

Commentary

Effective HIV prevention: the indispensable role of social science

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Abstract

This paper examines the ways in which HIV prevention is understood including “biomedical”, “behavioural”, “structural”, and “combination” prevention. In it I argue that effective prevention entails developing community capacity and requires that public health addresses people not only as individuals but also as connected members of groups, networks and collectives who interact (talk, negotiate, have sex, use drugs, etc.) together. I also examine the evaluation of prevention programmes or interventions and argue that the distinction between efficacy and effectiveness is often glossed and that, while efficacy can be evaluated by randomized controlled trials, the evaluation of effectiveness requires long-term descriptive strategies and/or modelling. Using examples from a number of countries, including a detailed account of the Australian HIV prevention response, effectiveness is shown to be dependent not only on the efficacy of the prevention technology or tool but also on the responses of people – individuals, communities and governments – to those technologies. Whether a particular HIV prevention technology is adopted and its use sustained depends on a range of social, cultural and political factors. The paper concludes by calling on biomedical and social scientists to work together and describes a “social public health”.

Keywords: HIV prevention; social dimensions; effectiveness; behaviour change; community capacity; structural drivers.

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Introduction

The push for more effective HIV prevention has become increasingly urgent in recent years, see for example the series of papers in the *Lancet* in 2008, which included a paper by the then head of UNAIDS and others [1] calling for action to stimulate the prevention constituency. The series also included papers on what are referred to as behavioural strategies [2], structural approaches [3] and biomedical interventions [4]. Since that time the call for biomedical prevention has strengthened, see for example, Dieffenbach and Fauci [5] and most recently this interest in biomedical prevention has focused on treatment as prevention, note the editorial in the *Lancet* in May, 2011 [6], which was entitled “HIV treatment as prevention – it works” and a later albeit more cautious editorial in the *Lancet Infectious Diseases*, in September 2011 [7].

Whether one is referring to “behavioural”, “biomedical” or “structural” prevention – and these distinctions are often misleading – the challenges to effective HIV prevention are essentially social and political. Yet, as Fassin [8] has pointed out:

Since the beginning of the pandemic, the focus of discourse and policies throughout the world solely on the medical aspects of the illness, and since the beginning of the South African controversy, solely on the availability of drugs, has made the social issues (both carried and revealed by AIDS) practically inexpressible. (p. 189)

HIV transmission is profoundly social, as are the responses of individuals, communities and governments to it. HIV is spread mainly by sexual and drug injection practices – both social practices, and preventing HIV involves engaging with these practices, that is, engaging in the social and political worlds in which *all* prevention is situated – biomedical, behavioural and structural prevention.

This paper discusses the ways in which HIV prevention is currently understood and addresses the central role of the social and political in effective prevention as well as the challenges of evaluating effectiveness. It calls for biomedical scientists to work with social scientists and concludes by focusing on what a genuine integration of the social and political means for public health and describes a “social public health”.

What constitutes effective prevention?

Typically technologies are regarded as potentially successful candidates for HIV prevention if the outcomes of randomized controlled trials (RCTs) demonstrate medium to high efficacy. But *effectiveness* needs to be distinguished from *efficacy* – a distinction that is often glossed – and renewed attention needs to be given to effectiveness. Following Aral and Peterman [9], efficacy is defined as the improvement in health outcome achieved in a research setting, in expert hands, under ideal circumstances. It measures the individual-level effect of an intervention. Effectiveness is the impact an intervention achieves in the real world, under resource constraints, in entire populations or in specified subgroups of a population. For *effective* HIV prevention, efficacious tools

and technologies, which are made available to populations, must be taken up by communities and their individual members and made part of their everyday lives. The protection that a prevention tool/method confers is a function of both (a) the efficacy of the tool/ technology *and* (b) whether and how it is used. In other words, in order for there to be a decline in HIV incidence, not only are efficacious prevention tools necessary, but also the means to ensure that, once provided, people adopt and use them correctly in a sustained manner.

This paper focuses on (b) and the social and political enablers that are likely to result in the uptake and sustained use of HIV prevention tools or technologies by communities and their members. While efficacious tools are a necessary pre-condition for effective prevention, they are not sufficient in and of themselves: *All* HIV prevention “interventions” require sustained changes in social practice, whether we are talking about condoms, pre-exposure prophylaxis (PrEP) or microbicides, or “treatment as prevention”. It is not the case that one prevention tool, for example, PrEP, is biomedical and another, for example, a condom, is behavioural; they both involve action – the swallowing of a pill or the putting on of a condom. Both tools, as do all HIV prevention tools or technologies, require adoption and sustained use. “Combination prevention” [10] is central to effective prevention but the “combination” is not a matter of combining so-called “biomedical”, “behavioural”, and “structural” interventions. Rather, effective prevention involves ensuring that the efficacious tools and technologies are acceptable to the targeted populations, made available to them, and widely and sympathetically promoted.

Long-lasting and consistent declines in HIV incidence are yet to be achieved. Disappointing prevention efforts however may not be, as some researchers [11] have argued, because non-efficacious technologies are being promoted – the current tools are efficacious (some more than others). Rather, the explanation may lie in the fact that some efficacious tools are unacceptable to at least some target populations, and/or that they are ineffectively promoted, that is, they are promoted in ways that fail to engage with and be sympathetic to the social, cultural and political worlds of target populations, thus failing to build broad-based acceptance and uptake.

The technologies themselves will be more or less acceptable depending on cultural understandings and values associated with them and their adoption. So, for example, as noted by Aggleton [12] and Niang and Boiro [13], male circumcision has its roots deep in the structure of society and carries complex meanings – religious, spiritual, socio-cultural and aesthetic. It is widely practised among Jews and Muslims, less so among Christians, and rarely among those of other religious persuasion: male circumcision is highly likely to be endorsed as an HIV prevention measure in Islamic countries but extremely unlikely to be accepted in countries that are predominantly Hindu. Therefore while male circumcision has been demonstrated to be efficacious for reducing HIV transmission risk for heterosexual men [14], it is unlikely to be an effective prevention measure in some countries and regions.

Similarly, abstinence and fidelity, although not strictly “technologies”, are clearly efficacious at least in the sense of “logically” efficacious: one cannot transmit HIV or be infected with HIV if one abstains from injecting drugs and sex; and strict fidelity would reduce HIV transmission risk considerably. However, their promotion is only likely to result in a decline in HIV incidence in societies or communities that uphold religious or cultural values promoting virginity and fidelity. The failures of abstinence-only HIV prevention programmes in the United States [15] and HIV prevention programmes urging gay men to reduce the number of their sexual partners [16] provide two clear examples. Popular culture in the United States valorizes sexual pleasure, and one of the marks of gay identity in the income-rich world is casual sex. While it is possible that non-normative changes in sexual practices may be adopted, as for example in Uganda where delaying sex and strict monogamy do appear to be partly responsible for early declines in HIV incidence [17], such changes may prove to be the exception rather than the rule.

Turning to “ineffective” promotion: many HIV prevention interventions are too narrowly promoted – in the sense that they target individuals *qua* individuals. A case in point is counselling, which typically positions risk of and protection from HIV transmission as an individual rather than a shared responsibility. The growing success of treatment in the form of antiretroviral therapy has meant that much promotion of a range of HIV prevention technologies takes place in the clinic, typically in association with testing, where “patients” are counselled to adopt a range of HIV prevention strategies or technologies. While the prevention of mother-to-child transmission has proved to be a successful HIV prevention intervention, several studies [11] in Africa have found “no population-level impact of VCT” on those found to be HIV negative (p. 749). Nonetheless counselling, in the presence of testing, has become the dominant form of promoting HIV prevention technologies in many countries, including those most affected such as South Africa [18]. However, promoting HIV prevention is a complex social process: effectiveness involves modifying social practices, including sexual practice and injection drug use, which are regulated by local and particular social and cultural understandings and norms. Such practices are unlikely to be modifiable by counselling individuals in the privacy of the clinic. The promotion of HIV prevention needs to engage with the social and political worlds of those to whom the messages are targeted and to engender community-level change. Efficacious prevention tools need to be promoted – via government support, sex education, peer outreach, social marketing and so on, as well as counselling. These different modes of promotion should be combined synergistically so as to ensure a climate conducive to the adoption and use of the efficacious technologies.

The role of the social and political in effective prevention

While the development of *efficacious* technologies largely depends on biomedical research, social and political science research is central to any understanding of acceptability,

adoption and sustained use of these HIV prevention technologies. Achieving *effectiveness* is not a matter of finding a way over or around “social barriers” but rather a matter of engaging with the particular and local social and political lives and contexts of populations and communities at risk. Effective HIV prevention programmes (or interventions) need to enable people to act in ways that resonate with their sexual and drug injection lives: what will work for young heterosexuals in KwaZulu-Natal, for gay men in Sydney, for sex workers in Calcutta or for injection drug users in Ukraine will differ and is likely to change over time.

Enabling people to take up the technologies and sustain safe sex and safe injection practices depends on a number of social, cultural and political factors including political commitment, community mobilization, stigma reduction, sex education and mass media (modified from Schwartlander *et al.*) [19]. Furthermore, and as also noted by Schwartlander *et al.* [19], effectiveness is aided and abetted by aligning prevention strategies with country development objectives, such as education, law reform, gender equality, poverty reduction, community systems, employer practices and health systems/infra-structure.

These “country development objectives” have been the focus of much recent discussion as structures [3] or social drivers [20]. These drivers or structures are undoubtedly related to the vulnerability of certain populations to HIV, and thus addressing these structures through advocacy and activism alongside the promotion of efficacious prevention tools is essential. Addressing them involves engaging with what Friedman *et al.* [21] refer to as macro-environments. That is, effective HIV prevention depends on acknowledging both broad political, social and economic policies of governments and large institutions and organizations as well as the social or collective agency of community groups and networks and working at both levels to develop harm reduction responses and effective HIV prevention programmes.

Political commitment is central to effectiveness and governments need to provide the technologies and ensure that harm reduction measures are easily accessed by those at risk. So for example, there is no doubt that political endorsement of needle and syringe programmes has dramatically reduced HIV transmission among injection drug users and that the “war against drugs” has failed [22]. Political and government support is also central to reducing HIV-related stigma and discrimination, including discrimination directed at injection drug users, sex workers, gay men and other marginalized groups, which has been shown to render otherwise effective HIV prevention measures ineffective [23]. Laws, legal policies and practices need to tackle stigma and discrimination rather than using criminal law powers to govern HIV transmission risk [24]. Finally as has been demonstrated in countries with different patterns of HIV – Thailand’s sex workers [25], Uganda’s general population [26–28] and Australia’s gay men [29,30] – community mobilization and engagement and support by governments, including funding of non-government organizations and mass media, are central to effective HIV prevention. In each of these countries, concerted efforts by government and

collectives gave HIV and related prevention measures a public voice.

In short, HIV prevention programmes involve all levels of society because social transformation is necessary to achieve consistent and sustained reduction in HIV incidence. HIV prevention is most successful when governments and communities act together in partnership on the basis of evidence provided by social and biomedical scientists.

Australian example

I illustrate the central significance of the above with reference to the Australian response, which demonstrates well just how contingent/dependent effective prevention outcomes are on the social and political milieu. The population most affected by HIV in Australia was and continues to be gay men: the first diagnosis and death in 1982 and 1983 were in gay men and the early alarmingly high infection rates were almost certainly due to the frequent crossing of the Pacific by gay men – from San Francisco to Sydney and Melbourne – in the early 1980s. There were and continue to be very low rates of HIV infection among injection drug users and low rates among sex workers and more generally in the heterosexual population [29,30].

The establishing of needle and syringe programmes by governments in response to advocacy by health professionals and injection user groups very early in the epidemic provided injection drug users in Australia with an acceptable prevention technology: the sharpness and sterility of the needles appeal to the population at risk. As a result, HIV infection rates among injection drug users have been maintained at below 5%, indeed closer to 1% if gay men are excluded [30]. Similar evidence demonstrates the ways in which injection drug users in New York City, Rotterdam, Buenos Aires and sites in Central Asia acted early and advocated for strategies to protect themselves and their networks [31]. As pointed out by the authors of the review of these data, “both researchers and policy makers should take note of and draw upon both the micro-social and formal organizations of users” (p. 107).

Unlike sterile needles and syringes, male condoms are not integral to sexual activity and are considered by most gay men to be an unwelcome addition to it. Nonetheless, many succeeded in adopting them. Gay men’s adoption and use of condoms enabled them to continue to engage in anal intercourse, a sexual practice that in part defines who they are, and to continue to have sex with comparatively large numbers of sexual partners. They did not abstain from anal intercourse or reduce the numbers of their sexual partners. Gay men’s use of condoms depends, in part, on an openness with regard to sexual activity in Australian gay communities, including openness about sexual partners other than one’s regular or “committed” partner: within this openness, the meanings of condoms changed from signifying an interruption to sex to “responsibility” and “caring”. Condom use in Sydney’s gay community came to signify *belonging* to that community and health promotion measures in the early 1990s, which were funded by government, appealed to gay men to care for each other and accept responsibility, whether

HIV positive or HIV negative, about always using condoms [16].

Here it is important to distinguish behaviour from practice [32]. “Practice” recognizes that “the behaviours” that are involved in the uptake and use of all these technologies (and I take condoms as the example) are always framed by particular understandings of sex and pleasure, health and illness and so on. It is these social practices we need to change. It is far easier to introduce condoms into a casual sexual encounter than into the committed relationship/marriage bed, where condoms are likely to be seen by many as an indication of infidelity. Given the opposition of some religions, a desire for children, and the difficulty experienced by some in using condoms, ensuring that condoms become a part of sexual life among populations at risk of sexual transmission of HIV is not easy. Nonetheless with community engagement in their promotion that is sensitive to the “target” population, some populations at risk have adopted and sustained the use of condoms – indeed as demonstrated in Australia before they were promoted by healthcare professionals [16].

Not only do people and communities respond to health promotion and HIV prevention information, they also respond to medical information, and in ways that may surprise some. Findings from studies of gay men in Australia demonstrate the ways in which gay men developed a number of risk reduction strategies over time in response to changing medical knowledge and HIV prevention programmes. These strategies include condom use [16], “negotiated safety” – unprotected sex within a known seroconcordant HIV negative regular relationship [33]; “poz-poz sex” – unprotected sex within a known seroconcordant HIV positive regular relationship [34] and the more widely applied strategy of serosorting [35]; “strategic positioning” – taking up the receptive or insertive position in sex depending on HIV status [36]; reliance on undetectable viral load [37]; and the use of non-occupational post-exposure prophylaxis (nPEP) [38]. Gay men also took up testing for sexually transmissible infections (STI) when it was advocated as part of the third, fourth and fifth National HIV/AIDS Strategies and later the first National STI Strategy [30].

With the exception of the last two, nPEP and STI treatment, all of the above strategies were developed by men in gay community on the basis of what they understood about HIV and its transmission and HIV medicine. In other words, HIV prevention interventions were not imposed from the outside, top-down, but rather communities responded to the risk that HIV posed to their community and its members and developed their own prevention strategies: strategies that were congruent with or, at least not at odds with, their gay lives. The response of gay community was supported by government and public health campaigns *followed* – typically informed by community input and social research as well as biomedical and epidemiological research. Effectiveness of HIV prevention programmes in Australia was and continues to be dependent largely on community mobilization, where communities, such as those established to respond on behalf of the gay community, are funded mainly by government. These community organizations enable gay men (and other

groups at risk of HIV infection) to develop their own risk reduction strategies as well as to respond to HIV prevention interventions in ways that resonate with their own lives. It seems likely that prevention is sustainable if it is developed by the community for the community. Furthermore, as outlined by Bowtell [29] and Mindel and Kippax [30], the bipartisan support of successive Australian governments, including the development of successive National AIDS Strategies, ensured that the built HIV prevention response was supported by and synergistic with what Schwartlander *et al.* [19] refer to as the objectives of the development sectors: the legal, education and health systems. That these community-based and largely peer-developed “interventions” or prevention programmes were effective has been demonstrated, although not by RCTs or indeed, by experimental methods [30]. Effectiveness has been demonstrated by declining HIV incidence typically preceded by declining levels of unsafe sexual practice among gay men that is monitored by yearly annual behavioural surveillance [39].

The effectiveness of the Australian community-led response has also been demonstrated by two comparative studies focusing on HIV incidence among gay men as an outcome measure in a number of European countries, the United States and Australia [40,41]. The conclusions were that Australia had the greatest reduction of annual HIV notification figures: 8.1% compared with the 2.9% in the USA, with the other countries falling between these two figures. Stall *et al.* [41] (p. 626) went on to say:

... expected prevalence rates in the Australian case are roughly half those calculated for US MSM by age 40. While such facile comparisons ignore important contextual variables that can drive HIV epidemics at different rates across societies, this difference is so stark that it raises the question of whether it is possible to construct HIV prevention programming and policy to yield far more successful results among gay male communities than have been obtained to date in the United States.

The above evidence of success indicates that HIV prevention is complex and is likely to be sustained when it is *of* society rather than imposed on it. Strategies that evolve from communities are particularly effective when they are supported by government and the wider society.

“Strong” evidence or valid evidence?

Here I return, briefly, to the issue of effectiveness and to the issue of evidence of effectiveness. I take issue with the recent *Lancet* editorial [6] and with all those who argue that the evidence for effectiveness must be based on experiment and preferably based on RCTs. It is not the case as the *Lancet* editorial states that there is poor evidence for programmes “such as behaviour change communications” compared with others (*Lancet* editorial, p. 1719) [6]. All prevention activities require changes in behaviour or practice – including treatment as prevention.

As I have argued elsewhere [42], although efficacy is typically and appropriately assessed using RCTs, it is difficult if not impossible to design externally valid assessments of

effectiveness using RCTs or experimental methods. It is a mistake to forego external validity for the sake of experimental precision. Social transformation is not amenable to experiment because effectiveness is the *contingent* outcome of the collective activity of a diverse range of actors both human and non-human, including the prevention technologies themselves; scientific practices; clinical services; cultural, political and social environments; and the norms, values, and discourses that animate human behaviour or practice [43]. As is evident from the Australian example, there is no simple one-to-one linear causal relationship between any “intervention” and the impact the intervention has at the population level *over time*. The prevention responses that emerged over time were local and particular, making it difficult to find counter-factuals and/or to sensibly assess their impact.

Nonetheless, valuable and valid evidence can be and has been provided as referenced above [25–31] in the form of both retrospective and ongoing monitoring studies, as well as rich “thick” descriptions of social processes: that is, a “responsive attentiveness as things play out – over time” [43]. Of particular note are studies that have used modelling/monitoring HIV incidence as well as sexual and drug use practices associated with HIV transmission in particular populations, in conjunction with describing the country’s response including its prevention programmes, and therefore identified the factors historically associated with the take-up of the prevention technologies and tools associated with changes in practice and changes in HIV incidence. The better the data, the social including ethnographic as well as the surveillance, the more accurate is the assessment of effectiveness. Such evidence has been provided for Uganda by Hallett *et al.* [17], for Zimbabwe by Hallett *et al.* [17], Gregson *et al.* [44] and Halperin *et al.* [45]. Data such as these enable researchers to identify the key factors to declining HIV transmission rates.

There is also similar evidence of effectiveness from a range of countries including Brazil and Thailand (Global HIV Prevention Working Group) [46–48] and from cities such as New York City, Rotterdam and Buenos Aires and sites in Central Asia [31]. Many of these studies offer rich accounts of the social and political processes involved in the collective shifts in social practices that preceded declining HIV incidence. For instance, the Ugandan studies [26–28] document the role of sexual networks and the ways in which Ugandans talked about HIV – not just between sexual partners, but between HIV negative and positive people, between generations and in public forums and spaces.

“Biomedical” prevention

While many of these newer “biomedical” technologies, such as oral PrEP and treatment as prevention, are not directly tied to the act of sex, thus giving them an advantage over microbicides and condoms, the use of which may interrupt sexual activity, they also need to be assessed for their effectiveness over time. It is not good enough to simply demonstrate efficacy [49]. I focus here on treatment as prevention.

As pointed out initially in the Swiss Consensus Statement [50] and later confirmed in the HPTN052 trial [51], treatment greatly reduces the likelihood of HIV transmission in heterosexual discordant couples, where “couples” refers to the sexual partners in regular committed relationships, by reducing the viral load to undetectable and stable levels. For discordant couples who meet the criteria as set out in the Swiss Consensus Statement and in the trial, these findings provide a rationale for unprotected sex – but within heterosexual discordant *couples*. However, these findings do not mean that “treatment as prevention” is an effective *population* strategy. While one study in British Columbia [52] provides some evidence indicating that the treatment of injection drug users is related to a slowing of the HIV epidemic in that population, other studies have not shown the same relationship [53]. It is likely that the very strict conditions of the model [54] postulating that highly active antiretroviral therapy (HAART) uptake leads to a reduction of HIV incidence cannot be met under most real world conditions [55–57].

From a social researcher’s perspective, there are a large number of “real world” conditions that need to be addressed before we can embrace this strategy as a population strategy [58]. As argued by Kippax and Stephenson [58] and others [59–61], the challenges to *effectiveness* of “treatment as prevention” include the cost of treatment and its provision; increases in stigma and discrimination in the face of frequent and regular testing; drug resistance problems if treatment adherence is limited; an absence of unintended consequences of risk compensation; and broader social and political impacts. The last of these is particularly important: how are those who advocate treatment as prevention going to convince governments and countries not to put all their HIV funding into treatment? This question is particularly pertinent given the *Lancet* editorial [6] (p. 1719) which stated:

Agencies such as President’s Emergency Plan for AIDS Relief and the Global Fund to Fight AIDS, Tuberculosis and Malaria need to reassess their prevention portfolios and consider diverting funds from programmes with poor evidence (such as behavioural change communication) to treatment for prevention.

This is a strange and misleading distinction, given “treatment as prevention” itself relies on sustained changes in people’s practice.

A social public health

There is clearly a pressing need to render the social expressible in practice. Only then can all researchers begin to: (1) understand how the medium of the social works for and against HIV prevention; (2) design HIV prevention programmes or interventions that engage with the terrain in which they operate; and (3) make externally valid assessments of their effectiveness using methods that can deal with rather than gloss over the essentially contingent nature of effective prevention. These are jobs for social and political scientists – ethnographers, sociologists, anthropologists and political scientists, whose academic disciplines

inform their understanding of the cultural, political and social worlds, in which people engage in sexual and drug injection practices.

Before I conclude I want to dwell further on the need to ensure that HIV prevention efforts are better informed by the social and political sciences. Engaging with the social and political is not simply a matter of including “structural determinants” or “social drivers” if these are understood as separate from the “individual”. It is not enough to position relationships between these domains, as is often done in health promotion textbooks, as series of concentric circles with structural/environmental/political factors in the outer rings, some notion of community, groups or institutions towards the middle and individuals at the centre.

Such public health models render the social practically inexpressible by acknowledging the social *without interrogating* it. Firstly, by placing the individual decision maker at their centre we can see how they are essentially individualistic models. They rely on notions of neo-liberal rational subjects who, it is assumed, follow public health advice (which is often delivered in the clinic) unless the “social barriers” incapacitate these otherwise rational (but vulnerable) actors. Secondly, they either do not seek to explain the relationship between the different “levels”, or they employ arrows to gesture towards an explanation without actually comprehending or offering one. For social and political scientists, such arrows are better represented as question marks, question marks that *initiate* detailed social research. Such public health models support the idea that clinicians are well positioned to bring about HIV prevention by counselling the “patient” – if he/she is rational and able to act (i.e. is not incapacitated or made vulnerable by some social barrier). In contrast, a social public health engages with the social contexts, to enable communities and hence individuals to act in order to achieve declines in HIV incidence.

The social approach I have described in this paper leads us to “social public health” rather than older forms of public health. The locus of change is not individuals but the social and political medium that enables collective action: it is this medium that is essential to the success of interventions [58,62]. A social approach recognizes that individual capacities are intimately tied to the enabling (or disabling) character of social norms, practices and institutions, which are, in turn, understood to be modified by community mobilization and social movements. In place of focusing on either individuals or social structures as the locus of change, the focus is now on communities or collectives as agents of change and on the relationships between the actions of community members and the resultant changing social norms and social practices that, in turn, regulate the actions of community members.

A feasible hypothesis is that the greatest social barrier to effective HIV prevention is the steadfast belief, held by many biomedically trained professionals in public health, that the patient is a neo-liberal rational actor or agent, *an individual*, who will act after being counselled and tested. It is pertinent to note here that in some of the countries where there is documented evidence of declining HIV incidence – among gay men in Australia [30], injections drug users in New York

City [31] and heterosexuals in Uganda [28] and Zimbabwe [45] – the declines cannot be accounted for in terms of interventions such as counselling and testing; the declines happened before voluntary counselling and testing (VCT) was rolled out. While counselling is important it plays a small part in prevention and at best reinforces the wider community HIV-prevention messages.

People’s capacity to act lies in their connectedness to others. The evidence referred to above indicates that community mobilization, if not essential, for social transformation, is extremely important. It is through community activity and advocacy that norms change. HIV prevention is a matter of enabling communities, and *indirectly* their individual members, to develop HIV risk reduction strategies by adopting HIV prevention technologies and changing their sexual and injection practices. Such changes are likely to be slow and patchy, and there is no one factor likely to account for such change (as compared with the biomedical approach to knowledge where success or failure is typically attributed to the efficacy of the technology involved). Rich, in the sense of detailed, retrospective evidence of successful HIV prevention to date tells us that it typically involves the following: government provision of HIV prevention tools and public support; health promotion programmes that are informed by social, epidemiological and biomedical research; funding of and support for community-informed, if not community-led, prevention programmes that promote public debate and talk. Low-Beer [63] came to similar conclusions in 2004 when he describes how HIV prevention was highly successful in a number of countries by mobilising social and political capital.

Conclusions

Effective prevention entails developing community capacity and requires that public health addresses people not only as individuals but also as connected members of groups, networks and collectives who interact (talk, negotiate, have sex, use drugs, etc.) together. Researching HIV prevention demands that we all (biomedical and social/political scientists) avoid invoking a nature/culture distinction that supposedly separates prevention technologies from the humans whose lives are affected by HIV [64]. Nor should we distinguish between prevention strategies that “work” because they are biomedical and those that do not because they require “behaviour change”. All prevention requires that people change their social practices, changes which cannot be effectively sustained unless they are supported by broader social transformation.

Social and biomedical scientists can best contribute to understanding prevention in the real world by engaging with HIV and efforts to prevent it as they are encountered in life – as biological and material; as information and technological; as emotional and affective; as social; collective; and institutional.

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Competing interests

SK has no competing interest to declare.

Author's contributions

SK conceived and wrote this manuscript. She approved the final version.

Abbreviations

HAART, highly active antiretroviral therapy; nPEP, non occupational post exposure prophylaxis; PrEP, pre-exposure prophylaxis; RCTs, randomized controlled trials; STI, sexually transmissible infections; VCT, voluntary counselling and testing

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