

Chapter 1

HIV technologies

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HIV technologies, treatment possibility and health governance

This edited collection addresses the governance of the HIV and AIDS pandemic with reference to the social aspects of technology in international contexts. The term 'technology' is used to encompass medical technologies such as HIV treatment, but also other 'technologies' of health care, including psychosocial and social interventions and communications media applied to moderating HIV's impact and to preventing HIV transmission. HIV technologies of the biomedical kind have become a focus in the research and policy literature. Policy frameworks advocate for close attention to the relationship between HIV treatment and prevention (Global HIV Prevention Working Group, 2008: 6)(see also Mykhalovskiy, this volume) and an address to 'psychosocial' factors (UNAIDS, 2009b), as well as integration between HIV and other health and social policy initiatives, around for instance TB, drug use, and gender-based violence (UNAIDS, 2009a). Researchers have warned of the need to consider the social and cultural dimensions of biomedical interventions (Peltzer et al., 2007) such as male circumcision. This volume contributes to these debates by investigating the social and cultural dimensions of HIV technologies that find expression in different parts of the world.

While there has been much written about the HIV pandemic, recent social scientific

research is largely directed at description and policy improvement. For some time now we have lacked a sustained social science engagement with the pandemic that addresses the changing technologies of its governance. We also lack texts that consider HIV technologies globally. From time to time, inspiring research does appear in the literature, some of it produced by the contributors to this collection. However, we argue that there is still a need to bring together, and reflect on, theoretically informed, innovative research from different parts of the world concerning the current circumstances of the HIV/AIDS pandemic.

HIV/AIDS is now a true pandemic, affecting people in all parts of the world. UNAIDS (2008) suggests 33 million people are living with HIV worldwide, with generally decreasing numbers of new infections, but increasing prevalence in for example the UK, Germany, Ukraine, the Russian Federation, China, Indonesia, Papua New Guinea, Mozambique and Vietnam, and stable but extremely high prevalence in a number of southern African countries. Prevalence is also high within particular groups in some regions - for instance, among black people in the US (Centers for Disease Control, 2009) - and new infections among gay men are increasing in western Europe and North America (UNAIDS, 2008). The pandemic is also radically dynamic and uncertain. For example, HIV prevalence in Uganda fell in the 1990s and then stabilised; now, sexual behaviours that carry HIV transmission risk are reported to be rising (UNAIDS, 2008). Many prevalence estimates are problematic and contested and error-prone, as indicated in India's National AIDS Control Organisation's 2007 halving of its prevalence figures on the basis of expanded surveillance.

One of the key dimensions of the HIV pandemic was the development of HIV treatment in the mid-1990s. Up to that time, we lacked effective anti-viral treatment for HIV infection. In the mid 1990s however, combinations of anti-viral drug treatments, now most commonly referred to as Anti-Retroviral Therapy, or ART, were found to inhibit viral replication, therefore preventing the deterioration of, and in many cases restoring, the immune systems of people with HIV. Such advantageous medical technologies have had multiple effects. In the affluent countries of the developed world, they have changed the apocalyptic character of public discourse regarding HIV and AIDS. Today in the developed world, HIV is often characterised as a chronic and manageable disease. Improved treatment technologies have changed the shape of developed-world HIV advocacy and activism. Earlier community action projects were predicated on the imperatives of non-discrimination, care provision, education, transmission reduction and treatment advocacy. In the post-treatment situation, community action has come to focus on the politics of treatment rationing, and on short- and long-term difficulties and possibilities involved with ART such as treatment compliance, side-effects, drug 'holidays', simplified medication regimes and the development of new lines of ART. New kinds of relationships between people with HIV and medical services have also been fashioned, often governed by a pronounced medicalised rationality and focused on the technological control of the virus in the body of the individual patient. These technologised relations also include: negotiated relationships between doctors and 'expert' patients; increasingly long periods of medicated but unmonitored, 'normalised', HIV life; the common parallel

use of complementary and alternative medicine; experiences or expectations of ART problems and failure. Because ART reduces viral activity, debate has also focused on ART's impact on the chance of HIV transmission in sexual intercourse, and how people with HIV address this knowledge in their sexual relationships. These aspects of HIV treatment and prevention raise new and urgent questions about how to effectively prevent HIV infections in this era of apparently treatment-led epidemic management. Has prevention become a secondary concern; how is medicalisation affecting prevention technologies; what new formations of community, citizenship and activism now inflect prevention?

Such complexity intersects with local circumstances, underlining the tremendous challenge of reflecting on the global pandemic. A public discourse of HIV treatment possibility, twinned with treatment's unavailability, dominates in most developing-world contexts. Here though, despite expectations of improved treatment outcomes in well-resourced, mainly urban communities, access to full and first-line, rather than third world-'appropriate' treatment, is the primary demand of advocates and activists. As in the developed world, power in relation to treatment technologies is at issue – but the political rather than the medical shape of that power is foregrounded.

UNAIDS's '3 by 5' programme, promising to provide ART for 3 million people by 2005, reached its target at the end of 2006. Today, treatment reaches four million people (UNAIDS, 2009a), under half those currently thought to require ART. The G8 and the African Union have pledged to provide 'universal' ART access by 2010; one of the Millennium Development Goals is to halt HIV's spread by 2015. These goals

will be difficult to meet. Health and social care practitioners in the developing world face large challenges when implementing HIV treatment in highly resource-constrained circumstances and in an overall framework of postcolonial global exploitation. There is strong competition for HIV resources from other health, social and economic constituencies. Client requirements for food, education, employment and gender equity and non-violence, often go far beyond HIV service providers' remit. International aid organisations' financial and practical provision varies not just with recipient organisations' performance, but with national political positions.

International pharmaceutical corporations resist expanding provision; developed-world donor fatigue sets in. In the face of a raft of other economic, social and political difficulties, AIDS fatigue characterises many high-prevalence nations themselves.

Developing-world HIV prevention programmes are also problematically situated, sometimes presented by international agencies as a kind of developing-world 'alternative' to treatment, often addressed outside the requisite broader cultural and development frameworks that nations with high HIV prevalence themselves emphasise. Currently, such programmes are tending towards medicalised yet patient-centred, low-technological initiatives such as microbicides and circumcision.

The advent of effective HIV treatment has sharpened focus on disparities in treatment access and delivery between different parts of the globe. However, similar disparities exist within countries, where refugees cannot secure fully-fledged citizenship and the related rights to health care, where racialised, sexualized, gendered and economically disempowered social groups experience HIV service exclusion, and where HIV

service provision may differ radically between geopolitical areas and across urban and rural communities. The various histories and epidemiologies of HIV epidemics, different levels of prevalence, varieties of political ownership and response, and widely divergent resource availability also strongly differentiate prevention and treatment technologies.

Across all these situations, ART has nevertheless defined ‘new’, post-treatment or treatment possibility generations, emerging in the mid-1990s in the developed world and post-2003 in most developing countries. These generations differ widely in the medical and other resources available to them, but have some potentially shared assumptions about living with HIV and the ‘risks’ of HIV transmission. HIV positive people taking ART in the developing world are also now having similar experiences of living long-term with HIV medication to people in developed-world countries. However, in the developing world, this group continues to live alongside large numbers of people who need but who cannot access ART, as well as large numbers of people newly infected each year. Moreover, effective treatment, or its possibility, arrived at very particular times within each epidemic. For instance, ART became available only after many HIV-positive people in developed countries and some African countries such as Uganda and Tanzania had died. Within other low-resourced countries such as South Africa, where the epidemic developed later, this second, ‘post-treatment’ or ‘treatment-possibility’ generation involves people doing well on ART, living *alongside* many who are dying. This book reflects on these and other developments in the ‘post-treatment’ or ‘treatment-possibility’ period.

We are adamant that this book is not a tale of two pandemics delineated by the technological haves and have-nots: the ART-rich and the ART-deprived worlds of AIDS, which map troublingly though inexactly onto low- and high-prevalence epidemics in high- and middle- or low-income countries; declining or stable-prevalence HIV world of prevention success in some countries and increasing prevalence in others. Instead, we suggest that there are multiple, intercalated epidemics, even within single countries. The possibilities of more effective treatment since the mid 1990s; an international commitment to developing-world treatment delivery since 2003; new approaches to prevention that address empowerment, especially women's empowerment; engagements with the prevention capabilities of treatment; and an increasing commitment to interrelating treatment with prevention have contributed to a distinct moment within the pandemic. This moment has different characteristics across developed and developing worlds and low and high prevalence contexts, but rests in all these cases on treatment possibility, alongside an increasing recognition of the long-term, shifting and widely diffused character and effects of the pandemic.

Aside from changes in the technological governance of HIV and questions over how to engage properly with its global and local impacts, there have also been theoretical developments in the study of technologies and health that are significant for the HIV field. The intensified technologisation of health care raises questions concerning the 'lay' public's engagement with science and technology, and with increasingly

scientised and managerial forms of governance. One set of concerns lies with how such managerial technologism reformulates relationships between the producers and consumers of healthcare, and the implications of this reformulation for the politics of expertise, and personal and 'human' security. There is a rapidly unfolding debate concerning how to frame and investigate these developments in theoretical and methodological terms. For example, perspectives such as the analysis of socio-technological assemblages (Rose, 2007), biosociality (Rabinow, 1999), health citizenship (Robins, 2009), political economy (Webster, 2007) and psychosocial analyses (Davis, 2009) among others, have been applied to technologies and health governance. In addition, current critical perspectives on health governance engage policy shifts that have come to enshrine the 'prudent', risk averse individual as the prerequisite of all human agency (Fox & Ward, 2006; Ward et al., 2006). Such perspectives also challenge formulations of the neo-liberal subject of governance that delineate 'health' through assumptions about individual rights and responsibilities. With different emphases, these approaches to health and technologies therefore take up concerns about governmentality as opposed to narrow notions of 'governance'. That is, they address the discourses, practices and resources by which modern states generate governance by producing and controlling their subjects as citizens (Foucault, 1991).

We argue that social research on the technologised and transnational HIV pandemic has much to contribute to debates concerning health and technologies, in terms of empirical and theoretical insight and because of the local and global complexity that

characterises the pandemic. The book thus provides a way to interrogate intensified processes of technologisation and transnationalism through the lens of HIV, with strong implications for discourses and practices of health governance in their broader substantive and theoretical contexts.

HIV technologies and social inquiry

There are many ways of taking social inquiry to health technologies. In this part of the introduction we would like to note several perspectives that the reader will identify in the chapters to follow or that help frame the overall argument of the volume, in order to make connections with wider debates concerning health governance. In particular, we make mention of analyses of the political economy of health technologies, recently discussed by Andrew Webster in his book *Health, Technology and Society* (2007). We also refer to the ways in which health technologies, and not least those used to treat and prevent HIV, have implications for risk calculus and identity (Adkins, 2002; Lupton & Tulloch, 1998). Many of the chapters draw on Foucauldian notions of governance as governmentality, and in particular Nikolas Rose's conceptualisation of biopolitics (2007) and to a lesser extent, Paul Rabinow's related articulation of biosociality (1999). For that reason we also make note here of some of the key aspects of these formulations of health governance. We also draw on Chantal Mouffe's (2006) conceptualisation of contested and multipolar politics, because of the ways in which this approach draws attention to the complexities of different biopolitical locations, so characteristic of the ART possibility era and its expressions in different parts of the world.

A key strategy for this volume that the reader will recognise throughout is its address to health technologies, and therefore HIV technologies, as socio-technical systems or assemblages, rather than as apparatuses merely surrounded and modified by social formations. This perspective on technologies as simultaneously cause and effect of society is that outlined by Webster in his 2007 book. Health technologies can emerge inside the health field through the action of practitioners and patients, but they can also be produced less directly by medical researchers and pharmaceutical corporations' efforts to limit and control disease. Some technologies have origins entirely outside the health field but come to affect it, for example, information technologies from business and industry. Webster also draws attention to the 'who' of technological innovation. For him, the actors are multiple and all need to be taken into account to understand health technologies. Such actors include government, commerce, consumers, researchers and media. Analysis of these circumstances involves examining how the various actors of health technologies interact, what social effects they produce and the claims on knowledge and expertise that support such effects. Analysis can also take up struggles and conflicts over health technologies to spur their theoretical elaborations. As will become plain, many of the chapters in this volume draw on this approach to elaborate the social and governmental dimensions of HIV technologies.

Contemporary health technologies, including HIV technologies, are also seen by some analysts as linked with the focus on risk and risk management in health care (Lupton,

1999). Many of the biomedical technologies typically associated with HIV impinge on risk perception and more particularly risk behaviour. For example, one's sexual or drug using practices might put one at risk of HIV infection. HIV treatment is itself suffused with risk calculations. For example, the ongoing management of ART relies on clinical markers such as CD4 counts, viral load and viral genotyping that are used to judge the risk of treatment failure and inform modifications of treatment. Questions of superinfection with drug resistant forms of HIV are also couched in terms of risk for the person with HIV. Researchers and HIV educators have examined the extent to which the knowledge generated by ART and the blood tests used to support it influence risk behaviour (Elford, 2006). A central concept here is 'disinhibition', or 'treatment optimism' as it is sometimes called, which is the idea that the health benefits of ART reduce motivation to avoid risky sexual behaviours (Van De Ven et al., 2004). As has been argued however, such uses of risk are methods of governance. For Lisa Adkins, risk is not so much a challenge for late modern subjects as a method by which such subjects come into being (2002). According to Kane Race, the risk knowledge systems that proliferate in and around HIV treatment have the effect of drawing attention to the practices of people who use these technologies, particularly in connection with sexual relations and ART dosing (2001, and also in this volume). As many chapters in this volume demonstrate, a critique of dimensions of risk management is central to the analysis of HIV technologies.

The risk-related forms of subjectivity and requirements on sexual and drug-dosing practices noted by writers such as Adkins and Race indicate that biomedical HIV

technologies are more than just substances and tools. While impinging on the action of the virus in bodies, they are also vehicles for social effects in the lives of people affected by HIV. By extension, it is also possible to argue that social practices are 'technological' in the sense of the effects they mobilise in and through materiality, bodies and social relations. This expanded notion of HIV technologies is important to this volume because it allows us to consider the various biomedical, but also social and governmental technologies that are used to address HIV. This perspective opens up the prospect that HIV technologies can be ostensibly biomedical as in ART, but also social, such as in HIV prevention or care interventions. It also demonstrates that the various dimensions of technology are present in all attempts to address HIV, that is, ART is always a social and political treatment and HIV prevention has material mediations, expressions and effects. After all, HIV treatment and prevention are joined in the sense that they both address a viral entity and seek to operate on it. Furthermore, HIV is itself dependent on social relations and cultural practices, engagement with which is constitutive of all manner of HIV interventions including prevention, social care, assistance with treatment and dosing and ART adherence. Social inquiry about HIV must therefore address how the different aspects of its constitutive technologies coexist and articulate. Such inquiry allows us to question assumptions regarding the boundaries between technologies and permits an interrogation of HIV technologies themselves across the diversity, contradictions and fractures of their field. Many of the chapters in this volume draw on this expanded notion of HIV technologies as the basis for their arguments in relation to different aspects of HIV such as prevention, treatment and their intersection; or discourses of

‘communication’ and ‘participation’ that operate in both prevention and treatment programmes.

A concept that usefully illustrates the importance for HIV social research of constructing technologies in newly expanded ways is Rabinow’s formulation of biosociality. This concept draws attention to the social relations that give rise to contemporary health technologies, but it is also able to describe the desired and sometimes unexpected or even counterproductive social effects of technologies. The concept emerged first in Rabinow’s ethnography of a French genetics research company undergoing rapid transformation in the 1990s (1999). Rabinow pointed out that health technologies such as genetic tests and therapies reveal surprising dynamics of alliance and conflict between interested parties, including those affected by genetic illness and their families, clinicians, researchers, venture capitalists, the popular media and government at local, national and, in his particular case, international levels. Rabinow also noted that as biomedical technologies are brought into being, their social ramifications are not all immediately intelligible. This perspective parallels one of the arguments of this volume pertaining to HIV technologies. As we will see, several chapters imply the changing nature of HIV technologies and the sometimes hidden effects of such changes.

One important insight derived from Rabinow’s work is that the interrogation of health technologies necessarily extends to the assumptions that influence how they are used. For example, intersecting with the interests of this volume, Rabinow examined French

responses to the threat of HIV in the blood transfusion economy as part of his ethnography of the genetics research company. He showed how in the French situation, abstract principles of the governance of the nation state made it hard to act to protect the blood supply from HIV. In particular, the French system relied on universalist notions of the inviolable rights of the blood donor to anonymity and the related valorisation of the gift and the gift-giver over and above the recipient and their rights. This 'sacralisation' of a particular social form immobilised attempts to prevent HIV coming into and circulating within blood transfusion products. Government officials were reluctant to act lest they be accused of transgressing what were seen as fundamental human rights to privacy and liberty, axiomatic to French nationhood and citizenship. According to Rabinow, such sacralisation is an example of how the (sometimes hidden) tensions that reside in forms of citizenship can feature in health technologies. As he noted in relation to the example of blood donation:

The spiritual technology becomes its own worst enemy, activating a dangerous machinery that forestalls or inhibits the flourishing of things, practices, and assemblages that could well enhance and abet our search for a better form of life before they are either understood or communally evaluated through experience. (1999: 79)

Rabinow's comments with regard to HIV and blood donation suggest the salience of notions of biosociality for HIV technologies. This approach affords a way of investigating how HIV technologies are heavily inflected with questions of citizenship, understood in terms of the negative effects of outmoded social forms, the

clashing of the multiple understandings of, and interests and investments in, good government, the crisis for universalisms in situations of rapid socio-technical change and the pursuant ethical challenges for individual and collective practices.

This notion of the biosocial has wide implications and can also be usefully extended and differentiated to draw attention to its ramifications for social inquiry. Rose has argued that through the science of new genetics and related technical and conceptual developments, we have entered the age of “vital politics” and “biological ethics” where increased capacity to exact biological control of human life brings with it intense political, social and ethical questions (Rose, 2001: 22). This biopolitics can be seen in gene selection technologies that promise the control of disease among future populations or notions of permanent ‘cognitive and affective enhancement’ of the human species, as it is sometimes called (Savulescu, 2009). Biosociality is therefore not only a way of framing health technologies, but due to the far reaching implications of socio-technological change, can be used to provide a conceptual framing of contemporary society in general. In a recent paper, Rabinow and Rose suggest that this biological politics (2006) is at least fourfold. It involves ‘truth discourses,’ most obviously but certainly not exclusively in the biological sciences, and particularly, today, those which address humans’ ‘vital’ characteristics as living organisms, and try to understand, predict, control and change them. Second, biological politics involves experts, who claim and are given legitimacy in investigating and proclaiming truth discourses, and the relations such experts have with the rest of us, who rely on their systems of knowledge. Third, biopolitics focuses on trying to improve people’s health

and by implication their whole lives, individually and within groups. The fourth aspect of biological politics concerns the means by which people try to make such improvements for themselves, by their own self-constitution as health-pursuing 'biosocial' or 'somatically individualist' subjects.

Contemporary health technologies in the broad sense in which we have defined them, are the technologies of this biological politics. They are a specific subset of technologies in general: "hybrid assemblages" (Rose, 2007: 17) of knowledges, practices, habits and material resources that have particular effects - in this case, in the field of health. Such health technologies are political: they are tied to collective and effective decision-making. They are ethical, that is, they pursue ideals of good conduct, though these ideals are often conflicting (MacIntyre, 1984; Rabinow, 2007) . And they are importantly implicated with scientific knowledge, not simply suspended relativistically in a net of interconnected discourses and practices, but positioned in a close relationship to knowledges and strategies that improve and prolong lives (Hacking, 2006). HIV technologies of treatment and prevention demonstrate these complex relations clearly. They operate at different levels, from the international down to the local; they have different interests at each level, varying across fields of operation which range from medical research and practice through tactics of self-care to artistic production. They often contradict each other and they are nevertheless directed at having positive effects on people's lives as 'vital' subjects. Such complexities are reflected in the chapters in this volume.

Another aspect of biological politics that plays a significant role in this book, is its transnationally differentiated character, something that can usefully be understood through Chantal Mouffe's (2006) formulation of contemporary politics's multipolar and contested nature. The divergent status of low, middle and high-income countries in relation to health technologies is clear, particularly in the HIV treatment case. However, such differences do not constitute the entirety of political engagement around HIV technologies. As Rabinow and Rose point out (2006), 'biopower' cannot be equated with politics without becoming an overextended, empty and purely descriptive concept. Moreover, transnational differences in HIV technologies cannot be reduced to a simple opposition between 'global south' and 'global north' without neglecting the complexities of HIV technologies in these locations. People infected or affected by HIV are a transnational, sometimes globalised, but also highly differentiated group. Their differences appear on many intersecting axes - of for instance class, gender, sexuality, ethnicity, 'race', religion, and nation-state history and politics, as well as the histories and politics of each national epidemic, and individuals' own varying health statuses. It is not helpful to reduce such axes to the coordinates of imperialist postcolonialism.

Mouffe's understanding of multiple polarities and ongoing contest as constitutive of contemporary political formations allows us to understand HIV technologies in an appropriately complex transnational frame. From this perspective, such technologies cannot be associated with a single social group, a particular social level, or a specific ethical orientation. They are, rather, heterogeneous, multilevelled, and deployed in the

service of many different moral discourses. Such a perspective allows us to analyse the contingency and particularity of HIV technologies. The chapters in this book assume, for example, that variations between HIV policies within the developing and developed worlds are significant elements of biopolitical technologies, rather than trivial variations between the 'have-nots' and the 'haves' of biocapital. And they acknowledge that low-resourced people living with HIV in high-income countries, while they are disadvantaged within those countries' HIV 'treatment-era' contexts, have importantly different relations to HIV technologies from HIV positive people in low-income countries. They are not 'nested' postcolonial subjects not 'really' living in the developed world at all.

We also assert that analyses of HIV technologies need to extend to their psychosocial ramifications. Biopolitical inquiry does not often address the psychic interiority of citizens, or the memories, thoughts and emotions implicated in socio-technical transformations. When it is considered, subjectivity is commonly rendered as one reflection of biopower, or self-subjection to forms of pastoral power. In a much-quoted formulation, Rose (1996) describes subjectivities as Deleuzian 'infoldings' of technologies into interiority, a formulation that gives the psychosocial little particularity. In contrast, Mouffe's account (2006) provides for a psychosocial space constituted by symbolic and subjective disjunctions that are partially bridged by social and psychic efforts towards citizenship. Mouffe's analysis pays attention to psychosocial aspects of political processes: to the imaginings, metaphoric articulations and fantasies that support hegemonisation and democratization alike.

Butler (2005) similarly captures the subjectifying social and ethical interpellation of the self, alongside the powerful inextricability of lives from subjecthoods, while also suggesting that sociopolitical differences affect the subject's structuration at the most fundamental, symbolic levels.

Such insistence on the place of the psychosocial within political analysis is important for addressing HIV technologies. HIV research, especially research on medical technologies' significance for people affected by the epidemic, is overwhelmingly preoccupied with the knowledge, thoughts, beliefs, behaviours and emotions of HIV citizens. Such research thus perpetually tries to identify, describe and modify unruly 'psychosocial' factors that disrupt or evade conventional HIV prevention and treatment technologies. Reflexivity about this 'psychosocial' field appears, in different guises, in all the chapters in this volume. The chapters' varying formulations work to map out the complexities and contradictions of HIV's 'psychosocial' technologies.

Overview of chapters

The chapters in this volume follow a sequence loosely arranged as so: case studies that address the governance of HIV prevention and treatment and the intersections of these; reflections on the subjective aspects of HIV technologies derived from close-focus qualitative research; and investigations of HIV technologies that trouble scientific and ontological assumptions about HIV and how the epidemic should be governed.

Governing HIV treatment and prevention

In Chapter 2, Catherine Campbell examines four international aid organisation interventions in South Africa and Zimbabwe predicated on the concept of community participation. Drawing on social psychology and Foucauldian notions of networks of power and resistance, Campbell summarises what is known about how to conduct interventions effectively, delineating the approaches and methods that underpin what she refers to as 'AIDS competent communities'. Campbell shows that despite such knowledge, international aid agencies often sponsor disappointing interventions. Campbell shows that interventions designed to facilitate community participation, can actually exert their own power over communities, raising deep questions over the participatory aspects of these interventions. Programme failure is often rationalised in terms of external factors and rarely in terms of the conduct of the intervention itself. Ironically then, such programmes, ostensibly predicated on community participation and empowerment, find ways of explaining why they have not done what they set out to do in terms of the failings of communities themselves. Campbell argues that this paradox of development governance stymies effective HIV education and support interventions.

In Chapter 3, Fareed Abdullah and Corinne Squire present a case study of the rollout of ART in the Western Cape of South Africa. The rollout is regarded as an exemplary programme for HIV care in transitional country contexts. Abdullah and Squire identify and examine what conditions of the rollout made it successful. Drawing on Rose's notions of biopolitics, they show that effectiveness can be attributed to the

community-wide dissemination of ART provision to primary care providers and engagement with community activists and lay counsellors. This chapter develops the concept of HIV citizenship as a way of addressing HIV technologies in the ART possibility era.

In the fourth chapter Eric Mykhalovskiy examines the history of a Canadian community-based organisation over the course of the HIV epidemic and particularly in relation to the advent of ART availability in the mid to late 1990s. Mykhalovskiy uses this case to question the integration discourse used by government and other agencies to address the relationship between treatment and prevention in the ART era. The advent of ART has sponsored much controversy and debate concerning the impact it will have on HIV prevention. For some, ART is seen to displace prevention and therefore increases HIV transmission. Mykhalovskiy reverses this standard critique to examine how HIV prevention imperatives have impacted on, and in some cases arguably distorted, the purposes of HIV treatment. Mykhalovskiy shows how integration discourse is necessary given the effects of ART for the health of people with HIV. However, integration discourse can also be counterproductive for people with HIV because of the way it works to strengthen responsibility for HIV prevention, among other effects. HIV prevention imperatives rob HIV treatment of its original justification as a way of restoring the health of people with HIV and replace it with a notion that ART is the means by which people with HIV can be governed to prevent transmission of HIV to others. Like Campbell, Abdullah and Squire, Mykhalovskiy creates an argument that, to moderate such effects, the practical experience and skills

of community agencies need to be incorporated into this new HIV technology of integration.

HIV subjectivities

In Chapter 5, Lindy Wilbrahim writes about her work in South Africa exploring the discursive production of good parenting in relation to the HIV epidemic. Wilbrahim formed groups with parents to discuss a text extract from Lovelines, a regular magazine column in popular magazines in circulation in South Africa. Lovelines addresses parents, encouraging them to reflect on their practices in an effort to encourage the prevention of HIV transmission in young people in South Africa. Using Foucauldian notions of discourse analysis, Wilbrahim discusses the classing and racing of parenting expertise, elaborating an account of good parenting as an HIV technology and reflecting on its benefits and drawbacks.

In Chapter 6, Paul Flowers draws on qualitative interviews with men and women with HIV residing in Scotland and England to address the psychosocial dimensions of living with HIV in the ART possibility era. Flowers provides a detailed picture of the physical, mental and relational challenges of HIV diagnosis and health maintenance. A key theme in his analysis is to question the discourse of normalisation emanating from epidemiological accounts of the ART era and how these marginalise the psychosocial experiences of people with HIV. This chapter therefore reflects the argument made by Mykhalovskiy in relation to the undesirable aspects of the mixing of public health imperatives with the effects of ART for people with HIV.

Also drawing on interviews, in Chapter 7 Mark Davis examines personal responses to the impact of ART on the risk of transmission in sexual practice. This chapter underlines the arguments of Mykhalovskiy and Flowers that epidemiological rationalisation of ART positions people with HIV uneasily at the intersection of treatment and prevention. Drawing on Rose's notion of 'informational biocitizenship', Davis explores the extra-technical aspects of ART-related knowledge and the implications for the ethics of sexual relating. This chapter shows how people with HIV address these challenges by drawing on their experiences of HIV-related self-care. Like Campbell and Wilbrahim, Davis argues for increased dialogue with regard to the uncertainties, confusions and challenges for sexual ethics that arise in and around the use of ART.

New epistemologies and ontologies

In Chapter 8, Race examines the controversy surrounding so-called barebacking among gay men and the related concept of serosorting. Barebacking coincides with the ART possibility era and has connections with the use of HIV antibody serostatus to determine 'like with like' sexual connections where condoms are not used for sexual intercourse because HIV transmission is not thought possible. It also resonates with the general impact of ART on the status of HIV infection as a serious health concern, presumably making sexual intercourse without condoms seem less dangerous than it was and therefore enabling cultures of barebacking. Using a Foucauldian framing, Race reverses the typical discourse regarding barebacking to reveal how the striving

for ethical, sexual relationality underpins the practice. Race therefore addresses barebacking as a HIV technology in its own right. He explores its dual status as both a form of autonomy on the part of some gay men with HIV and as transgressive of what is taken to be good HIV citizenship under the imperatives of HIV prevention. Race shows that this duality underpins behavioural research seeking to explain barebacking behaviour. He argues that useful research needs to be reflexive with this duality.

In the last substantive chapter in this volume, Marsha Rosengarten and Mike Michael examine the ethical controversies surrounding the clinical trials for pre-exposure prophylaxis (PrEP) in countries in Africa and Asia. PrEP is an experimental form of biomedical HIV prevention where those at risk of HIV transmission take ART on a regular basis to reduce the likelihood of HIV infection. PrEP is therefore emblematic of the overlapping of treatment and prevention technologies. Rosengarten and Michael examine clinical trials for PrEP as sites of enormous complexity for HIV governance with controversial and potentially unknowable effects combined with opportunities for using biomedical technologies in innovative and productive ways. Because PrEP is squarely a biomedical form of HIV prevention it is both harbinger of the new formulations of HIV technology and crystallises many of the themes raised in previous chapters. Rosengarten and Michael show how clinical trials of PrEP raise questions of citizenship, controversial engagements with local trial communities and the impact of ART on HIV prevention and vice versa. This chapter addresses the extra-material in HIV technologies and extends to a discussion of ethics and science and the ontological status of the HIV virus itself.

In the final chapter, Davis and Squire reflect on the arguments developed in each of the chapters and return to some of the key points raised in this introduction. We will focus on some crosscutting dimensions that will appear in the chapters, in particular the clashing and synergies apparent in the articulations of HIV treatment and prevention technologies and struggles over truth claims that have significance in the governance of a treatment possibility epidemic. We will also reflect on the forms of HIV citizenship implied in transnational and local diversity and draw attention to the underlying ‘pragmatics’ that inform the chapters in this volume and that have relevance for future inquiry and intervention.

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