multiple competencies across more equal positions of power?
• Are there new forms of local, national, regional or international funding that can contribute to these synergies?
Global drop in funding for neglected infectious diseases

Not all deaths weigh equally heavily when research priorities are determined. Market forces encourage research and development to address health challenges whose solutions can generate significant financial returns on investment for private actors. Even though death and disability attributable to infectious diseases are declining significantly across the globe, infectious disease remains a major day-to-day health issue in less developed parts of the world (1) (2). Neglected infectious diseases cause high rates of mortality and morbidity but receive relatively little investment in relation to the harm they cause. Admittedly the imbalance has improved since the 1990s when only 10% of global health research funding was directed to the 90% of preventable mortality that was taking place in developing countries (3). Nevertheless, despite high profile investments by public institutions (e.g. US government and the European Union) and private institutions (e.g. Wellcome Trust and Gates Foundation), the imbalance is far from resolved. Meanwhile, with a few notable exceptions (e.g. Ebola), investments in neglected infectious disease research and treatment are lower today than they have been at any other time since 2007. There is a trend towards less funding of research on neglected infectious diseases by the large public funders and foundations in high-income countries that is not offset by the modest increases in investments by private enterprises (4). Meanwhile, low- and middle-income countries report that they contribute less than 2% of all research funding for neglected infectious diseases (4). Continued advances made in reducing the death and disability caused by neglected infectious diseases, in the tropics in particular, are threatened by declines in funding for research on those diseases and the looming threat of antimicrobial resistance. Furthermore, the recent outbreaks of the Ebola and Zika viruses are evidence of the continuing risks posed by newly emergent, often zoonotic, diseases.

Necessity of local research capacity to tackle local problems

However, it is not enough to find more money and resources to tackle low-priority diseases that affect low-priority populations. Investments in institutional and research capacity-building in developing countries by bilateral and multilateral donors have resulted in growing human and infrastructural capacity to identify and address local research priorities. Nevertheless, it is a common experience of scientists and science leaders in developing countries that they are
hampered from setting and then acting upon local and national research priorities. One cause is weak support and interest for health research amongst their own national governments. Another is the, sometimes unintended, influence of science funders and partners that are based in developed countries and who understand and experience the health challenges of developing countries from a distance.

**The tempting allure of finding global solutions**

Recent advances in biomedicine and global communications technologies can lead us to envision cures to diseases that are universally applicable across the globe. We are sometimes enticed by the idea of discovering those magic (medical) bullets which are immune to variations of geography and politics, or the best practice breakthroughs which are resistant to local configurations of patronage and morality. Nevertheless, as tempting as the prospect of universal solutions may be, experience reminds us time and again that global and universal visions are usually frustrated by the complexities and specificities of health across multitudes of localities (5). Studies of scientific knowledge production over the past forty years demonstrate that social, cultural, historical and economic factors influence what kinds of biomedical knowledge and technologies are produced by science (6). Similarly, these same factors influence how biomedical knowledge and technologies in turn interact with the health problems that they are meant to solve (7). Put simply, we know that health out-
comes are a product of the co-productive influence of biomedicine with society, history, culture and environment.

Examples of co-productive relationships between science and its social context are many, and well researched. This is evidenced by cultural and economic models that influenced historical and contemporary pathways for antibiotic development, as well as practices of antibiotic use that exacerbate the spread of resistance (8).

It is apparent in the cultural, political and economic factors that influence whether research on malaria follows pathways towards the disease eradication or disease management, just as the successful application of bed nets or vaccines will inevitably be subject to a wider range of social factors (9). We also find evidence in the recent Ebola outbreak in West Africa that the epidemic was finally controlled through a synthesis of biomedical, social and cultural knowledge amalgamated through the practices of a mixture of local and international actors (10).

Importance of the local perspective: “They have read about it, you have lived it”

From these examples we learn that, just as biomedical solutions to infectious disease challenges must be tailored to the characteristics of a particular disease, so too must science priorities and research practices be informed by and responsive to local social, historical, and cultural conditions. Health science that is primarily produced in laboratories and libraries far from the sites where it will eventually be applied, primarily by scientists that have little personal experience of the health challenge or the context in which it occurs, are alone unlikely to produce biomedical knowledge that is well-adapted to local health challenges and research priorities. This is evidenced by the continued overrepresentation of infectious disease mortalities and morbidities in countries where science capacities are small or underfunded, much of sub-Saharan Africa being a glaring example (1).

While the underfunded healthcare systems in developing countries provide part of the explanation for this gap, the conditions under which biomedical knowledge is produced and the limited scientific capacity available are also key factors. The scientific capacity gap is illustrated by the fact that high-income countries have approximately 352 times as many health researchers as do all other countries combined (11). Operating in this context, a Ugandan molecular biologist working in Kampala explains that “It is very difficult for someone that does not live in your home to solve the problem in your home. They have not suffered or truly experienced those problems. The kinds of questions that are posed by that person are different than you who live in your home. They have read about it, you have lived it” (12). In Uganda and elsewhere, the dependency of local science upon foreign funding, foreign primary investigators and global priorities produces a normalized inequality whereby local scientists’ capacity to pursue locally important research priorities are undermined (13).

A change of emphasis is needed for research priorities

Efforts have been made by both development and science funders to identify new models for priority-setting that will take into account local research priorities (14). Nevertheless, the centralization of priority-making mechanisms in global and bilateral institutions may not be sensitive to important local specificities and priorities, especially in low-income countries where both scientists and links between society and science are fewer. Meanwhile, calls for centralization of priority-making and funding allocation risk undermining the ability of existing local researchers to effectively localize the advantages and potential of international collaborations. In these contexts, global research priorities shared by international and local scientists can hide specific differences in perspective and approach regarding the problems at hand. For example, one finds vaccine safety trials carried out by local scientists at the behest of international partners for vaccines intended for viruses (or variants of viruses) and markets in other countries. In such cases, local scientists are diverted from local health priorities to work on international or foreign priorities (15).

New global initiatives with a larger role for local scientists

A number of interesting initiatives and processes are currently taking place that offer fruitful examples to reflect and build upon as we engage with these questions. The WHO Global Observatory on Health Research and Development is a global initiative intended to improve coordination of health research and development, with particular sensitivity for neglected infectious diseases in developing countries. The
European Union’s Horizon 2020 programme together with the European & Developing Countries Clinical Trials Partnership (EDCTP) offer additional models of collaboration and engagement. New programmes and projects support and expand scientific leadership and research capacity-building in neglected science communities by making intellectual space in foreign-funded initiatives which allow scientists from developing countries to take meaningful leadership roles. These include examples such as the Alliance for Accelerating Excellence in Africa (AESA) comprising Afrique One-African Science Partnership for Intervention Research Excellence (ASPIRE), Human Heredity and Health in Africa Initiative (H3Africa), Training Health Researchers into Vocational Excellence (THRIVE), Makerere/UVRI Infection and Immunity Centre of Excellence (MUII+). Meanwhile, well established bilateral programmes are of continued importance to support graduate research training that strengthens local science communities, notable amongst these are Nordic models that offer “sandwich PhDs,” post-doc programs, and supervisory support (16).

Adjusting the balance between international and national actors

The globally observed epidemiological shift is evidence that infectious disease can be reduced and mitigated as a major cause of death and disability. Nevertheless, the tenacity of infectious disease to cause harm in developing countries reminds us that biomedical knowledge and technology are only successful when they are in tandem with local knowledge of social, cultural, economic and environmental contexts. As such, further successes in mitigating the consequences of heretofore neglected infectious diseases will require further engagement with local scientists and their research environments (17).

Actors from science, government, private enterprise, philanthropy and civil society must take further steps to identify open-ended policy guidelines that support locally-driven research initiatives on aspects of infectious disease in humans and animals that are otherwise overlooked or neglected due to the specific contexts in which they prevail. There are several questions they must ask themselves. Which innovative new funding and priority-setting tools and policies are available to international, regional, national and local actors in science and science funding? Which incentive structures might further invigorate research practices in local institutions? What scope is available for balancing the power of international and local science partners to conceptualize and implement research agendas? Is it possible to decentralize priority-setting and research conceptualization while continuing to benefit from international collaborations and synergies? To what extent are One Health approaches being utilized to integrate the human and animal sciences?

More local funding can reduce reliance on international donors

Answers to these questions can profitably enrich ongoing local, regional and global discussions of how to further empower science to contribute to the resolution of persistent and neglected health challenges. They can contribute to and inform the ongoing efforts of the WHO to develop a blueprint for research and development preparedness and rapid research response for potentially epidemic diseases (18). They can complement and further nuance calls by global health NGOs for the G20 countries to develop a more effective and far-reaching strategy for addressing future pandemics (19). They can produce new guidelines and evaluation practices for science funders on how to track the degree to which the biomedical research that they fund is well integrated in local research environments and social contexts. Finally, they can assist researchers from these countries when lobbying their national governments to diminish reliance upon international donors. Governments can thus further strengthen their own scientists’ contribution to local well-being by providing locally sourced funds.
References


Tackling Infectious Disease Threats
Prevent, Detect, Respond with a One Health Approach

10–11 October 2017
Uppsala Castle, Sweden
We all know that healthcare today is faced with ever greater challenges. While advances in research and innovations may open new possibilities for better health and improved care, they do not always reach those who need them, for economic, organizational, ethical or other reasons.

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