Published in final edited form as:

Glob Public Health. 2014 ; 9(0): 57–72. doi:10.1080/17441692.2014.881519.

Evidence and AIDS activism: HIV scale-up and the contemporary politics of knowledge in global public health

Christopher J. Colvin^{a,*}

^aDivision of Social and Behavioural Sciences and the Centre for Infectious Disease Epidemiology and Research (CIDER), School of Public Health and Family Medicine, University of Cape Town, Cape Town, South Africa

Abstract

The HIV epidemic is widely recognised as having prompted one of the most remarkable intersections ever of illness, science and activism. The production, circulation, use and evaluation of empirical scientific ‘evidence’ played a central part in activists’ engagement with AIDS science. Previous activist engagement with evidence focused on the social and biomedical responses to HIV in the global North as well as challenges around ensuring antiretroviral treatment (ART) was available in the global South. More recently, however, with the roll-out and scale-up of large public-sector ART programmes and new multi-dimensional prevention efforts, the relationships between evidence and activism have been changing. Scale-up of these large-scale treatment and prevention programmes represents an exciting new opportunity while bringing with it a host of new challenges. This paper examines what new forms of evidence and activism will be required to address the challenges of the scaling-up era of HIV treatment and prevention. It reviews some recent controversies around evidence and HIV scale-up and describes the different forms of evidence and activist strategies that will be necessary for a robust response to these new challenges.

Keywords

HIV/AIDS; evidence; activism; health policy; antiretroviral treatment (ART)

Introduction

On a recent visit to the Cape Town Heart Museum, I learned that after Christiaan Barnard performed the world’s first heart transplant in South Africa, to much national chest thumping and great global acclaim, he only performed ten more over the next six years. Barnard was by all accounts a careful and thorough researcher and clinician. His first heart transplant was preceded by years of basic and clinical research and dozens of heart transplants in dogs to get him and his team ready for the first human transplant. His first patient lived for 18 days, his second for 18 months and his longest living patient from those first years stayed alive for 23 years.

In the rest of the world, however, news of his life-saving feat inaugurated a veritable heart transplant rush, with nearly 100 being performed in a number of countries by poorly prepared surgical teams in the 12 months after Barnard’s first surgery. While Barnard’s survival rates were very high in these first years (limited mainly by the then unsolved

*cj.colvin@uct.ac.za.

problem of rejection), those of other teams were dismally low and only a few years later, the annual number of transplants globally had dropped to 18.

While Barnard's overall approach was cautious, part of the reason the first heart transplant was done in South Africa rather than the US—where many of the surgical and medical techniques were rapidly being developed, and where Barnard had recently trained—was that the ethical and policy context in South Africa around research and clinical practice were significantly more accommodating to this kind of experimental enterprise. Forceful criticisms soon came, however, from his colleagues for acting without sufficient evidence or consensus in the medical community. The Cape Town Heart Museum contains several display cases of letters and telegrams from ordinary citizens condemning Barnard for his 'ghoulish' act, claiming that he had blood on his hands.

I thought a lot about these historical events while reviewing contemporary debates in the scientific literature on the development and scale-up of new HIV treatment and prevention interventions. While some elements of the debates around HIV science are unique to this particular epidemic, there are nonetheless a number of revealing resonances between the controversies around scaling up new medical technologies: the fraught tension between researcher, clinician, and bioethical perspectives on how fast the envelope of scientific knowledge should be stretched; the multi-disciplinary character—and thus evidentiary challenges—of clinical practice; the variation across countries in clinical and research regulatory regimes; the important role of professional competition and national prestige; and the popular rhetoric of accusing those one disagrees with of having "blood on their hands".

In Barnard's case, vigorous debates about the research evidence base on which he justified his surgical exploits were largely confined to his professional colleagues. HIV, on the other hand, is widely recognised as having prompted one of the most remarkable intersections ever of illness, science and activism in the popular sphere. While patient involvement and advocacy in the health sciences was not new at the time (Wachter, 1992), AIDS activists, many themselves HIV-positive, managed from the very early years of the epidemic to work their way forcefully into the tightly-guarded worlds of scientific knowledge production and health policy development (Epstein, 1996). AIDS activism was aimed not only at broad social stigma and discrimination and state neglect and oppression of those with HIV—it also squarely engaged with the worlds of the basic and clinical sciences of HIV, of pharmaceutical production and pricing regulation, and of health policymaking's translation of evidence into new forms of practice.

The production, circulation, use and evaluation of empirical scientific 'evidence' in particular played a central part in activists' engagement with AIDS science. 'Expert patients' were trained up on the existing evidence base and told to use this knowledge-as-power in their engagement with healthcare workers and the wider community. Activists critiqued the poor state of the early evidence base on HIV (especially clinical and pharmaceutical science) and prompted a dramatic increase in funding for further research. They challenged regulatory processes that they argued fetishised certain forms of evidence and processes of scientific review that unnecessarily delayed access to life-saving treatment. They connected with each other and with academic researchers through transnational advocacy networks (TANs) (Marx, Halcli, & Barnett, 2012), and in the process marshaled reams of highly technical epidemiological, virological and health economics evidence from around the world for legal and political campaigns against governments and drug companies. They helped foster the creation of a new range of HIV surveillance mechanisms and databases, contributed to the growth (and critique) of global clinical trial research, and catalyzed countless academic journals, research centers, and conferences aimed at generating evidence to be used in the response to HIV and AIDS.

This history of activist engagement with evidence can be divided roughly into three phases: 1) the early response in the global North to the terrifying new epidemic, leading up to the development of combination antiretroviral therapy, 2) a subsequent phase focused on making ART available in those Southern countries that had generalised epidemics, struggling health systems, and health budgets that were outmatched by the high prices for ARVs in the North, and 3) the current phase that finds many countries concerned with sustaining longer-term treatment and prevention efforts such as the scale-up and maintenance of public-sector ART programmes and new multi-dimensional prevention efforts in the form of 'combination prevention' interventions. To some degree, there are challenges of evidence that are shared across these phases. Drug development started as soon as the epidemic was identified and continues today, as do the political debates about the pace and cost of drug development. Research on why behavioural interventions may succeed or fail in preventing transmission or why people with HIV may or may not remain adherent to treatment has always been a mainstay of the response to the epidemic.

There are important ways, however, in which the political stakes and the epidemiological and health system challenges are distinct between these three phases as well. The first phase was shaped by the fact that the epidemic was understood at the time as a largely concentrated epidemic in the global North with no known treatment that attracted tremendous social stigma. Fighting stigma against the disease and the marginalised populations it was connected to, and developing some form of effective treatment were the priorities shaping activist mobilisations of evidence during this period. The second phase was defined by the fight for affordable treatment access for those countries in the global South with generalised epidemics in the heterosexual population. Stigma of course remained a serious issue during this phase, as did the problem of HIV infection in marginalised communities. The central thrust of activist engagement with science in this period, however, revolved around convincing drug companies and/or governments to lower drug prices and encouraging sometimes prejudiced donors to fund ART programmes in poor countries with already struggling health systems and small health budgets.

The activist challenge in the current phase is a product of both the victories during the second phase in introducing ART programming in the global South as well as the global financial crisis and recession. It centers around questions of how to scale-up a large-scale, long-term, and sustainable treatment and prevention response in a context of restricted global health funding and urgent competing public health priorities such as chronic diseases, maternal and child health, and climate change. Developing a sustainable and effective ART programme in the public sector is, for many countries, a formidable undertaking and involves technical, social and political problems not previously or adequately addressed. Equally challenging is designing, implementing, managing and evaluating combination prevention efforts that work simultaneously at the biological, behavioural and structural scales. These efforts will require the development of new concepts and theoretical frameworks in the basic, clinical and social sciences as well as new activist strategies for mobilising this evidence in ways that maintain the earlier eras' productive dialectics of research, practice, advocacy, and policy.

This paper reviews some of these new forms and mobilisations of evidence that will be required in this third phase of the fight against HIV. The next section reviews two recent controversies and explores some of the challenges of developing scientific evidence and mobilising it to support scale-up. It is followed by a section that considers the constellation of forms of evidence that will be necessary for a robust response to HIV scale-up. The final section considers how these new forms of evidence will require new political strategies to activate them. It also discusses the extent to which these developments both grow out of and

may in turn affect the broader politics of global health in a post-ART, post-financial crisis world.

Recent controversies in HIV treatment and prevention programme scale-up

Given the new priorities and challenges of this next era of the response to HIV, and the intense knowledge production and activist energies that still attend to HIV and AIDS, there is no shortage of controversies in the scientific and activist literature over new treatment and prevention initiatives and the nature of evidence that exists or not to support their scale-up. This section briefly reviews two of these—one involving treatment and the other prevention—and considers some of the common themes that have emerged in these debates.

One of the most celebrated of recent ideas in treatment and prevention is the ‘test and treat’ approach, where people who are diagnosed with HIV infection are offered immediate access to lifelong ART, regardless of their CD4 count or clinical presentation. There are a number of variations on this idea, one of which is ‘Option B+’ within Prevention of Mother to Child Transmission (PMTCT) programmes. B+ aims to refocus effort on preventing maternal deaths from HIV by offering lifelong ART to any pregnant woman testing positive for HIV (UNICEF, 2012). This approach has been rolled out in Malawi and preliminary results of the national programme are just becoming available (CDC, 2013). Early indications are that B+ has dramatically increased ART coverage for pregnant women in a short period of time (over seven-fold in the space of one year) but it should be noted that but also national training for all healthcare workers (HCWs), task shifting to provide the necessary human resources, a new national surveillance infrastructure and quarterly visits from a national task team to each PMTCT site (CDC, 2013).

Critics of B+ have argued that there are a range of concerns about the evidence supporting B+ that should cause other countries to hesitate before rolling out similar programmes. These critics have asked about: the potential impact in families and communities of significantly different treatment access for pregnant women; the long-term and as yet unknown risks and benefits of starting ART early in disease progression; the effects of this new initiative on access for others seeking ART in the health system; the impact of lifelong ART for pregnant women on horizontal transmission; the impact of unresolved barriers to adherence on resistance and disease progression; the opportunity costs with respect to other health priorities; the validity of the ‘economies of scope’ argument that combination prevention/treatment will have synergistic effects, and the retention rates that would be required to make the cost-benefit analysis come out in favor of B+ (Coutsoudis et al., 2013). A recent systematic review conducted on health system barriers and enablers to maternal ART bore out a number of these concerns and raised additional ones about the ability of weak health systems to manage the effective coordination of adult HIV services, PMTCT services and antenatal services and retain women in care over the long term (Colvin, Konopka, & Chalker, unpublished).

While the debate over B+ is brewing but has not yet played out in dramatic fashion in the scientific literature and popular press, the debate over microbicides has been more public. Microbicides are part of a “pre-exposure prophylaxis” approach (PrEP) to prevention that gives women control over a form of HIV prevention. Taken orally or applied vaginally in gel form, microbicides can be used by women without their partner’s knowledge and there was hope that this prevention technology would provide a way for women to take some control over their exposure to infection. Researchers reported in 2010 that the CAPRISA 004 trial of a tenofovir-based gel had demonstrated an overall reduction in incidence of 39% in women, with 54% reductions seen in ‘high-adherers’ (Abdool Karim et al., 2010). These results were widely reported as a breakthrough in HIV prevention for women and there soon

came significant pressure from activists, clinicians, researchers, and patient groups for the rapid roll-out of this new intervention.

Regulatory approval of the gel, however, would require a second trial to confirm the initial results and advocates were concerned that the time required to conduct such a trial would unnecessarily assign “thousands of women to a known inferior treatment” (Stein & Susser, 2010, p. 3). Despite calls for an exception to be made, it soon became clear that the results of further similar trials that were already in the field (e.g. the iPrEx, FEM-PrEP and VOICE trials) would be necessary before proceeding with rolling out the gel. Activists set about preparing the ground for these expected confirmatory results by preparing for ‘fast-track’ regulatory review and expanding the pipeline for production and distribution of the gel (AVAC, 2010).

When the FEM-PrEP and VOICE trials both reported no effect between the intervention and placebo arms in their trials, however, the prevention community was taken aback (MTN, 2012; Van Damme et al., 2012). Poor adherence to the interventions has been identified as the likely cause of the lack of effect but this has yet to be confirmed. Critics argued that while other trials appear to have demonstrated the pharmacological *efficacy* of PrEP, poor adherence nonetheless represents a critical weakness in the *effectiveness* of the intervention, especially given the fairly well-supported trial context. They argued that further research was warranted on ways to increase women’s adherence to the regimen. While PrEP has now been approved by the FDA, on the strength of positive results in other trials, there remains ambiguity around it as a recommended protocol or for standard of care in future prevention trials (Haire et al., 2013).

These debates over the nature, meaning, and mobilisation of scientific evidence for new treatment and prevention approaches are not limited to these two cases. We have recently seen similar controversies over medical male circumcision (Ncayiyana, 2011; Wamai et al., 2011), treatment as prevention (Mills, Nachega, & Ford, 2013), nurse-initiated and managed ART (Georgeu et al., 2012), and the timing of treatment for TB/HIV co-infection (Boulle et al., 2010). Indeed, these kinds of debates have been a central thread running throughout the history of AIDS science and activism. There are some common issues that run throughout these debates. Table 1 summarises some of these issues in the form of key questions asked of or about the evidence.

Key forms of evidence for the era of ART and combination prevention

The diversity of questions in Table 1 should highlight how complicated the production and mobilisation of evidence can be. There are many kinds of evidence at stake in the complicated process of scale-up, present often in varying degrees of quality and quantity, and of uncertain relationship to each other when it comes to assessing the evidence ‘for’ or ‘against’ a particular option. It should also be clear that our need for different forms of evidence extends far beyond just the ‘gold standard’ randomized controlled trial (RCT), even though the results of these trials tend to garner most of the attention.

In this section, I map out what I see as the key forms of evidence that will need to be produced and mobilised if we are to engage effectively with the challenges of HIV treatment and prevention scale-up. The forms of evidence we need are diverse and cannot be ranked by a single or rigid ‘hierarchy’ of evidence of the kind so central to evidence-based medicine’s approach to scientific knowledge. The notion of a hierarchy can be useful when considering narrowly defined research objectives. RCTs, for example, are demonstrably better at assessing drug efficacy than interviews; ethnography is demonstrably better at understanding cultural perceptions and assumptions than population surveys. But the task of

scale-up will require addressing a vast and diverse set of research questions, each of which will have forms of evidence that are more useful and robust than others.

Ogden et al. (Ogden, Gupta, Fisher, & Warner, 2011) described this complex constellation of necessary evidence succinctly when they argued that evidence needed to be ‘multi-level, multi-modal, multi-method, and multi-disciplinary’ (p. S291). They were talking about evidence around HIV prevention but the same can be said for the enterprise of producing scientific knowledge on treatment and prevention programmes, especially ones ‘at scale’ or across scales. This section maps the forms of evidence that would ideally flourish in an effective response to the policy and practice challenges of this new era of HIV scale-up. Table 2 summarises these key forms.

Improved evidence about the health system and more robust surveillance data about the impact of health interventions (and other factors) on population health (Point 1 in Table 2) are perhaps the most obvious forms of evidence that emerge as important in the era of scaling-up. The field of health system research is itself fairly new and working to establish itself as about substantially more than just health service research (Sauerborn, Nitayarumphong, & Gerhardus, 1999). Delivering ART at the coalface of service delivery requires a large, complicated and dynamic health system to provide logistics, infrastructure, finance, information, education, regulation, technology and human resources. We need rich evidence that takes the health system as a whole as its context and considers the effectiveness of treatment and prevention interventions from this broader perspective. Similarly, routine surveillance of ART programme data (both process and outcome data) as well as other health and health system variables is critical if we are to get a dependable bird’s eye view of the current state of and recent changes in population health. Some initiatives, like the IeDEA collaboration have begun developing regional databases of ART cohorts in public sector programmes but more of this kind of initiative is needed (Wandeler et al., 2012).

For the last ten years or so in public health, and indeed for longer if one looks in the critical social science literature, there have been pleas to pay more attention to, variously, the social determinants of health, the social drivers of HIV, or the structural forces shaping the epidemic (Mykhalovskiy & Rosengarten, 2009; Ogden, Gupta, Warner, & Fisher, 2011; Seeley et al., 2012) (Point 2 in Table 2). This is generally set in contrast to the preponderance—and hegemonic authority—of evidence available in the domains of individual biology and behaviour. Combination prevention and lifelong ART both involve much more than just behaviour change and the delivery of technologies through the health system. These social and structural determinants of health, and of HIV in particular, exert a powerful mediating influence on individual agency and can represent critical barriers to or enablers of effective uptake of prevention and treatment.

That said, however, there is also increasing recognition that between the poles of individual-level evidence and evidence of the structural determinants of health, there exists a large and critical terrain of inter-personal, community, and social interaction about which we also need strong evidence (Kippax, Stephenson, Parker, & Aggleton, 2013) (Point 3 in Table 2). Between individuals and structures, there is an entire world of ‘middle-range’ phenomenon that are fundamental to understanding how treatment and prevention regimens are interpreted and engaged with (Knaft, 2006). It is in this domain where most of the dynamism and complexity of social responses to HIV are to be found and where most of the potential interventions to support treatment and prevention might be targeted.

Much of this dynamism and complexity is not to be found in the HIV world’s most dominant microcosm of evidence—evidence-based medicine (EBM). EBM is an approach

to evidence review and synthesis that aims to provide a set of procedures for transparently and systematically assessing the quality of studies and strength of findings of specific research questions and synthesising these findings into an overall judgment on the state of scientific knowledge about a particular question (Mykhalovskiy & Weir, 2004; Solomon, 2011). While the broad aims of EBM are broadly unproblematic—transparent and systematic reviews of evidence on a narrow research question are generally better than ones that are not—the procedures of EBM can be overly narrow and rigid, driven by a technicist fantasy that if one just apply the correct protocol, the right answer will reveal itself.

As argued above, policy and practice questions are much broader and more complicated than narrow research questions and EBM is poorly suited by itself to provide the sole evidence for these bigger challenges. RCTs and systematic reviews, the twin stars of EBM, will continue to provide essential evidence for HIV scale-up but our approach to EBM also needs to change and apply its core strengths (systematic methods for identifying bias in research and synthesising a body of evidence) to a wider set of study designs and in a more flexible and pragmatic way. This process of change is already underway within the heart of the EBM enterprise, the Cochrane Collaboration, which recently published the first ever systematic review of qualitative evidence to be included in the ‘Cochrane Library’ (Glenton et al., 2013a; Glenton et al., 2013b). Though this development marks a fairly radical departure from the portrait of EBM orthodoxy drawn by most of its critics, there is still much to be done in making the EBM project better suited to responding to the complex questions of HIV prevention and treatment programmes.

While RCTs will continue to provide critical evidence on the specific questions they are designed to answer, a broad and useful portfolio of evidence also requires robust findings from a wide range of other domains, including basic science, behavioural science, operational research, and translational research (Point 5 in Table 2). This body of evidence provides critical contextual and explanatory evidence for the findings of RCTs and other intervention study designs. And they provide the foundation on which to design and implement HIV prevention and treatment interventions in the first place.

Given the complexity of the policy and practice questions described above, and the fact that research disciplines have to work within both the ethical and material constraints of empirical research, modeling has come to occupy a prominent role in evidence for HIV programming (Point 6 in Table 2). Modeling studies have looked at the effect of sexual networks on HIV transmission, at the potential impact of treatment-as-prevention strategies, and at the likely comparative health and health economic outcomes of different prevention strategies (Eaton, Hallett, & Garnett, 2011). Modeling can be a powerful tool for generating hypotheses and for addressing research questions that would be difficult to answer through empirical research. However, modeling is also highly sensitive to the initial assumptions of which models are based and great care has to be exercised in both producing and assessing the output of models (Hallett, 2012). A related area of evidence that hasn’t yet made a big contribution to HIV research but might in the future is the world of so-called ‘big data’ (Mayer-Schonberger & Cukier, 2013). Massive datasets, such as those that might be held within national health information systems, medical insurance schemes, and social networking could eventually play a similar role to modeling research by identifying trends that would otherwise not be visible and fostering hypotheses about patterns in these datasets.

Most HIV scale-up challenges involve the production and long-term maintenance of delivery systems, whether in the community, the health system or the market. If understanding how systems work (Point 1) is one of the most salient challenges in HIV scale-up, understanding how they can be resourced is a central component of that problem (Point 7 in Table 2). Evidence from health economics has been important in HIV research

but most often in its most narrow form—costing, cost-effectiveness and cost-benefit studies. As I argued above with respect to EBM, this costing evidence provides crucial information but we need a greater diversity of health economics evidence including evidence on health financing, microeconomics and health behaviours, and the interrelationships between macroeconomics and health outcomes. Importantly, we also need more of the research to come from a variety of conceptual frameworks, ones that move beyond the deficit-based approaches of classical economics and include needs-based, asset-based and capabilities-based approaches (Seckinelgin, 2012). Understanding the long-term opportunities and challenges of the scale-up of HIV treatment and prevention programming will require these much richer forms of health economics evidence.

All of the above points have so far focused on the different kinds of evidence necessary for effective HIV scale-up. I want to turn now to some general features that all of these forms of evidence will need to share, ones that reflect the complexity of the task at hand. They will all need to be able to work at multiple levels or scales, be responsive to the impact of context on their findings, integrate input from multiple sectors and multiple disciplines, and make use of time as a dynamic variable (Point 8 in Table 2). The importance of working at multiple scales and levels has already been discussed above in a number of ways as a critical feature of this evidence base. The importance of local context and individual-level experience is often something to which lip service is paid but substantive incorporation of context and experience into research designs is still weak and usually undertaken after the fact in post-hoc analyses. Also in short supply are research designs that produce evidence in multiple sectors (e.g. HIV/AIDS, maternal and child health, education, housing) and from multiple disciplines (e.g. epidemiology, sociology, engineering).

Finally, time is a critical element that needs to be integrated in a much more central and complex fashion in the production of HIV evidence. HIV scale-up is by definition an enterprise that unfolds in the long term. However, too much of the research we have either doesn't model the effect of time at all—by only asking the question 'Does it work?'—or it only incorporates time in the sense of 'sustainability'—by asking the question, 'How long can we keep it working?' The challenge of time in HIV scale-up is not how to sustain interventions in the long-term that show promise in the short-term. It is rather how to design interventions that are responsive and resilient to the fact that changes that occur over time are always dynamic and unpredictable. Research on the experience of chronic diseases has made this point well—chronicity is not the rigid and inevitable persistence of a particular state of being (Manderson & Smith-Morris, 2010). Rather, it is something that is experienced as episodic and uneven, and as something that is always subject to broader short and long-term changes in the lifecourse and the contexts of those suffering chronic disease. Much of the thinking in HIV research, however, hasn't moved beyond a static notion of prevention and treatment, as something that need to be 'implemented' and then 'maintained' for the long-term (Nixon, Hanass-Hancock, Whiteside, & Barnett, 2011).

The politics of evidence after scale-up: the mundane, the democratic and the critical

While the complex array of evidence outlined above would speak to most of the key evidentiary challenges of HIV scale-up, it risks remaining merely a technical exercise and laundry list of useful forms of knowledge if it isn't guided by a particular political urgency and strategy. Knowledge production and mobilisation does not—and should not—happen in isolation of the political field but is rather shot through with the political in a variety of ways. This final section considers how activism and evidence-making might most usefully intersect in this third phase of the HIV response.

Activist mobilisation of scientific knowledge during earlier eras in the epidemic was framed and energised through the lens of crisis and emergency. During the first period, the so-called 'plague years' when HIV represented a terrifying death sentence, activists demanded awareness efforts and effective prevention strategies, more rapid treatment research, and social solidarity with stigmatised and marginalised populations. During the second period, the struggle for treatment access in the South, activists called for global regulation of pharmaceutical pricing and changes in prejudiced donor attitudes that steered money away from poor African countries and their citizens that were considered to be unable to effectively implement life-saving ART.

In both periods, the urgent spectre of needless death and suffering happening or just about to happen framed activist efforts. In the era of HIV scale-up, however, these deaths are delayed and the problems reframed. No longer are corporate giants, ignorant aid policymakers, or neglectful states framed as the main culprits. Instead, the struggle for effective prevention and lifelong treatment centers around much more diffuse and ambiguous notions like ongoing community acceptability; individual adherence practices in the context of chronic care and competing health and social demands; migration and continuity of care; the human resources crisis in health; increasing drug resistance and the evolution of pricing mechanisms for next-generation medications; issues of drug supply and formulation; and health financing schemes for long-term sustainability of ART.

In many Northern countries, where ART has been accessible for a number of years, treatment hasn't quite 'killed activism' (Robins, 2005) but it has certainly transformed it. In many of these contexts, however, the 'scale-up' of HIV treatment initiatives often entailed the provision of ART to thousands or tens of thousands of people within the context of large, relatively well-functioning, well-resourced health systems. The problems that emerged in these settings weren't so much whether the health system could handle ART but whether the marginalised groups who experienced the greatest burden of HIV would be able to access this care and whether gains in prevention efforts with 'key populations' at greater risk would be lost as time passed.

In many of the Southern countries that have recently begun scaling-up treatment and combination prevention, however, the numbers of people who need ART represent a significant portion of the population, in settings where health systems already struggle to keep up with basic primary health care needs. In these contexts, the policy and practice questions that evidence will be asked to address will not be 'what treatments are effective?' or 'can ART can be provided effectively in poor countries by nurses at the primary level?', but rather, 'how can HIV programmes, health systems, individuals and communities be supported in the long-term to sustain a complex, dynamic and always shifting treatment and prevention response?'

This new set of questions brings new political challenges as well. Below, I outline three strategies for activist engagement with evidence in this phase. The first strategy is to engage more fully with the 'mundane' as a political problem and terrain. In the context of HIV scale-up, activists must decide how to mobilise their base and key allies, elicit moral outrage, pursue political and legal strategies, and generate a public narrative or frame for this new struggle that has some traction. They must do this in relation to a set of challenges that are not particularly headline-grabbing, ones that are not directly tied to imminent (or at least readily visible) suffering or death, and ones for which there is not a convenient and discrete set of villains. And they must do it in a global health funding environment that has rapidly contracted and in a global health policy context that has decided that other health problems like maternal and child health and chronic diseases should merit a greater

proportion of money and attention than they had during the heyday of the global response to HIV/AIDS.

While the results of name-branded RCTs of acronymed interventions—MaxART for TasP, VOICE for PrEP, etc—have typically commanded a great deal of attention in activist and popular imaginations, AIDS activists have in fact never been shy about engaging with the more mundane aspects of HIV intervention evidence including dosing and formulation recommendations, drug supply chain issues, health financing and drug pricing policies, etc.

Often, however, their engagement with these forms of evidence have happened ‘backstage’, in technical meetings to prepare affidavits for litigation, or in policy briefs for meetings with key global health actors. Activist-academic links have been important in this regard and activists’ ability to collate, interpret and make use of this more mundane information has led to notable victories (Colvin & Heywood, 2010). Again, though, the role of evidence in securing these victories is often less recognised or celebrated than the role of political protest and media engagement.

The Treatment Action Campaign (TAC) in South Africa has managed to continue and extend this trend in the current era. It has increasingly focused on monitoring and evaluating the day-to-day operational aspects of ART scale-up. During a recent crisis, for example, in the supply of ARVs caused by HR disputes at one drug depot in the Eastern Cape Province, TAC, along with MSF and other partners, hired temporary workers to handle the backlog and deliver drugs to facilities. They also set up a hotline and monitoring service to better detect stock outs of essential drugs at specific clinics. They now plan to develop a nationwide monitoring system:

To improve essential drug supply monitoring, the RHAP [Rural Health Advocacy Project], the Southern African HIV Clinicians’ Society, SECTION27, TAC and MSF plan to set up a drug stock-out monitoring system. The aim is to centralise reporting on supply ruptures from patients and health staff into a national database, to identify clinics requiring emergency supplies (TAC, 2013).

Mundane then clearly does not mean unimportant. These drug stock-outs were indeed emergencies for those left without the medication they needed. But these events took place at a level and a domain of the health system that is not the usual province of activists. And they involved a set of complicated health system challenges that do not necessarily have straightforward or dramatic solutions. Nonetheless, they were able to build a visible coalition of activists, academics, clinicians, lawyers and state officials to respond to a particular crisis in one small part of the country, and in the process, set in motion plans for a new source of national operational evidence about the scale-up.

One important element of the example from TAC above is its mobilisation of civil society actors in the production and application of evidence for scale-up. In the absence of effective government management of supply chains and health information, this loose coalition came together to mount its own intervention and develop its own evidence. This was not meant to be a displacement of the government’s roles and responsibilities; nor was it intended to substitute for expert academic knowledge production. It did, however, represent a democratisation of the relationship between evidence-making and the public. The democratisation of evidence, both in terms of access and production, is the second political strategy around evidence I would like to advocate.

Zackie Achmat, one of the founders of TAC, has taken this strategy of engaging with evidence around the daily administration of the state further in a new organisation called *Ndifuna Ukwazi* (literally ‘I Want to Know’ but glossed by the NGO as ‘Dare to Know’)

(www.nu.org.za). NU engages trainee-activist ‘fellows’, partner NGOs, and communities in a range of activities designed to build literacy and active engagement among ordinary members of the public in technical legal, financial, and medical domains. In contrast to the back-room technical consultations between expert activists and academic experts that characterised earlier periods, NU tries to deepen the ‘democratisation of the AIDS response’ (Sidibe, 2011). It also tried to extend the lessons learned in the AIDS response beyond HIV and into other political struggles. While similar to the ‘expert patient’ strategy and treatment literacy initiatives TAC used in previous years, this new approach focuses not only on training people to understand an evidence base but also in ongoing citizen engagement with, and even production of, the routine forms of information and evidence deployed in the daily administration of the state.

This approach is similar to strategies used by activists working in other domains, including self-census for access to housing and sanitation, community audits of health facilities, and people’s budgets (Robins, 2003). Indeed, many of the key challenges and strategies with respect to evidence that are faced by AIDS activists in this latest phase are shared by other activists in global public health. The need to work on multiple levels, scales and timeframes; to respond to intersecting crises; to think about systems and structures in ways that enable effective intervention; and to engage in the conversation about scientific evidence and its relationship to policy on an equal footing with the other stakeholders around the table—all of these are critical challenges more generally for the political mobilisation of scientific evidence in global health.

Again, democratising the production of and access to health evidence does not entail reducing government responsibilities or ignoring expert academic contributions. The role of scientific institutions in producing evidence and state institutions in stewarding and applying the evidence base should remain central. So too should the activist’s mandate to hold both scientific and state institutions to account for their obligations to produce and use evidence effectively and equitably. But there are signs, far beyond the field of HIV, that the democratisation of information is a critical political fact of life and potent political instrument in a world globally cross-cut by social media, cheap laptops, cloud computing, smartphones, and ‘big data’.

Finally, activists will need to move beyond some of the conventional kinds of ‘data-driven advocacy’ described above (Baral & Phaswana-Mafuya, 2012) and promote the production and deployment of new forms of evidence that are ‘critical’ in perspective and independent of existing institutional and hegemonic modes of knowledge production. Too often, activists join with those in the biomedical mainstream in framing evidence as something that can and should stand apart from politics, as if the ‘answer’ is in the data. On the one hand, as Nathan Geffen argues, activists need ‘clear’ scientific evidence and internationally recognised guidelines in order to bring pressure on governments to provide services to its citizens (Geffen, 2013). On the other hand, however, if they rely only on state-sanctioned forms of ‘knowledge [created] for governing healthcare’ (Mykhalovskiy & Rosengarten, 2009) such as ‘evidence-based norms and standards’, activists may find themselves increasingly co-opted in both a discourse and a practice of evidence that reproduces some of the worst elements of the status quo.

Being ‘critical’ about the production of scientific knowledge does not (necessarily) mean being dismissive of foundational epistemological claims of contemporary science. Rather it means framing the complicated process of knowledge production and application as a series of decisions that are always both technical and political. It involves asking why certain questions get asked and others don’t (or why they get asked in certain ways). Or why certain groups are included as participants, producers, or consumers in scientific research and others

excluded. Or why certain forms of evidence such as clinical trials are privileged and others such as social research or life histories are marginalised. This kind of critical questioning needs to extend even into the detailed methodological choices that go into making evidence, including issues like the relative merits and uses of efficacy versus effectiveness research designs, the complex strategies for sampling effectively and avoiding bias, and the ways in which complex bodies of evidence are synthesised and then communicated to a wide audience.

This work of a critical science of HIV is not new—these are the kinds of questions that activists have asked from the very early days of the epidemic. But they are the kinds of questions that are becoming harder to ask and answer in an era when HIV scale-up is increasingly understood as a messy set of technical problems, mundane tasks of health financing, long-term maintenance of behaviour change, supply chain management, and careful realignment of primary healthcare services.

In HIV scale-up, and indeed in global health more generally, we need to find ways of doing both things at once—meeting the urgent need to ‘know more’ about the world’s health problems and make effective use of this evidence, while also responding to the just as urgent demand for ways to complicate conventional ways of ‘knowing’ that tend to leave out so much of what is in fact critical to understand.

Acknowledgments

The thinking behind this paper emerged from a number of different projects around HIV and knowledge production that I have conducted with a wide range of academics, scientists, policymakers, activists and community members in South Africa and elsewhere. I am grateful to all of them for their insights and engagement. I am also grateful to the two anonymous reviewers of an earlier version of this manuscript for their very helpful comments. Time to work on this paper was partially supported by the Eunice Kennedy Shriver National Institute of Child Health & Human Development of the National Institutes of Health [award number R24HD077976]. The content is solely the responsibility of the author and does not necessarily represent the official views of the National Institutes of Health.

References

- Abdool Karim Q, Abdool Karim SS, Frohlich JA, Grobler AC, Baxter C, Mansoor LE, Taylor D. Effectiveness and safety of tenofovir gel, an antiretroviral microbicide, for the prevention of HIV infection in women. *Science*. 2010; 329(5996):1168–1174.10.1126/science.1193748 [PubMed: 20643915]
- AVAC. A cascade of hope and questions: understanding the results of CAPRISA 004. New York: AVAC: Global Advocacy for HIV Prevention; 2010.
- Baral S, Phaswana-Mafuya N. Rewriting the narrative of the epidemiology of HIV in sub-Saharan Africa. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*. 2012; 9(3):127–130.10.1080/17290376.2012.743787
- Boulle A, Clayden P, Cohen K, Cohen T, Conradie F, Dong K, Wilson D. Prolonged deferral of antiretroviral therapy in the SAPIT trial: did we need a clinical trial to tell us that this would increase mortality? *South African Medical Journal*. 2010; 100(9):566, 568, 570–561. [PubMed: 20822639]
- CDC. MMWR Morbidity and Mortality Weekly Report. Vol. 62. United States: 2013. Impact of an innovative approach to prevent mother-to-child transmission of HIV--Malawi, July 2011–September 2012; p. 148-151.
- Colvin, CJ.; Heywood, M. Negotiating ARV prices with pharmaceutical companies and the South African government: A civil society/legal approach. In: Rosskam, E.; Kickbusch, I., editors. *Negotiating and navigating global health: case studies in global health diplomacy*. New Jersey: World Scientific; 2010.

- Colvin, CJ.; Konopka, S.; Chalker, J. A systematic review of health system barriers to and enablers of ART for pregnant and postpartum women with HIV. Washington DC: Management Sciences for Health and USAID; (unpublished)
- Coutsoudis A, Goga A, Desmond C, Barron P, Black V, Coovadia H. Is Option B+ the best choice? *Lancet*. 2013; 381(9863):269–271.10.1016/S0140-6736(12)61807-8 [PubMed: 23351797]
- Eaton JW, Hallett TB, Garnett GP. Concurrent sexual partnerships and primary HIV infection: a critical interaction. *AIDS and Behaviour*. 2011; 15(4):687–692.10.1007/s10461-010-9787-8
- Epstein, S. *Impure science : AIDS, activism, and the politics of knowledge*. Berkeley: University of California Press; 1996.
- Geffen N. World Health Organization guidelines should not change the CD4 count threshold for antiretroviral therapy initiation. *South African Journal of HIV Medicine*. 2013; 14(1):6–7.
- Georgeu D, Colvin CJ, Lewin S, Fairall L, Bachmann MO, Uebel K, Bateman ED. Implementing nurse-initiated and managed antiretroviral treatment (NIMART) in South Africa: a qualitative process evaluation of the STRETCH trial. *Implementation Science*. 2012; 7:66.10.1186/1748-5908-7-66 [PubMed: 22800379]
- Glenton C, Colvin C, Carlsen B, Swartz A, Lewin S, Noyes J, Rashidian A. Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health: qualitative evidence synthesis (Protocol). *The Cochrane Library*. 2013; (2)10.1002/14651858.CD010414
- Glenton C, Colvin CJ, Carlsen B, Swartz A, Lewin S, Noyes J, Rashidian A. Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health: qualitative evidence synthesis. *Cochrane Database of Systematic Reviews*. 2013; 10:CD010414.10.1002/14651858.CD010414.pub2 [PubMed: 24101553]
- Haire B, Folayan MO, Hankins C, Sugarman J, McCormack S, Ramjee G, Warren M. Ethical considerations in determining standard of prevention packages for HIV prevention trials: examining PrEP. *Developing World Bioethics*. 2013;10.1111/dewb.12032
- Hallett, T. What mathematical models can tell us about prevention packages. Washington DC: PEPFAR; 2012.
- Kippax S, Stephenson N, Parker RG, Aggleton P. Between individual agency and structure in HIV prevention: understanding the middle ground of social practice. *American Journal of Public Health*, August 2013. 2013; 103(8):1367–75.
- Knauff BM. Anthropology in the middle. *Anthropological Theory*. 2006; 6(4):407–430.
- Manderson, L.; Smith-Morris, C. *Chronic conditions, fluid states: Chronicity and the anthropology of illness*. New Brunswick: Rutgers University Press; 2010.
- Marx C, Halcli A, Barnett C. Locating the global governance of HIV and AIDS: exploring the geographies of transnational advocacy networks. *Health and Place*. 2012; 18(3):490–495.10.1016/j.healthplace.2012.02.006 [PubMed: 22381421]
- Mayer-Schonberger, V.; Cukier, K. *Big data: A revolution that will transform how we live, work, and think*. New York: Houghton Mifflin Harcourt; 2013.
- Mills E, Nachega J, Ford N. Can we stop AIDS with antiretroviral-based treatment as prevention? *Global health: science and practice*. 2013; 1(1):29–34.
- MTN. MTN statement on decision to discontinue use of Tenofovir Gel in VOICE, a major HIV prevention study in women. Pittsburgh: Microbicide Trials Network; 2012.
- Mykhalovskiy E, Rosengarten M. HIV/AIDS in its third decade: Renewed critique in social and cultural analysis: an introduction. *Social Theory and Health*. 2009; 7:187–195.
- Mykhalovskiy E, Weir L. The problem of evidence-based medicine: directions for social science. *Social Science and Medicine*. 2004; 59(5):1059–1069.10.1016/j.socscimed.2003.12.002 [PubMed: 15186905]
- Ncayiyana DJ. The illusive promise of circumcision to prevent female-to-male HIV infection - not the way to go for South Africa. *South African Medical Journal*. 2011; 101(11):775–776. [PubMed: 22272947]
- Nixon SA, Hanass-Hancock J, Whiteside A, Barnett T. The increasing chronicity of HIV in sub-Saharan Africa: Re-thinking “HIV as a long-wave event” in the era of widespread access to ART. *Global Health*. 2011; 7:41.10.1186/1744-8603-7-41 [PubMed: 22014075]

- Ogden J, Gupta GR, Fisher WF, Warner A. Looking back, moving forward: towards a game-changing response to AIDS. *Global Public Health*. 2011; 6(Suppl 3):S285–292.10.1080/17441692.2011.621966 [PubMed: 22050479]
- Ogden J, Gupta GR, Warner A, Fisher WF. Revolutionising the AIDS response. *Global Public Health*. 2011; 6(Suppl 3):S383–395.10.1080/17441692.2011.621965 [PubMed: 21970296]
- Robins, S. Grounding ‘globalisation from below’: ‘global citizens’ in local spaces. In: Chidester, D.; James, WG.; Dexter, P., editors. *What Holds Us Together: Social Cohesion in South Africa*. Johannesburg: HSRC Press; 2003. p. 242-273.
- Robins, S. *IDS Working Papers*. Brighton: Institute for Development Studies, Sussex University; 2005. From “medical miracles” to normal(ised) medicine: AIDS treatment, activism and citizenship in the UK and South Africa.
- Sauerborn R, Nitayarumphong S, Gerhardus A. Strategies to enhance the use of health systems research for health sector reform. *Tropical Medicine & International Health*. 1999; 4(12):827–835.10.1046/j.1365-3156.1999.00497.x [PubMed: 10632991]
- Seckinelgin H. The global governance of success in HIV/AIDS policy: emergency action, everyday lives, and Sen’s capabilities. *Health and Place*. 2012; 18:453–460. [PubMed: 22469529]
- Seeley J, Watts CH, Kippax S, Russell S, Heise L, Whiteside A. Addressing the structural drivers of HIV: a luxury or necessity for programmes? *Journal of the International AIDS Society*. 2012; 15(Suppl 1):1–4. org/10.7448/IAS.15.3.17397.
- Sidibe, M. *Letter to Partners 2011*. Geneva: UNAIDS; 2011.
- Solomon M. Just a paradigm: evidence-based medicine in epistemological context. *European Journal for Philosophy of Science*. 2011; 1(3):451–466.
- Stein, Z.; Susser, I. *Transparency, accountability and feminist science: what next for microbicide trials?*. Cape Town: AIDS Legal Network and ATHENA Network; 2010.
- TAC. *TAC Electronic Newsletter*. Cape Town: Treatment Action Campaign; 2013. Systematic problems in drug supply have to be addressed now to avert future crisis.
- UNICEF. *Options B and B+: Key considerations for countries to implement at equity-focused approach*. New York: UNICEF; 2012.
- Van Damme L, Corneli A, Ahmed K, Agot K, Lombaard J, Kapiga S, Taylor D. Preexposure prophylaxis for HIV infection among African women. *New England Journal of Medicine*. 2012; 367(5):411–422.10.1056/NEJMoa1202614 [PubMed: 22784040]
- Wachter RM. AIDS, activism, and the politics of health. *New England Journal of Medicine*. 1992; 326(2):128–133.10.1056/NEJM199201093260209 [PubMed: 1727220]
- Wamai RG, Morris BJ, Bailis SA, Sokal D, Klausner JD, Appleton R, Banerjee J. Male circumcision for HIV prevention: current evidence and implementation in sub-Saharan Africa. *Journal of the International AIDS Society*. 2011; 14:49.10.1186/1758-2652-14-49 [PubMed: 22014096]
- Wandeler G, Keiser O, Pfeiffer K, Pestilli S, Fritz C, Labhardt ND, Ehmer J. Outcomes of antiretroviral treatment programs in rural Southern Africa. *Journal of Acquired Immune Deficiency Syndrome*. 2012; 59(2):e9–16.10.1097/QAI.0b013e31823edb6a

Table 1

Common issues in controversies around evidence for HIV treatment and prevention programmes.

Key Question	Explanation
When do we have enough evidence?	When is the quality and quantity of evidence sufficient to make a policy decision? And who decides on the answer to this question? What scientific and policy processes might allow walking the very fine line between forging ahead too quickly (and putting people at serious risk) and delaying too long (and keeping life-saving interventions unnecessarily out of reach)?
Why don't people follow the intervention (and does that matter)?	What are the behavioural, social and structural reasons that people do not participate in treatment or prevention efforts in the way intended? Should our evidence-making be focused around showing efficacy (i.e. proof of principle, in a controlled setting) or demonstrating effectiveness (in the real world), and who decides where this focus should lie?
Have implementation factors been adequately taken into account?	Are the costs, health system constraints, and issues of community acceptability part of the evidence base? If so, how should we weigh up this evidence against the effectiveness evidence we might get from a trial? How much is it possible to know, with precision, about these implementation factors?
Should we privilege individual or community benefits when assessing the evidence?	What are the tensions between medical, human rights and public health perspectives on the problem? Can we use evidence to address them or are these ultimately political/philosophical questions? Or both?
How do we handle the known unknowns and unknown unknowns?	How do we factor in the fact that there will always be elements of the problem, either anticipated or not anticipated, about which we have no evidence available? How should we specify and assess "potential long-term risks" in relation to known risks?
What is the relationship between evidence and policy?	To what extent does evidence of effectiveness and sustainability really factor into policy decisions? To what extent should it? What other factors are at play? How should the various forms of evidence relate to each other in this process? Again, who decides?

Table 2

Key forms of evidence for HIV treatment and prevention scale-up.

1. Better health systems and surveillance evidence	8. Features of all of this evidence base: multi-level/scalar, multi-sectoral and multi-disciplinary, context-responsive, and integrating time as a dynamic variable.
2. More evidence on the social and structural determinants of health and HIV/AIDS	
3. Renewed attention to evidence on the 'middle range' (meso-level, micro-sociology and interactionism, practice-oriented and phenomenological designs)	
4. Use of evidence from evidence-based medicine, including RCTs and systematic reviews, but incorporating more expansive and more pragmatic designs and meaningfully integrating process evaluation components	
5. Basic science, behavioural, operational, and translational research as a critical contextual evidence for RCTs and other interventional designs	
6. Careful use of modeling evidence and 'big data'	
7. Health economics evidence, including costing studies (cost, cost effectiveness, cost-benefit, opportunity costs), health financing studies, macroeconomics and health studies, from a variety of conceptual frameworks (deficit-oriented, needs-based, asset-based, capabilities-based)	