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International product development partnerships: innovation for better health?

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Abstract
In developing countries international product development partnerships engage in health product innovation activities such as clinical trial research. This paper discusses how one such partnership's (the International AIDS Vaccine Initiative) activities build meso level institutional knowledge-based capacity between, and within, the Kenyan national level partners. The paper will discuss the way knowledge is exchanged and how linkages are made between those involved in scientific research or innovation activities and those involved in healthcare activities within and beyond the partnership. This research provides evidence of where these two fields of activity (innovation and health) need each other in order for Aids vaccine clinical research to take place. This paper outlines examples of this interconnectivity and its implications for innovation theory and ideas of capacity building. It concludes with a discussion of the questions this raises for the conceptualisation of the IAVI partnership, how this fits into a wider discussion regarding the definition of health innovation and how it is promoted within national and international policy spheres.

Key words
product development partnerships (PDPs); Aids vaccine research; health innovation; innovation systems; knowledge exchange; collaboration

Introduction

This paper discusses the results of a case study conducted of the International Aids Vaccine Initiative (IAVI) and its activities in Kenya to conduct clinical research towards the development of an effective, affordable Aids vaccine. The search for an AIDS vaccine has been ongoing since the early 1980s[1]. Scientific dilemmas have hampered progress as the collapse of the STEP trials and calls for return to basic science show (FAUCI et al., 2008). However, it is also possible to argue that the science of AIDS vaccine research is also hampered by organisational issues around how innovation takes place (ORSENIGO et al., 2008; CHATAWAY & HANLIN, 2008). IAVI was set up in 1996 as a not-for-profit (NFP) organisation based out of New York with the aim of promoting the development of an effective and affordable Aids vaccine. IAVI is the largest organisation focusing on HIV/AIDS vaccine research and is the second largest HIV/AIDS vaccine programme after NIH (PRIDDY., 2007) but is dwarfed by NIH when compared in budget terms. In 2005 total funding for HIV/AIDS vaccine R&D was estimated at $759 million, provided mostly through US public funds ($574 million), of which 90% (US$ 511 million) was accounted for by the NIH activities (HIV VACCINES AND MICROBICIDES RESOURCE TRACKING WORKING GROUP, 2006). By comparison IAVI's projected spending for the next five years (2007 – 2011) is US$459 million and its individual revenues received for its HIV/AIDS vaccine development efforts were US$81 million in 2006 (IAVI, 2007).

Part of the reason that IAVI is the largest organisation involved in AIDS vaccine research is that it focuses its activities on a number of different areas of the research-development-access continuum related to Aids vaccine development and production. From its headquarters in New York, IAVI oversees a number of different activities and works with a variety of partners to conduct those activities. IAVI's activities take place in two arenas. First, are those at a global level through the collaborations it has with its partners around the world. Secondly, there are its activities in individual countries. These include its activities in the US but also those that occur in developing countries which are predominately managed through its regional offices that revolve around clinical trial research.

This study has looked at the work of IAVI and particularly its East African regional office's activities in Kenya. In Kenya IAVI partners with two public sector research organisations to conduct Aids vaccine related clinical research, KAVI and KEMRI-CGMRC. KAVI (the Kenyan AIDS Vaccine Initiative) is an institute housed within the Department of Microbiology at the University of Nairobi based within the grounds of Kenyatta National Hospital in Nairobi. It came into being in the late 1990s following the decision to fund clinical trials of the first AIDS vaccine candidate in collaboration with the UK's Medical Research Council (MRC) and IAVI funding. KAVI as an organisation is wholly funded by IAVI's research money. KEMRI-CGMRC on the other hand is a centre within KEMRI, the country's national institute for health research which was founded with government backing in 1979. The CGMRC is based in Kilifi and has long standing links with the UK's Wellcome Trust as well as other foreign research groups which have provided funding for various research projects supplementary to the government funding of its administration and staffing costs. KEMRI-CGMRC has an international reputation for this collaboration with the Wellcome Trust on malaria research and only became involved in AIDS vaccine work and IAVI from 2003.

Purpose

The aim of this paper is to provide evidence of the two fields of activity (innovation and health) that IAVI as a Product Development Partnership engages in and more importantly the linkage between health and innovation activities. IAVI as one of the first Product Development Partnerships and as the largest Aids vaccine research organisation is often heralded as a success in terms of advancing AIDS vaccine science and is used as a benchmark against which to measure other such partnerships in terms of their innovation activities. As a result IAVI works in two camps: the health policy camp and the innovation camp. As will be discussed below, traditionally these camps have rarely interacted, yet their activities – as this paper aims to show – mean that they not only have to conduct both 'healthcare' and 'innovation' but that this creates a knowledge creation and exchange possibility from which the interaction is sustained and strengthened. This paper will aim to therefore highlight how IAVI not only engages in innovation activities but that its innovation activities can lead to better health in more ways than simply through the end result of creation of an Aids vaccine.

Methodology

This paper discusses findings of fieldwork carried out in Kenya to investigate IAVI's activities and its relationship with KEMRI-CGMRC and KAVI over a period of eight months during

four trips to Kenya between October 2005 and November 2006. During this time 55 semi-structured interviews were conducted with Kenyan based representatives of the organisations involved in the IAVI partnership or involved in clinical research or vaccine development and the making of related policy in Kenya. This data was supplemented with periods spent observing and 'hanging around' (BERNARD, 2006) IAVI's offices and those of their partner organisations collecting data. Data analysis was conducted using a form of grounded theory approach whereby initial indexing and charting of emerging themes was gained from multiple readings of the data contents (RITCHIE & SPENCER, 1994).

Results

Three main examples were highlighted showing the interconnectivity between those involved in scientific research activities and those involved in healthcare provision to support Aids vaccine clinical research activities in Kenya. This is related to the way knowledge is exchanged and how linkages are made between those involved in scientific research or innovation activities and those involved in healthcare activities within and beyond the partnership.

First, the data highlighted the need for discussions to take place between research and non-research staff particularly those involved within local communities around the trial sites. This is because in order for clinical trials to take place, there is not simply a need for scientific knowledge or lab based knowledge but also a range of other knowledge that relates to promoting the trials, gaining understanding of volunteers and local communities, enrolment to the trials as well as promoting HIV/AIDS prevention activities alongside the clinical trials.

Second, the research highlighted how although necessary, the interaction between those involved in scientific research and healthcare has increased as a result of the Kenyan IAVI partnership activities. Not only has IAVI's activities in Kenya created an interaction between those involved around the trial sites from these different fields of activity but it has also led to the creation of a wider Aids vaccine research network. This has increased understanding of research activities within the local population living around the research sites and in the country more generally. IAVI's policy and advocacy work through its regional office have assisted in the creation of a Kenyan HIV vaccine sub-committee (discussing regulatory and ethical issues of vaccine trials for example) that is the nodal point around which this wider network coalesces and operates from.

Third, not only is there greater interaction between those involved in healthcare and research/ innovation activities around the trial sites there has been a cross-over of activities too. The public sector research organisations conducting Aids vaccine clinical research are now getting involved in healthcare activities. They are working to strengthen healthcare facilities because they need stronger referral pathways as part of their clinical research activities. Where possible the research sites are trying to do this in partnership with existing care providers. However, at times, they have set up their own care provision facilities in the short term while their local public healthcare facilities becomes resourced, using financial and infrastructure support from donor agencies. Evidence for these three issues will now be presented.

Discussion between research and non-research staff

This research found that much of the activity within the trial sites took place around the laboratory. This was partly the result of an emphasis within the clinical trial setting on forms and standard operating procedures (SOP) and which has been discussed in depth elsewhere (see for example, BERG, 1998; TIMMERMANS & BERG, 2003; HANLIN, 2008;). The focus on SOPs and forms creates a situation where it is possible to see the lab (perhaps in conjunction with the data management teams) as a central node within the clinical research site – and beyond within the wider IAVI partnership during discussions of clinical research data – as a result of its multiple interactions with others in the exchange of knowledge relating to clinical research information and data. The result is that it becomes a 'stabilising force' (SINGLETON, 1998) in its own right having the 'situated' knowledge (LAVE, 1993 in QUINTAS, 2002) required to, for example, translate data from a blood sample to the client report form and the authority required to work out any ambiguities relating to problem data entries.

However, perhaps more interestingly, examples of process knowledge and information exchange move beyond and outside the research site itself and do not only occur between staff within the clinical trial site. There is frequent discussion between the doctors/ nurses in the clinic and the community mobilisers, peer leaders and Community Advisory Board (CAB) members to gauge what is happening in the community within which the research trial site is situated. It was widely acknowledged that this knowledge was

invaluable and wide-ranging:

> *"I was just reading a profile that our Amsterdam office sent us of one of the community mobilisers in Kangemi and she came with not only a wealth of experience but she knew Kangemi community like the back of her hand and I think that there's not much we can add to that kind of experience and that kind of knowledge, maybe some of the content pieces for sure but I think its much harder to get the community perspective… in terms of knowing the community and how to engage them, its process and materials specific." [IAVI6]*

The community mobilisers act as knowledge brokers through their activities. The role of community mobilisers here deserves special mention as they act not only as knowledge brokers but also as 'translators' (c.f. PIGG, 1995) of different notions of 'development', 'research' and 'healthcare' from the research setting into the community setting and vice versa with positive and negative consequences.

During my fieldwork I saw plenty of examples of where community mobilisers were regularly called upon to go into the community to find a volunteer who did not show up for a clinical trial appointment. Their knowledge of the community means that they are more able to know exactly where to find a volunteer when addresses are not always accurate and trial participants may not be at home. For example, on arriving at a trial site one morning I met two community mobilisers who were discussing the trials and tribulations of a visit to find a volunteer earlier that morning. One of the community mobilisers had gone out to a community early in the morning to find the volunteer who had not shown up for a regular check up the previous week. After driving around the community several times, she eventually found the volunteer and spent all morning persuading the volunteer, and more specifically, the volunteer's family that her illness (tonsillitis) was not due to the vaccine she had received and if it was that it would be okay because there were strict protocols relating to adverse reactions. The volunteer was persuaded to remain in the study and to attend the clinic for her check-up appointment. This was a relatively simple case. In other situations, the community mobilisers had to call on their knowledge and skills much more intensively. When talking to a nurse at another site, I was told it took five attempts to find a volunteer who needed to be traced to receive a revised test result.

It was also not only about the research itself whereby there was knowledge exchange. For others, working in a clinical trial setting meant they interacted with the wider community in which the site was based in new ways and gained greater understanding of the community and of different ways of life:

> *I get to learn new things every day. Initially I was working in Kilifi, which is a different setting altogether, that has a discordant couple [cohort] and it's a bit of a conservative society. But once I moved here to Mombassa I found it's a different kind of thing altogether. There are different people with different sexual orientations. I have been able to accept that and I believe they have been able to accept me… [Kilifi7]*

Each of these interactions created situations where knowledge was exchanged, learning took place and collaborative arrangements were solidified. In some ways the actors involved in Aids vaccine research in and around the trial site provide a similar make up to Wenger's (1998) concept of 'Communities of Practice' (CoP). CoPs are informal social networks of individuals who work together towards shared goals and with shared belief systems. Shared experience within CoPs results in learning. Groupings similar to CoPs, I would argue, appear to exist within the clinical trial sites which engage in IAVI clinical research made up of the doctors, nurses, lab and data technicians and community mobilisation personnel whose shared experience ensure knowledge is exchanged regarding the samples and data relating to a specific protocol. They are however different from CoPs in that the emphasis on explicit data forms – on protocols, SOPs and GCP – creates a division of goals, beliefs and values within the clinical research 'team'. The overt emphasis placed within these documents on strict divides between what is deemed research activities and health care provision activities creates difficulties for establishing shared beliefs and goals.

Increased interaction creates wider 'AIDS vaccine network'

Moving beyond the trial sites, I found that while not CoPs, other groupings of actors take place – forced together due to the activities IAVI is funding around Aids vaccine clinical research. IAVI's activities have focused on building more local policy support within and around the communities in which trials take place. It also involves building support within important stakeholder groups such as civil society organisations and healthcare

practitioner communities. This also involves building support within the government related policy arena. As a result of these activities there has been increased interaction and knowledge exchange between groups who in the past had worked separately and often unconnected with each other both in the research and policy arenas.

One major example of this has been IAVI's influence on the policy environment within government circles around Aids vaccine research activities. IAVI has supported the development of a national HIV vaccine research sub-committee and the development of research guidelines by this committee to provide a regulatory pathway for all vaccine research. One IAVI member of staff told me that initially when the first vaccine trial had taken place there was no regulatory pathway in place and approval for the first trial took nine to 10 months. Seven years later in 2006, it took just two to three months. She stated this was partly because a regulatory pathway was now in place but also because vaccine research had become a source of national pride particularly as the first vaccine (developed jointly by the University of Oxford and the University of Nairobi) had been seen as a national product. Others also reiterated this informing me that the Government of Kenya had seen its ability to become a centre of excellence in (Aids) vaccine development and as such the Government was particularly supportive to the activities and requirements of vaccine clinical research organisations.

However, despite this there was a perceived lack of political will and unified approach towards clinical research in the country. There was some acknowledgement, both by those working in the area of Aids vaccine research and those working in the national health policy arena that I spoke to, that research was not high on the political agenda. Treatment and the provision of ARVs were seen as being more important when it came to developing national HIV/AIDS policy while the universities were unable to invest in strategic research activities. I was also made aware of a lack of unity both nationally between research stakeholders but also at the level of the research sites. When discussing the issue of national research policy I received a picture of a diverse set of national Aids vaccine research stakeholders who all fought their corner to solidify their own positions before working together as a team to ensure research received more than a cursory mention in national policy documents. No common reasoning was given for this but I understood the reasoning to be around different stakeholders wanting to retain, regain and justify their own positions and existence in terms of funding, reputation, etc.

More widely, IAVI is involved in the stimulation of a regional and international discussion of an AIDS vaccine research agenda. IAVI staff work with African governments and the African AIDS Vaccine Programme to develop National AIDS Vaccine Plans and work to ensure that Aids vaccine research does not get left out of regional and international policy discussions and related documents. For example while I was in Kenya the regional office sent staff to Abuja to work with health ministers writing statements at UNGASS (the UN General Assembly Special Session on HIV/AIDS). Furthermore, IAVI lobbies the East African parliament and national parliaments, workshops have been held in New York with WHO around vaccine regulation and IAVI's senior management are involved in international level debates around the financing of health research for neglected diseases.

Crossover of activities

Finally, collaboration and knowledge exchange around the trial sites has created a situation whereby there has been a crossover of activities in which the clinical trial sites (often originally laboratory focused) have become providers of healthcare sometimes in parallel to existing healthcare services available nearby. This is perhaps inevitable with the subject matter of the research and partly as a result of a wider discussion on the ethics of clinical trials in developing countries (cf. FITZGERALD et al., 2003; FITZGERALD & WASSUNA, 2005; WEIJER & LEBLANC, 2006). This crossover of activities did not come easy to some of those that I spoke to and there was a divide within the staff at the clinical trial sites and IAVI about the extent to which these services were taken on as being part and parcel of the research process while others gave a moral argument regarding the need for this crossover of activities (sentiments such as the trial sites "can't not do it").

For whatever the reason, the trial sites in Kenya now either provide healthcare or provide strong referral pathways for volunteers and potential volunteers to receive treatment when needed at local facilities. At the time of my fieldwork these healthcare activities took a variety of forms depending on the research site and whether the individual requiring care is a volunteer enrolled in a trial or a potential volunteer. Volunteers, for example on receipt of initial test results back (for HIV, pregnancy, etc) which take place as part of study enrolment, benefit from strong referral

pathways put in place to enable these individuals to go to a public sector health service provider and receive follow up care and treatment. For trial participants enrolled in a study most of their initial health needs are taken care of within the trial site facilities. Sometimes this includes anti-retroviral (ARV) treatment for those who are or become HIV positive during the period of the trial.

This situation means that trial sites have to consider a range of questions regarding their relationship and impact on local health facilities, their ability to provide care within economic trial restrictions, who they can provide care to (just trial participants or their families as well) and the state of current local health facilities. Thus in some cases, IAVI has provided support to build, staff and maintain local dispensaries and ARV provision clinics rather than conduct these services in-house because of the implications this has on sustainability of local public health services. However, at other times – when ARV supply chains have broken down – they have ended up becoming a provider for the short term while liaising with existing services to get the standard supply chain and distribution points up and running again.

Discussion

These examples highlight the importance of communication between scientific researchers within and around the trial sites, healthcare providers and others within a wider country level AIDS vaccine research network. The activities of one trial site can not occur in isolation within the confines of 'science' or 'innovation'. The walls around clinical research have to be broken down. My research of the IAVI partnership in Kenya outlined above highlights examples of where these two fields of activity, which are often viewed in separate spheres of policy and practice, are in fact heavily interconnected. My research clearly shows how these two areas of research and healthcare are inseparable and need each other in order for Aids vaccine clinical trial research to take place.

Yet how does this fit into the innovation studies literature on collaboration and knowledge exchange? It is widely accepted within the innovation literature that although collaboration and knowledge exchange will take place as a natural activity because it has to (e.g. routine teleconferences take place between staff at different IAVI labs because of a general need to exchange information and advice) innovation's potential will only be recognised if such knowledge exchange is encouraged and promoted (CLARK, 1985; CARLSSON & STANKIEWICZ, 1991; JOHNSON & LUNDVALL, 2002; LUNDVALL, 1995; NARULA, 2003). Focusing on meso or organisational level and macro enabling environment level capacity through the creation of organisational learning and knowledge based connections will build generic competencies (HAWE et al., 1997) and a learning function (MORGAN, 2003) in order to do more than fix problems that arise in working towards goal attainment.

Successful innovation, as has been recognised within innovation systems thinking, requires collaborative activity to build important organisational processes creating stronger institutions and enabling environments by increasing knowledge exchange (LUNDVALL, 2007). As such in the health product innovation context it requires more than simply the training up of scientists or even knowledge exchange and collaboration between scientists around trial sites. It requires the recognition of a wider range of actors from community members to legislators and regulators.

In particular, the IAVI partnership in Kenya – a snapshot of the whole innovation process being concerned with clinical research activities only – could be seen as providing an example of the role of what is termed 'absorptive capacity' in innovation theory or, the ability of a firm to successfully acquire, assimilate, adapt and utilise knowledge acquired from external sources (COHEN & LEVINTHAL, 1990). This term can be used in the discussion of PPPs to describe the capacity of a partnership to manage knowledge (HANLIN, 2007). The IAVI partnership is not a firm but IAVI, as the central node within the partnership operates similar to a virtual pharmaceutical company, effectively managing and manipulating knowledge between the various partner organisations.

Because IAVI works in ways similar to a virtual pharmaceutical company it is possible to consider the role of IAVI as both a knowledge broker and integrator in relation to its activities and the workings of the partnership (CHATAWAY et al., 2007). IAVI acts as a knowledge broker in that it manages a diverse range of stakeholders each with different forms of knowledge that other partnership stakeholders need. Chataway et al. (op. cit.) argue that this is particularly true of IAVI's advocacy work. IAVI acts as an integrator in its vaccine innovation activities by not only contracting out research activities but manipulating knowledge internally, particularly through its advocacy activities, so that it can be more effectively used by others at different stages of the innovation chain. Chataway et al. contend

that although IAVI does not call itself a knowledge broker or integrator, its ability to understand the value and use of knowledge are strongly evident in its activities internationally.

This current Kenyan research shows that this is also the case in terms of the IAVI's activities at a country level in Kenya where there is a creation of absorptive capacity within the partnership as a result primarily of IAVI's knowledge management activities. IAVI, without realising it, places an emphasis on knowledge which works to strengthen the linkages between those involved in the partnership. This occurs in two ways.

Firstly, IAVI is aware of the importance of ensuring knowledge transfer and communication at the country level. IAVI sees the importance of training workshops as an avenue for information exchange outside of the formal teaching that takes place. Similarly, while it encourages peer-to-peer learning having set up teleconferencing activities between lab staff around the multi-site studies it places less value on this. Yet it works strongly to create understanding and awareness between those involved in the communities surrounding the trial sites and at the policy level.

Secondly but less obviously, the activities and procedures put in place by IAVI at the research site – and which one IAVI manager termed its "systematising and operationalising" activities – have created a situation where multiple knowledge brokers exist and where knowledge brokering and transfer take place on a day-to-day basis. For example, as part of the study I asked 25 people who worked in the research sites to map their day-to-day knowledge flows as a means of assisting my discussion. The maps helped articulate different interactions and bring out details as to who individuals talk to, discuss with, learn from, pass information/knowledge to and what form this knowledge/information takes. These maps provide an overview of the complex network of interactions as well as the knowledge and information flow that occurs within a certain section of the IAVI partnership (around the research centres). Thus, Principal Investigators act as knowledge brokers between IAVI and the research centre staff providing the link by which study progress is passed to IAVI and new notifications of training, changes in protocol etc. are notified to staff. As outlined above, the lab technicians act as knowledge brokers between the data (the samples) and the doctors/nurses being able to explain what the data says (what knowledge the samples hold). Finally, the community mobilisers act as brokers of community held knowledge to the research sites and of 'scientific' knowledge to those outside the research sites.

The IAVI partnership at country level in Kenya therefore does not appear to overtly focus on building institutional and organisational capacity at the meso level but does however conduct such activity. In the same way other forms of capacity building more generally occur, institutional and organisational capacity is created as a result of working towards study progress; as part of the process towards goal attainment. As one member of IAVI's staff told me:

> *You need someone to be able to support the training etc. You can't just walk in and do a trial. The staff have to have lots of training and establish all the procedures etc. Someone else could have done it… any other group. All the other groups working in the developing world would have to have the same, you know, process. There is nowhere in the world that if the person hasn't done a clinical trial before you send them the protocol and say, 'could you let me know when you have the data'. I mean, it doesn't work that way because good clinical practice, as you know, there are requirements and there are the requirements of the investigator but there are also the requirements of the sponsor. So basically, we are just doing the same as we would in any country, we are going in and making sure you are covering all your responsibilities to conduct the research. [IAVI2; emphasis added]*

The result is that IAVI can be said to end up 'doing development without doing development' (CHATAWAY, 2005). It has characteristics of an international development organisation – which has the goals of capacity building, sustainability and integration – when it means to be an efficient business based model of partnership. This tension is accepted within IAVI but is also acknowledged to cause problems. An emphasis is placed on what is needed to arrive at the end point – the development of a vaccine. The process taken is less important. The result is that capacity building is seen as an input and not an important end in itself, despite what actually happens inadvertently in terms of institutional and organisational meso level capacity.

Conclusion

The IAVI partnership in Kenya highlights how health innovation activities involve an interaction between actors from these two different arenas that is more than simply seeing healthcare practitioners as receptors of a new health product. They are in fact integral to their development;

being part of a wider and interconnected health and research innovation system. Innovation of a new product must be seen through a wide lens that takes into account all aspects of a product's development including all the actors' interconnections from a diverse array of arenas who all at some point influence the scientific and technological trajectory of a product such as an AIDS vaccine (METCALFE et al., 2005). The starting point for moving towards such an inclusive approach is to bring together the different starting points of these two different arenas of health (care) and innovation and their respective policy prescriptions.

This has implications for the way the IAVI partnership is conceptualised. Recognition of these linkages emphasise the difficulty of separating research and care activities and how it is important, therefore, not to define health innovation simply in terms of R&D; in terms of what it takes to get a product produced. It is also important to consider the wider players and processes that are necessary for ensuring successful health innovation. Successful innovation requires more than simply the training up of scientists or even knowledge exchange and collaboration between scientists around trial sites. It requires the recognition of a wider range of actors from community members to legislators and regulators.

These results thus raise a number of questions as to how the IAVI partnership is conceptualised. In particular, Should IAVI choose to focus on capacity building more overtly, particularly on meso level institutional process capacity? If so, this would open up an alternative means of evaluating the success of the partnership. Focusing on outcomes rather than outputs and impacts may be useful for partnerships such as IAVI for two reasons. Firstly, this makes sense practically as focusing on building institutional capacity creates the learning function that organisations need to build the generic competencies for true sustainability. This is particularly necessary as working towards goal attainment does not happen in isolation of the social processes in which activities occur (MOSSE, 2005). The result is that for partnerships such as IAVI to "operate efficiently and effectively, they need to learn to adapt and change if they are to survive and prosper" (HORTON et al., 2003: 37). Secondly, it also provides a means for an organisation such as IAVI to work out the tensions of its development sector origins and objectives with its efforts to work using a private sector business model.

This research also raises questions for the wider health innovation discussion that takes place within national and international policy spheres. These questions relate to how health innovation is defined or is included into policy debates and which actors are involved. As discussion around the term 'health innovation' and 'health research' gain prominence within international academic and policy arenas (CHATAWAY et al., 2007; SADANA & PANG, 2003) such questions have increasing relevance.

Wider definitions of 'health innovation' by Morel and others (cf. MOREL et al., 2005; MAHONEY & MOREL, 2006) and 'health research' by WHO and the Global Forum for Health Research (cf. PANG et al., 2003; NUYENS, 2005) allude to this need to be more inclusive. They stress not only product development but also the wider enabling policy development. However, as evidence from the IAVI partnership in Kenya validates, it is difficult to ensure a more inclusive approach focusing on the whole product development process is promoted even if it may be happening on the ground. This has been hindered by an emphasis on the end point; by a focus on goal orientation and a desire to get products out within IAVI which is briefly raised in the discussion surrounding the role of the trial sites in providing healthcare above. The focus in this case is on capacity as access to products rather than a more holistic approach. A more holistic approach would consider imperative the strengthening of longer term capacity and building of linkages between the wide range of stakeholders that need to be involved to create sustainable capabilities.

Focusing on the need to look holistically at all the actors involved and the type and form their connections take is similar to the emphasis placed within innovation systems on the importance of collaboration and knowledge exchange. However, the difficulty of ensuring within the Kenyan IAVI partnership acknowledgement of these linkages and who is involved highlights the difficulty of identifying where the boundaries of such a system are. This further highlights the requirements for, but difficulties associated with, innovation systems thinking that is being used to promote PDPs such as IAVI and from which the concept of health innovation systems was developed. As IAVI's activities have developed over time in Kenya so the actors it has interacted with has changed. While initially the partnership consisted of IAVI, the research organisations and trial site communities, it has since broadened out, partly through the creation of a wider country level AIDS vaccine research network including regulators, wider health care providers, government ministries and donors.

This is where marrying innovation systems

ideas with thinking from within the anthropology of development field (cf. MOSSE & LEWIS, 2006) is relevant. Clark (2006) argues that innovation systems are viewed not as a concrete policy tool but should be used as metaphors for how innovation can be more successfully conducted. Such a perspective, when added to an in-depth and critical analysis of power and politics flows from within an anthropology of development perspective, creates a focus on the whole process of innovation and all the actors involved and not simply on getting products out; on goal orientation and the end point. Such a perspective, which was used by the wider study from which this data was taken, provides a means of highlighting the interconnectedness of actors from within innovation and health in the area of AIDS vaccine clinical trials research in a way not acknowledged before. In particular, it enables the high degree of knowledge exchange and learning that takes place between actors within these two fields of activity to be acknowledged together with the importance and implications this has on ensuring successful achievement of activities and the building of longer term capabilities.

Thus to sum up, this paper has provided an overview of the way meso and macro level organisational and institutional collaboration and knowledge exchange have taken place within the setting of Aids vaccine clinical research in Kenya. It has also discussed how this takes place within the context of an external partner, IAVI, providing support to these activities. First and foremost, this paper has provided evidence through this examination, along the lines of innovation systems thinking, that collaboration and knowledge exchange are not only important but imperative to the success of innovation activities. However, underlying this has been an issue of power and politics that surround 'partnership' and 'collaboration' notions that is not often adequately addressed within innovation systems thinking. Both of these issues raise questions about the way health innovation is being promoted, particularly at the policy level, and these issues have been briefly introduced.

Note

1. For a full history of this search see COHEN (2001) and THOMAS (2001).

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About the author

Rebecca Hanlin

has a strong background in managerial positions overseeing personnel and budgets in the private sector prior to returning to academia. Her current responsibilities are split between managing a number of research projects and teaching responsibilities at the Open University. Her time working abroad in the private sector has meant Hanlin can bridge cultures to get the most out of a team.

She is chair of the postgraduate course 'Development: Context and Practice' (TU871) and is on the teaching team for the undergraduate course, 'International Development: Challenges for a World in Transition' (U213). She is co-chair on a production team for a health systems and innovation course and facilitates the ACTS-Innogen Health Innovation Course held in East Africa.

Her research work is in the area of innovation and development with a specific focus on health innovation and its implications for the provision of equitable healthcare. Particular research interests include: health product development public-private partnerships; the application of genomic technologies in the developing world; scientific research capacity strengthening; the intangibles of innovation; and the application of innovation systems concepts in developing world settings. Hanlin currently manage the Innogen project to revive the Initiative on Public Private Partnerships for Health and am Co-investigator of a project looking at cultural and innovation dynamics around AIDS vaccine innovation. She is a key member of the OU-Innogen NEPAD consultancy team.

Hanlin has over 10 years management experience both working in the private commercial sector in Africa, with international organizations and in academia. This has ranged for managing a large company (200 employees; annual turnover over US$ 1 million) to smaller more compact project management type consultancy based appointments (Femina and Students Partnership Worldwide). This management experience includes contract negotiations and budget oversight.