

Supplementary file S3: Typology of capacity development actors

Actor	Examples	History	Roles	Development strategies	Research focus
Private foundations or charities	Wellcome Trust, Gates Foundation, Rockefeller Foundation	Most are relatively new to HRCD but some well-established	Funding	Mostly individual-level development to undertake specific projects. Little investment in local institutions.	Mostly support research generation but recent moves to translation
Multi-lateral agencies	World Health Organisation, World Bank, African Development Bank, Global Fund	WHO TDR & HRP are some of the oldest actors in HRCD. Most relatively new to HRCD.	Governance, stewardship, agenda setting, advocacy & funding	Usually channel funds through independent or subsidiary organisations. WHO offers individual-level development. Traditionally did not support institutions & had little system interest. However, now taking the lead in system approaches & may channel funds through local institutions.	Typically support research generation but increasing emphasis on translation, & dissemination
Bilateral agencies	Swedish International Development Agency, Department for International Development	Generally the longest running financial supporters of HRCD, but some are newer.	Varied	Usually support individual & institutional development. Little system development until very recently.	Historical focus on knowledge generation but progressively more emphasis on knowledge utilisation & dissemination
Global organisations	Global Forum for Health Research, European & Developing Countries Clinical Trial Partnership	Mostly since mid-1990s but some older. Often formed by, or as, a subsidiary of multi-laterals.	Stewardship roles set & promote global agendas. Also have multi-lateral funding brokerage roles.	Act as a catalyst to support & direct diverse actors to common goals. Usually fund & work with networks & consortia. Organise forums. Historically supported individual & institutional development but now support HRCD at most levels & modes. Provide advice & strong advocacy roles.	Originally interested in knowledge generation & translation but now tackle all stages of knowledge cycle
Consortia & networks	Alliance for Health Policy & Systems Research, International Network for Clinical Epidemiology, Central African Network on TB HIV/AIDS & Malaria	Largely a recent phenomenon forming mid-late 1990s onwards	Development, advocacy or funding brokerage roles Global, regional or local reach.	Individual & institutional support for specific projects or organisations that are thematically focussed. Not traditionally institution-wide or system development but recently more attention to those areas. Mixture of horizontal & vertical initiatives.	Collectively they cover the entire knowledge cycle but most have specific focus.
Public private partnerships & product development partnerships	Medicines for Malaria Venture, International AIDS Vaccine Initiative, Global Alliance for TB Drug Development	Largely a recent phenomenon forming mid-late 1990s onwards. Over 70 formed between 1995 & 2003.	Thematically based on disease or intervention of interest. Product development "upstream" R&D research.	Development approaches usually concentrated on building capacity to run specific studies through vertical interventions. Recently a little more attention to individual level & infrastructure development.	Knowledge generation & strong emphasis on translation

LMIC research councils & institutes of health	South African Medical Research Council, The National Research Council of Sri Lanka	Much less common than in HICs but increasing & some well-established.	Varies widely but usually in accordance with national priorities & focus on specific conditions or projects.	Funding is often limited but appears to be increasing. Formation of research sites, particularly centres of excellence. Individual & institutional development. Often in collaboration with international networks. Early moves towards system development. May also carry out own research.	Mostly knowledge generation
LMIC Governments	South Africa, Brazil, Zambia	Highly variable often according to GDP but also economic policies. Some investing a lot, others not at all. Typically only recent investments in HRCD.	Variable but usually in accordance with national priorities. May be linked to infrastructure development.	Some ministries have their own research centres & develop capacity "in house". Others provide project grants or individual development. Governments may upgrade or create research institutions. Investment value typically small due to resource constraints or low priority of research. However, some countries investing heavily. More recent attention to macro level capacities.	Varied. Knowledge generation common but recently agenda setting, stewardship, demand creation & knowledge utilisation
LMIC academic & healthcare institutions	University of KwaZulu-Natal, Makerere University, Fundação Oswaldo Cruz	Varied history. Some very well established in research but most new to HRCD. May be public or private.	Variable. Research may be in accordance with national or global priorities, or investigator interest.	Mainly undergraduate & some graduate training. Provide institutional resources for research. Development of institutions usually reliant on governmental funds, unless private. Normally training & education takes precedence over research.	Knowledge generation
HIC research councils & institutes of health	Medical Research Council (UK), NIH (USA), Canadian Institutes for Health Research, Royal Society	Institutions with a long history but only recently (around 2000) expanding their role in HRCD	Varied. But no specific remit to conduct capacity development.	Provide various funding & scholarships for individuals to undertake post graduate training. Also fund specific research projects which may include institutional development. Normally work in collaboration with institutions from donor country. Usually not system level. Some encourage scientific excellence by forming links with other LMIC societies, but do not conduct HRCD directly.	May conduct research themselves. Mostly support knowledge generation but may have smaller investments in knowledge utilisation.
HIC academic & healthcare institutions	University of Oxford, Institut Pasteur, Johns Hopkins University	A long history of research in LMICs. Some project specific HRCD but only recently taking on more explicit capacity development.	Project focused around research goals. Mostly investigator-led but may follow national priorities.	Development is usually to facilitate a specific project. May involve developing research sites & staff. Often focus on centres of excellence. Individual development either in-country or at HIC universities. System development not common. Normally in partnership with local groups which increases knowledge transfer.	Mostly knowledge generation. Specific projects may target knowledge utilisation & sometimes dissemination but much rarer.

Industry	GlaxoSmithKline, IBM, local industries	Pharmaceutical companies important but IT companies increasingly involved. International & national industry involved.	Product development & innovation technologies. Mostly in Asia. Currently less reach to Africa.	Develop capacity through technology or "know how" transfer. Infrastructure strengthening, particularly IT. May fund individual training or institutional development. May also provide services at favourable rate or free. Usually work in partnership with other actors.	Knowledge generation & translation but also knowledge management. May work in other areas depending on company.
Non-governmental organisations (NGO)	Medicine Sans Frontiers, Drugs for Neglected Diseases Initiative, One World Health, local NGOS	Recent involvement in research & HRCD (post 2005)	Either highly applied research or product development R&D. Some work in partnerships with other actors.	Strengthen research within networks or embedded in health delivery. Usually individual or specialised institutional support. As part of civil society, have strong advocacy & moderation roles. Can mobilise resources towards non-profit activities	All stages of knowledge cycle.
Academic journals	International Committee of Medical Journal Editors, Lancet, PLOS, Tanzanian Journal of Health Research	Long history of discussion on HRCD but becoming increasingly prominent in last 5 years.	Advocacy & opinion leaders. Role as moderators & amplifiers. Provide access to information & publishing.	Improve access to information & enable individuals to publish by changing publication & subscription policies. Promoting best practice & improving quality & reliability of publications. Encourage debate & advocate.	Knowledge dissemination