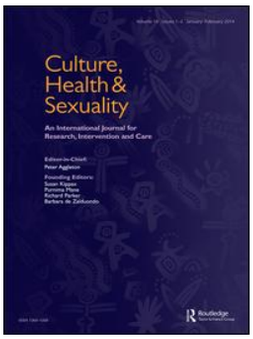

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# Pre-exposure prophylaxis for HIV in Brazil: hopes and moral panic in the social construction of a biomedical technology

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**ABSTRACT**

This paper addresses the role emotions play in the social assemblage of medicines and technical processes in the response to the HIV called pre-exposure prophylaxis (PrEP) for HIV. We describe a series of stages and processes in the social construction of PrEP in Brazil from the run-up to the launch of the initiative by the Ministry of Health to the subsequent implementation of the strategy by public health services. To understand the meanings and symbolism assigned to this biomedical technology, we examined the hopes underpinning scientific, government and non-governmental narratives, clinical processes and health policy. The social trajectory of PrEP was influenced not only by these hopes but also by fears and concerns about the impact of this approach to HIV prevention on lifestyles and modes of sexual governance. The evidence used in this study comes from interviews with health professionals and AIDS activists, anthropological fieldwork, scientific articles and documentary analysis. Our findings provide important insights into how emotions have shaped the meanings assigned to PrEP and shed light on the complex game of negotiation involved in defining responses to the HIV epidemic.

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## Introduction

In the introduction to their book, *Les technologies de l'espoir: la fabrique d'une histoire à accomplir*, the anthropologist Annete Leibing and the biologist and political scientist Virginie Tournay argue that there is a need for a specific analytical framework to understand so-called technologies of hope. Given the diversity of histories concerning the relationship between human activity and technological artifacts, the authors invite readers to look closely at the circumstances and mechanisms through which different parts of society engage with the potential therapeutic virtues of contemporary biotechnologies. As they point out that the term technologies of hope covers a broad spectrum of medical procedures and artefacts presented by their proponents as tools to preserve or extend life. We would add a further dimension of these

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technologies –hat of enhancement through the promise to enhance or restore certain capacities of the body with the aim of improving life, even in the absence of illness. The symbolisms associated with these technologies are organised around these promises and have the power to rally an extensive network of agents dedicated to promoting them or interested in using them.

The authors' analytical approach encourages historical inquiry into these technologies which, given their fundamental characteristics, require social scientists to examine the institutions and practices involved in their manufacture on the one hand, and the wants and desires of the publics shaped by and around these socio-technical objects on the other. Here, we highlight the postulates of the social studies of science and technology which suggests that technologies and their policy frameworks are mutually constructed. According to Leibing and Tournay (2010), the manifestations of hopes and convictions related to biotechnology are commonly seen either as the expressions of individual subjectivities or, alternatively, they may be linked to intrinsic properties of the substances to which they relate. The authors offer an analytical alternative to understanding these manifestations by examining the interrelationships between the constitution of material assemblages (*agencement*) of biotechnologies and the modelling of the subjectivities they can promote.

Other analyses within the field of contemporary biopolitics have focused on hope as a category of analysis. An example can be found in the sociologist Carlos Novas' (2006) discussion of the role that activism and the mobilisation of patients' organisations have played in defining biomedical research. In an attempt to characterise the salient features of this type of activism, the author uses the expression 'political economy of hope.' In Novas' account, hope extends beyond the aspirations of people living with pathologies or at risk of becoming ill. Hope has a political and economic materiality. One example of this can be found in the way patients' groups have organised themselves to raise funds for the development of research on rare diseases neglected by mainstreambiomedical science agendas.

In dialogue with these analytical perspectives, we understand hope as an emotion that joins with other heterogeneous elements in the sociotechnical processes that fabricate and give a social place to biomedical technologies. Hope, like other emotions, is an important agent within such processes. Such an emotion has a political dimension that requires analysis as part of the assemblage that makes up a 'hopeful' biotechnology. We will use these reflections to examine some of the meanings assigned to pre-exposure prophylaxis (PrEP) for HIV in Brazil. PrEP is a clinical prevention strategy based on the use of antiretroviral drugs to prevent infection by HIV. In Brazil, PrEP is strongly recommended for use by gay and other men and men who have sex with men, *travestis*[1] and transgender women, sex workers, and HIV serodiscordant couples.[2] Approved in the USA in 2012, PrEP garnered our attention because of the prominent position it quickly assumed in the institutional response to AIDS and in individual narratives of HIV prevention, not only in high income countries, but also in low and middle income countries like Brazil.

In the run up to the launch of PrEP by Brazil's public health system in December 2017 and throughout its implementation, the scientific narratives produced by international and government agencies, community leaders and health professionals

evoked a diverse range of emotions. On the one hand, messages of hope spread rapidly, especially concerning the control of the epidemic and positive implications for the lives of those uninfected and those already living with HIV. On the other hand, as observed in other countries, PrEP raised moral concerns related to self-care and sexual practice, for example the possible abandonment of condom use, and the potential increase in other sexually transmitted infections (IST). Given the universal character of the health system in Brazil, the use of government funds for the acquisition and distribution of drugs related to individuals' sex lives was questioned in public debate.

The history of PrEP shows that health and sexuality are two defining parts of this particular biomedical technology. In this respect, a range of different social actors have raised concerns about its inclusion in the suite of responses to the HIV epidemic. By documenting some of the milestone events in PrEP's social trajectory in Brazil, it is possible to observe how hope and fear have accompanied the social construction of PrEP, constituting what Biehl (2007) has called the political economy of pharmaceuticals. In the case of PrEP, identifying events related to the production, distribution and consumption of this particular health technology provides an opportunity to examine how diverse institutional interests, collective needs and individual desires interact with expectations of life maximisation or threat to moral order.

The following reflections derive from a study that sought to recognise that pharmaceuticals have a 'social life,' primarily due to the existence of political factors that bind the circulation of these drugs to their economic and social value (Van der Geest et al. 1996; Manica 2012).

## PrEP and the biomedicalisation the AIDS response: some theoretical observations

PrEP symbolises recent transformations in the realm of global AIDS policy, reshaping responses to the epidemic with a focus on biomedical technology. The implications of this transformation have drawn significant academic interest (Clarke et al. 2003; Biehl 2007; Nguyen et al. 2011; Aggleton and Parker 2015; Kenworthy, Thomann, Parker 2018; Monteiro et al. 2019). Despite different conceptual approaches (remedicalisation, biomedicalisation and pharmaceuticalisation), these analyses emphasise that, by focusing on biomedical HIV prevention methods, current policies give rise to often intense negotiations and the formation of alliances. Another effect of the emphasis given to biomedical methods has been the reorganisation of institutional practices, health services and self-care when it comes to health and sex life. As Rabinow and Rose (2006) assert, truth discourses concerning the 'vital' character of living human beings hybridise biological and demographic and even sociological styles of thought, giving rise to a new language of susceptibility. Our analysis departs from the premise that emotions – not just hope, but also fear – play an important role in this process.

One of the most emblematic events in current responses to the HIV epidemic showing how hope has contributed to the modulation of biomedical responses was the launch of the document *90-90-90 An Ambitious Treatment Target to Help End the AIDS Epidemic* (UNAIDS 2014). As its title suggests, this publication set a bold and highly desirable target: namely, the end of the AIDS epidemic by 2030. However,

discourse around the End of AIDS remains a terrain of social contestation (Kenworthy, Thomann, Parker 2018).

With a tone of optimism and supported by findings from clinical trials showing the impact of new biomedical technologies on HIV prevention, the UNAIDS publication states that the 90-90-90 target is not only the fulfilment of a historic obligation to the millions of people who have died from AIDS, but also an opportunity to create a healthier and more just world for future generations. Using expressions such as the need to 'close the book on the AIDS epidemic' and develop 'a new narrative on HIV treatment' and informed by a strategy called 'treatment as prevention' (TasP), the report outlines its main targets to progressively reducing the proportion of new infections until the eventual eradication of the disease in 2030. Based on a series of biomedical actions (diagnosis and drug therapy) and the consolidation of global solidarity and multilateral partnerships, the UNAIDS report promised both health and economic gains.

Despite the fact that global targets for 2020 were not met, UNAIDS established a set of even bolder targets for 2025. The focus remained on reducing annual HIV infection rates and deaths, and the new targets followed the same structure as the 90-90-90 targets, but increased the rates to 95%. More specific targets aimed at reducing inequality and reaching populations that had been 'left behind' by previous efforts. In scaling up TasP, the following targets were set for the next five years:

> '95% of people at risk of HIV use combination prevention; 95% of women access sexual and reproductive health services; 95% coverage of services for eliminating vertical transmission; 90% of people living with HIV receive preventive treatment for tuberculosis; and 90% of people living with HIV and people at risk are linked to other integrated health services.' (UNAIDS 2021, 15).

A narrative of hope persists throughout the 2021 publication, where we read,

> 'There is hope. The solutions exist. 40 years of experience in the HIV response has provided the evidence of what works. Some countries have reached control of their AIDS epidemics. We know how to end AIDS, and this is the Strategy to get us there. End Inequalities. End AIDS. Global AIDS Strategy 2021–2026 is a bold new approach to use an inequalities lens to close the gaps that are preventing progress towards ending AIDS. The Global AIDS Strategy aims to reduce the inequalities that drive the AIDS epidemic and prioritise people who are not yet accessing life-saving HIV services.' (UNAIDS 2021, 4).

As can be seen, 'hope' is a category explicitly used in the comments about the benefits of PrEP.

A common feature of biomedical strategies such as TasP is the removal of the earlier distinction between treatment and prevention. Indeed, one characteristic of this approach is that future HIV prevention actions are to be informed by the principles, resources and settings associated with clinical treatment. In this sense, neither PrEP nor post-exposure prophylaxis (PEP)[3] are exactly new technologies. Both methods involve the use of antiretroviral (ARV) medications for the purposes of prevention. Their novelty lies in the broadening of target audiences and the objectives underpinning the use of these drugs (Oscar 2019). According to received scientific discourse, the enthusiasm surrounding the preventive use of ARVs was prompted by evidence showing that the early use of these drugs prevents both disease progression and the vertical transmission of HIV. PrEP is therefore simply an extension of these promises.

The discourse promising an end to AIDS reflect biomedical triumphalism in the HIV response, facilitated by short-term, cost-effective interventions that derive from technological advance, and is part of a larger trend in global health, (Kenworthy, Thomann, Parker 2018). However, it is also important to consider how the hopes that helped to forge and promote PrEP intersect with the trend towards the progressive biomedicalisation of sexuality. One aspect of this intersection can be seen in the fact that the focus of prevention is no longer one of changing sexual behaviour by enhancing subjective awareness of sexual conduct, but rather one of shaping health behaviour through the use of drugs and other medical forms of intervention (Giami and Perrey 2012).[4]

## Methodology

The material analysed here comes from a larger study[5] involving documentary research, fieldwork and interviews with public health managers and professionals, activists, and PrEP users and non-users conducted in different municipalities in the state of Rio de Janeiro. The study was undertaken between January 2019 and February 2020 before the COVID-19 pandemic. For this article we analyse peer reviewed articles, government guidance, technical guidance notes, clinical protocols, publicity materials, NGO bulletins, international guidelines, media reports, and public body press office releases. This corpus was selected due to its potential to indicate the complexity of the social process of PrEP implementation in Brazil. We also relied on field observations carried out at an HIV prevention event held in the city of Rio de Janeiro days just before the official launch of PrEP in Brazil. Drawing on this empirical material, we sought to understand the configuration of institutional discourses and decision making regarding the biomedical method and the importance of different emotions in the complex game of negotiation involved in developing a new programmatic response to the HIV epidemic.

## Findings and discussion

### *Prevention in a pill and the promises of pleasure*

The hopeful tone surrounding PrEP in official UNAIDS (2015, 2016) and WHO (2012, 2015, 2019) publications is inseparable from the presentation of findings from studies and clinical trials, which were touted as justification for including PrEP as part of global HIV prevention policy and making it available through public health systems. Importantly, the aforementioned publications say little about studies to find a vaccine or efforts to identify a cure for AIDS. Instead, the hegemonic narrative of international agencies and experts consistently cites evidence from clinical trials showing that ARVs prevent the transmission of HIV.

The results of the studies mentioned in the WHO and UNAIDS guidelines confirm that PrEP should be used in a targeted manner by people at higher risk of HIV infection, particularly those who are less able to consistently use other prevention methods such as condoms. Study participants to date have tended to be so-called men who have sex with men, transgender women and serodiscordant heterosexual couples. The

research has largely been concerned with demonstrating the efficacy of PrEP and the high level of acceptance by these groups.

It is worth noting other hopes that emerged from the findings of clinical trials. One of these was that PrEP might provide an alternative to people who do not have the skills or ability to negotiate condom use. It is claimed that one of the potential benefits of taking the drugs is that users can regain control over their body and adverse situations during sex. The promise here is one of empowerment in the face of vulnerability. PrEP is also said to reduce the fear and stigma surrounding HIV serodiscordant relationships. Some clinical articles suggest that taking PrEP can ensure safer reproduction for serodiscordant couples (Matthews et al. 2012; Savasi et al. 2013).

A common thread in enthusiastic PrEP narratives is reference to the encouraging results of clinical efficacy trials. Although initially some of these efficacy studies proved controversial and there remain questions concerning the feasibility of implementing PrEP (Cáceres et al. 2015), international guidelines and Brazilian clinical protocols stress the positive aspects of the research results. The power of PrEP to prevent HIV transmission is also stressed by publications from non-governmental organisations[6] and gay men YouTubers,[7] contributing to the promotion of this particular prevention strategy. The mainstream media, including newspapers and magazines, has also give visibility to research findings, propelling hope and fears into public debate.[8] It is noteworthy that the publicity surrounding PrEP in Brazil, which started years before the medications became available, played a key role in recruiting volunteers for clinical trials. Indeed, gay men, *travestis* and transgender women in cities across the country had been taking part in pioneering multicentre research such as the iPrEx trial since 2008.[9]

In addition to being presented as an effective prevention option, another promise of PrEP was that it is feasible for governments to pay for and supply, considering the relatively cost per person of continuing treatment and a focus on so-called key populations, topics repeatedly highlighted in international guidelines and peer-reviewed articles. To complement clinical trials, cost-benefit studies have been undertaken, evaluating the incorporation of PrEP into national HIV programmes and showing that the use of the strategy produces major gains.

However, the hopes woven around PrEP have not been built exclusively on the promise of HIV prevention. Some of them allude to new ways of enjoying sex and sexuality. For some enthusiasts, PrEP heralded the revival of a sexual freedom experienced before the emergence of AIDS, permitting the exercise of sexuality without the awkwardness of using a condom and fear of HIV infection. We found this expectation around PrEP in interviewed activists and health professionals' discourse. The idea of sexual freedom was also found in media reports, although sometimes as an object of concern.

The vigorous defence of PrEP during the plenary session of a seminar on the Social and Political Dimensions of Prevention – organised by the Brazilian Interdisciplinary AIDS Association (ABIA) in Rio de Janeiro in 2017 on the eve of the official launch of the strategy by the Ministry of Health on 1 December, World AIDS Day – provides a particularly illustrative case. We were there, carrying out fieldwork observations. At the end of the presentations and in a round table on the strengths and limitations of new

biomedical strategies, a prominent researcher involved in PrEP studies asked to speak. In front of an audience comprising researchers in public health, social sciences and the humanities, activists, students and health professionals, he claimed emphatically that PrEP had a potentially liberating effect when it came to sexuality. He drew an analogy between the potential impact of PrEP and the revolutionary impact of oral contraceptives on sexual practice in the 1960s. This comparison would later be taken up in the narratives of journalists, activists and government websites.[10] Just as contraceptives contributed to the separation of sexual pleasure from an unwanted pregnancy, resulting in more carefree and more pleasurable sex, PrEP would have similar effects, driving the ghost of AIDS out of the bed. PrEP would help enable sexual emancipation for those people who for years had had their sexual expression suppressed by the risk of HIV infection.

### *Prevention in the form of a pill and the fears of danger*

While much of the hope invested in PrEP concerned changes in sexual practices, narratives about PrEP sparked other feelings. Contested moralities surrounding sex came into play in negotiations over its incorporation into health policy. On the one hand, PrEP was presented as a promise of pleasure free from the constraints caused by the fear of becoming ill, coupled with the promise to end AIDS. On the other hand, however, it triggered the alarm of moral panic, in the sense originally intended by Cohen (1972), as a means of targeting individuals whose sexuality has long been the object of constant moral scrutiny. As we argue below, the consolidation of this particular biomedical technology in Brazil gave rise to concurrent narratives of hope of protection and enhancement of life on the one hand, and fear and distrust on the other.[11]

Below we present some examples of moral panic from Brazil with the proviso that similar concerns have been evidenced in countries such as the USA (Bastos and Ventura 2017) and Australia (Race 2018). The provision of PrEP as part of the Brazilian *Sistema Único de Saúde* (Unified Health System) underwent an initial assessment by the National Commission for the Incorporation of Technologies (CONITEC). Under CONITEC's standard procedures, the assessment of PrEP involved a series of meetings, expert consultations, literature reviews and public hearings. The assessment requirements included verification of the efficacy and efficiency of the treatment based on available scientific evidence, including biosafety and economic feasibility. According to one of the community leaders interviewed in our study, morality permeated much of the Commission's debate insofar as the use of PrEP was bound up with potentially problematic sexual practices that were condemned from a moral perspective. These included the sexual practices of gay men, travestis and transgender women, and sex workers. According to the interviewee, although civil society representatives and clinical researchers wanted to approve PrEP, the discussion required intense negotiation. Eventually, the use of PrEP as a health technology to be distributed free and universally through the Brazilian Unified Health System,[12] was approved. However, along the way concerns were raised about the potential reduction of funding for the universal distribution of antiretroviral treatment and the increased burden on health services. In addition, some committee participants asked whether PrEP might become a 'drug that

allowed gay men have sex at will' and 'After all, if there are condoms, what's the point of this drug?.'

These concerns were in step with some media reports. While the mainstream media had highlighted the promising results of clinical trials and extolled the virtue of providing the medication through the Unified Health System, one of the hardest hitting articles at the time focused on exactly the opposite. In an issue published on 29 March 2018, five months after the drug began to be available, the national magazine *Época* featured a picture of a PrEP pill on the front cover against a grey background with the headline 'The other blue pill. The new drug that is making gay men abandon the safety of the condom.' According to the article, which was published in the magazine's health section, the drug was changing patterns of sexual behaviour and condom use, leading to a spike in rates of others STIs. The report claimed that PrEP was leading to a rise in sexual promiscuity. Scenes of gay men in public spaces such as bars and clubs were presented in detail, with a focus on promiscuity and community contempt of condoms. The consequences of this 'uncontrolled sexuality' were revealed by data showing an increase in the reported cases of syphilis in the country. The article suggested that young people were the most affected, heightening the drama surrounding the dangers of PrEP. The words 'The other blue pill' sought to present PrEP as a 'drug for sex' via the link to Viagra, which was also blue. The promise of pleasure heralded by PrEP was therefore imbued with danger, as was suggested by the Brazilian media's coverage of Viagra towards the end of the 1990s which had then portrayed the pill as a libido-boosting drug associated with a number of problems, including adultery (Brigeiro and Maksud 2009).

The article prompted a strong public reaction. Readers and a diverse range of representatives from research centres, NGOs working on AIDS, and LGBT rights organisations, criticised the article, writing directly to the magazine and expressing themselves on social media. The fallout from the story lasted several days and the scandalised stance taken by the magazine was defeated in public debate. As is typical of public controversy, this case illustrated the existence of a diverse range of opinions about the topic. Parties from both sides learned lessons from this event. In response to accusations of homophobia and distortion of the benefits of the method, the magazine published a retraction in the next edition. PrEP defenders, especially researchers and health service managers, realised that future publicity would need to be more strategic so as not to generate new controversy.

With the advent of the Bolsonaro government in 2019, existing tensions in the process of incorporating PrEP into the Unified Health System became even more complex. Before taking up the post of Health Minister in the new government, the politician and doctor Luiz Henrique Mandetta showed his discontent with existing approaches to HIV prevention and declared that strategies that did not 'offend' families were needed. The statement was triggered by a booklet from the Ministry of Health providing guidance for trans men on how to take care of their sexual health, while also alluding to prevention policies targeting other sexually discriminated against groups. Over the coming months, the media did not forget Mandetta's public take on the booklet, demonstrating the level of sensitivity to the moralising tone adopted by the government's approach to aspects of sexuality in the HIV response. At the time,

the Bolsonaro government was seeking to bolster its image by promoting a conservative agenda with a focus on traditional morality, both in its political decisions and its press releases. On 27 May 2019, in one of Mandetta's first TV interviews as health minister on TV Cultura's current affairs program *Programa Roda Viva*, the topic of HIV prevention was raised. It is important to highlight that the programme was broadcast 10 days after the publication of a presidential decree reshaping the Ministry of Health and closing the *Departamento de DST, Aids e Hepatites Virais* (Department of STD/AIDS and Viral Hepatitis), transferring responsibility for HIV to the Department of Chronic Diseases and ISTs (DDCCI). The new decree also closed the Department's press office, which hitherto had been responsible for information dissemination and campaigns, contributing to a loss of visibility and recognition of government prevention actions.

During the programme, one of the interviewers, a reporter from the newspaper *O Estado de São Paulo*, asked the minister about the Government's approach to prevention in the light of the moralising stance on sexuality taken by the President and members of the Government. The reporter enquired what forms of prevention were envisaged for young gay men, considering the verbal attacks recently made by the Brazilian President on this group. He cited Mandetta's earlier statement about the danger of prevention campaigns offending families and asked what was meant by that statement. The following was the response:

> Condom use is falling in Brazil and around the world. The number of HIV cases is rising and the number of AIDS cases is falling. The decrease has a lot to do with the use of antiretrovirals. What I mean is that *we need a campaign, communication, directed at inappropriate sexual behaviour*, which leads not only to AIDS but also to extremely high syphilis numbers in Brazil; it's leading to the appearance of [new] gonorrhoea strains, of drug-resistant gonorrhoea, which is a global problem (…). And there is nothing we can do about it, and we already have situations like this. So *we need to work better with communication, without being offensive [. by being .] very focused on those who have that behaviour… regardless of whether they are homosexual or heterosexual, of their… of their… sexual preference, but clearly having a behaviour that does not pose a risk of transmission…* focus strongly on insisting on prevention policies; *ensure that all medicines are guaranteed… Brazil has a very good chemical arsenal, including PrEP, which continues to be provided… but there's no point saying that I'm going to give you a medicine so you can have a behaviour that is completely irresponsible with your body and partners* (…) We need to be very clear in our communication, focusing much more on behaviour, a behaviour [conducive to] quality of life, self-respect above all, so that [person] can then exercise their sexuality… And the government, neither the President nor the Health Minister, does not label this, that or the other (our emphasis).[13]

The ambiguities present in Mandetta's statements reflect an effort to demonstrate the Brazilian government's commitment to international HIV prevention policies, simultaneous with the Bolsonaro government's desire to adhere to a conservative political agenda. To achieve this goal, it was necessary to publicly reiterate that there would be no interruption to the distribution of PrEP, in line with the work done by the Ministry of Health's previous HIV and AIDS team, including contracts for drug supply. As a medical doctor, Mandetta needed to show his control over the subject. However, as a part of the Bolsonaro government, he also needed to justify that his alignment with new prevention strategies did not mean he was supportive of 'morally inappropriate behaviour.'

In short, two different imperatives were simultaneously at work. On the one hand, there was alignment with international policy frameworks and associated institutional agreements and partnerships, including with funders, the pharmaceutical industry and research centres. On the other hand, there was a need to control the public dissemination of new HIV prevention strategies amidst the increasing force of conservative voices averse to policies that alluded to sexual emancipation. The eventual outcome of this tension can be seen in the dearth of communication and promotional materials about PEP and PrEP to be observed during our fieldwork in health centres and described by the health professionals interviewed. This suggests a serious lack of government investment in the dissemination of these prevention technologies.

Within this relatively 'silent' context, we have sought to understand how concerns surrounding PrEP were dealt with by those interested in the legitimation of the strategy. One of the key concerns underlying criticism of PrEP was the risk that it might undermine the deep-rooted norm of condom use by key populations in Brazil, created by a shared effort over several decades and intimately bound to sexual rights. To counter this suggestion, in international agency documents and in Brazilian Ministry of Health guidelines it is argued that this was a misconception given that PrEP was targeted at people who already had problems with condom use. In the guidelines and protocols issued by Brazil's Ministry of Health, for example, PrEP as presented as a 'complementary' approach to HIV prevention, emphasising that it is not the sole method and that its use is not an alternative to condoms, which guaranteed protection against other STIs. With PrEP being recommended in combination with condoms is based on health grounds, one of the effects of this approach was to ease moral concerns that the use of the drug might lead to a rise in sexual promiscuity and unprotected sex.

In addition, the guidelines reiterated that the drug was particularly indicated for individuals who have problems with the consistent use of condoms, and addressed concerns that the cost of PrEP could jeopardise investment in other HIV prevention and treatment methods. They also outline the agreements and efforts made to make PrEP affordable to the public healthcare system and emphasised that the method was only indicated for the small proportion of the population that is at greatest risk of infection. A similar financial rhetoric was deployed to respond to initial concerns that PrEP would be made mandatory for certain groups such as sex workers, or that the provision of this new treatment could be used as a justification to discontinue other prevention approaches such as harm reduction and tackling the structural factors that led to vulnerability. UNAIDS and WHO guidelines maintained that the cost of PrEP was not low enough to make it a mandatory or a preferential method in all countries.

## Conclusions

Emotions have clearly played a prominent role in the social construction of meanings of HIV and responses to the epidemic. When AIDS was first identified in 1981, a series of concerns reverberated through the communities most affected and through society as a whole (Treichler 1987). These fears resurrected the spectre of an cataclysmic

epidemic that threatened the world as a whole, giving rise to moral panic, stigma and sexual discrimination, and providing a new dimension to the enthusiasm surrounding medical advance at the time (Herzlich and Pierret 1992). In this article, we argue that emotions continue to compete in the construction of HIV and AIDS as social phenomena.

In recent years, we have been studying the social assemblage of technologies and socio-technical processes employed to curb the transmission of HIV. We have observed that PrEP, just like PEP and regular HIV testing, has fomented the creation of new meanings in the HIV epidemic. A suite of specific emotions has played a key role in creating these meanings, not only assigning a particular type of intelligibility to the epidemic, but also shaping social sensitivity surrounding it. Both the hopes raised by biomedical technologies and the fears they have triggered have steered the production of knowledge and the development of prevention programmes. These hopes and fears operate not only as language in the narratives of AIDS, but also as an organising system for the management of bodies and collective actions.

The case of PrEP has parallels with the concerns raised in other social studies of science and technology regarding the social life of pharmaceuticals (Loe 2001; Fishman 2004; Hartley 2006; Montgomery 2012;). As we have argued, the meanings assigned to PrEP extend beyond its efficacy or specific properties. The proposition, legitimation and use of this socio-technical object encompassed a set of expected goals and future scenarios. The agency of this strategy resided precisely in its capacity to mobilise diffuse movements in the pursuit of improved well-being and quality of life, striking a delicate balance between the maintenance and transformation of social standards and norms. Our analysis of the trajectory of PrEP offers important insights into how biomedical technologies are sustained both by the deployment of hopes of protection and enhancement of life, and concerns about the unforeseen and potentially adverse consequences of the use of such technologies.

As we have argued here, the association between the advent of PrEP and its potential to facilitate certain forms of sexual freedoms aroused ambivalent emotions. On the one hand, there were expectations that its use might allow the exercise of a sexuality free from the constraints generated by concern for HIV. On the other hand, there were fears that PrEP might promote unprotected sexual practices and that government support for this particular health technology represented a public defence of behaviours that clash with conservative sexual morality. These different interpretations of the same potential of PrEP are profoundly interrelated. Hopes of pleasure and fears of danger can even come from the same source, especially when PrEP's potential for sexual freedom is at stake. The process of implementation of PrEP in Brazil demonstrates how issues related to sexuality can make understanding of the strength of hope that is mobilised in some biomedical technologies in contemporary life more complex.

## Notes

1. Although the expression *mulher trans* (transgender woman), or simply *trans*, has gained popularity over the last two decades, especially among younger and more educated individuals, the term *travesti* remains in current vocabulary. It has been used by many

transgender females as a category of self-identification, including as a means of political affirmation. Furthermore, it may be found in the official documents of governmental and non-governmental organisations.

2. Definitions of PrEP vary and make reference to a range of ways of using antiretroviral drugs for the prevention of HIV. In Brazil, PrEP consists of a daily fixed-dose combination of 300 mg tenofovir disoproxil fumarate and 200 mg emtricitabine (TDF/FTC) taken in the form of a pill called Truvada®.
3. PEP involves the use of antiretroviral drugs to prevent infection soon after a possible exposure to HIV at work (e.g. by health professionals) or through sexual contact (unprotected sex or sexual violence). PEP must be started within 72 hours after possible exposure and continued for 28 days.
4. In this article, we do not address how PrEP connects and, at the same time, shapes the subjectivity of its users. For some interesting reflections on this topic, see Preciado (2015).
5. This study was called Biomedicalização da Resposta à AIDS: O acesso de gays, mulheres trans/travestis e prostitutas às profilaxias pré e pós exposição na região metropolitana do Rio de Janeiro. Using a social studies of science and technology approach, the study examined the implementation of PrEP and PEP in health services, focusing on the gender, sexual and class morality imbued in the social construction of these health technologies. The work was funded by the Fiocruz INOVA Knowledge Generation Program (2019–2020), approved by the institution's research ethics committee (N° 45267315.9.0000.5248), and conducted in accordance with the approval.
6. See, for example, http://giv.org.br/publicacoes/Boletim-Vacinas/index.html
7. https://www.youtube.com/c/PoeNaRoda/search?query=PrEP
8. https://www1.folha.uol.com.br/equilibrioesaude/2016/07/1794350-europa-da-sinal-verde-a-tratamento-preventivo-da-aids.shtml
   https://g1.globo.com/bemestar/noticia/2013/07/estudo-avaliara-adocao-de-uso-preventivo-de-pilula-anti-hiv-no-pais.html
   https://veja.abril.com.br/saude/prep-uma-revolucao-no-combate-ao-hiv/
   https://epoca.oglobo.globo.com/vida/noticia/2014/09/um-comprimido-para-bprevenir-aidsb.html
9. The iPrEx trial was the first large-scale trial to show the efficacy and safety of a daily fixed-dose combination of two antiretroviral drugs (later known by the brand name Truvada) for preventing HIV infection among MSMs and *travestis*/transgender women. The trial started in 2007 in research centres in Peru and Ecuador and was extended to Brazil, Thailand, South Africa and the USA in 2008. It received funding from the US National Institute of Health and the Bill and Melinda Gates Foundation. The medicines used in the trials were donated by the Gilead Sciences. The preliminary findings were widely disseminated by the US media.
10. https://veja.abril.com.br/videos/em-pauta/prep-o-anticoncepcional-do-hiv/
    https://www.prefeitura.sp.gov.br/cidade/secretarias/saude/noticias/?p=270004
11. Other authors have already addressed the relationship between PrEP use, condom use, and STI prevalence (Holt et al. 2019; Torres-Cruz and Suárez-Díaz 2020).
12. The Unified Health System was created in 1989 and is the largest non-discriminatory government-run public health care system. It provides free, universal access to medical care to anyone legally living in the country. Paim et al. 2011)
13. https://www.youtube.com/watch?v=O02qhzamw84, accessed on 13 April 2020.

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