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Note

Introduction of a HIV vaccine in developing countries: social and cultural dimensions

P.H. Streefland*

Medical Anthropology Unit, University of Amsterdam, Oudezijds Achterburgwal 185, 1012 DK Amsterdam, The Netherlands

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Abstract

Using insights from studies on social and cultural aspects of immunization in Africa and Asia the paper discusses the introduction of a HIV vaccine from three perspectives. Firstly, it shows how at the side of public health programs local differences will impact on the introduction of a new vaccine. Secondly, it elaborates how at the side of the users of vaccinations acceptance, non-acceptance and demand of and for a new vaccine are related to local vaccination cultures, images of the HIV/AIDS epidemic, and perceptions of vaccine potency and efficacy. Thirdly, it points out socio-cultural aspects of the introductory process. Tailoring health education and social marketing to local conditions and local interpretations of globally provided information will be decisive for a successful introduction. Strong public health programs with highly motivated and appropriately supported staff are another necessary condition.

Keywords: HIV vaccine; AIDS; Immunization; Developing countries

1. Introduction

In the 19th century smallpox vaccination was introduced into what are now called developing countries. In the 20th century both the range of available vaccines and immunization coverage increased considerably. In course of time the emphasis in immunization shifted from the containment of epidemics to their prevention. Vaccination technology also proved to be an instrument for the eradication or elimination of infectious diseases, with smallpox and polio as outstanding examples, although the initial optimism about this has become less. Presently, in immunization in developing countries emphasis is on routine vaccination of pregnant women and children, with occasionally a vaccination campaign in case there is or might be an epidemic. This picture will change significantly when a vaccine to prevent HIV becomes available to restrict the further transmission of HIV and as a consequence contain the HIV/AIDS epidemics that profoundly affect society in many developing countries.

This paper has three points of departure. Firstly, that in the near future an affordable preventive HIV vaccine may be developed that is appropriate for populations in developing countries. Secondly, that the process of vaccine development will progress from limited availability of (a) costly vaccine(s) with low protective efficacy to a phase of wider availability of less costly vaccines with higher efficacy. Moreover, during this process vaccines may become available that are appropriate for wider populations in developing countries [1,2]. Decisions on vaccine introduction and use in different populations would be decided on epidemiological, cost/benefit and potential impact considerations. The third point of departure is that although initially there may be HIV vaccination campaigns, possibly closely integrated with existing AIDS prevention and control programs, in course of time the vaccination will become part of a routine immunization program, of which presently the Expanded Program on Immunization (EPI) is the prime example.[1]

Faced with many uncertainties it is impossible to predict how a new HIV vaccine will be received among those for whom it is meant. Studies in the USA asking for hypothetical reactions to hypothetical vaccines do not have relevance for the situation in developing countries [3,4]. But another path can be followed. In studies of vaccination program cultures and regimes in developing countries, of people's vaccination behaviour there, and of concomitant popular views of immunization, we can find clues and may prudently make interferences about possible social and cultural implications

* Fax: +31-20-5253010.
E-mail address: streefland@pscw.uva.nl (P.H. Streefland).

[1] Although EPI is meant particularly for women and children it may be assumed that issues around acceptance of vaccination and quality of vaccination delivery that have been observed in EPI have much wider relevance.

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of the introduction of a HIV vaccine, keeping in mind the three points of departure [5–10].

The paper addresses the questions: What may be social and cultural characteristics of the introduction trajectory of a new vaccine? Will those for whom the vaccination is meant accept it? How important are locally specific conditions for the introduction of a vaccine? To answer these questions I shall, first, show how the receptive landscape into which a new vaccine is introduced is fragmented because of differences among vaccination programs, between vaccination cultures, and among prevailing images of the epidemic. Next, relevant aspects of vaccination acceptance will be discussed. Finally, socio-cultural aspects of the introductory process will be mentioned.

2. Differentiation in vaccination programs

A possible HIV vaccine will arrive in a differentiated vaccination landscape. From a public health perspective, EPI as a web of rather uniform routine vaccination programmes covering the globe provides a reassuring image. Programmatically, there are important differences within this web. Firstly, there are differences in coverage. In general, coverage is lowest among poor populations and in peripheral areas. Secondly, political conflicts and breakdowns in civil administration lead to disintegration of vaccination programs. The global polio eradication campaign has shown that in case of civil war occasionally a ceasefire condition may be brokered for a National Immunization Day, as was the case in for instance Afghanistan, but that is of course not an option for routine vaccination. Thirdly, vaccination programs do not follow a fixed natural history of expansion, together with increasing and at last sustained coverage, but are changing as a consequence of the alternation of economic support to and neglect of public health services. Presently, we observe that substantial economic support to public health services in developing countries becomes available, particularly for Africa, through the action of new global initiatives and funds, including GAVI and the Global Fund to Fight AIDS, tuberculosis and malaria. But not very long ago, as a consequence of economic recession and structural adjustment policies, public health services on this continent often were in dire straits [11]. Finally, despite the programmatic uniformity that is characteristic of EPI and is most clearly expressed in a managerial emphasis on achievement of vaccination targets, there are also important social and cultural differences between programs. Vaccination programs differ culturally, because they adjust to their environment, being permeated by social and cultural influences [7,12]. This may occur in various ways. In Gujarati villages in India, I observed how caste differences could clash with accessibility requirements so that selection of vaccination sites became a critical decision. In Bangladesh I saw how the male vaccinator could only talk to the mothers of the children he vaccinated through a curtain that partitioned the room. Mothers who needed a TT vaccination put an arm around the curtain. The organisational culture of the public health services will also affect the way in which the vaccination program operates. In Gujarat, India, I found that hierarchical and fatalistic cultures were discernible in the vaccination program. The consequence of such work styles is often rigid supervisory behaviour, rejection of information coming from below, and bad communication throughout the program hierarchy [6,7].

Vaccination programs also differ in the way in which compliance with vaccination schedules and practices is encouraged. It is useful to distinguish between prescriptive vaccination regimes and promotive ones as the poles of a continuum. A prescriptive vaccination regime is characterised by coercive and intimidating elements. It may be characteristic for vaccination policies under totalitarian regimes, as in the case of the Derg regime in Ethiopia, or for vaccination campaigns that aim to cover everyone in a short time, as in the case of the smallpox eradication campaign [13,14]. On the other hand, promotive vaccination regimes encourage vaccination by way of health education and, sometimes quite pertinent, reminders. Routine immunization in The Netherlands, an example of a promotive regime, includes a wide range of follow up elements, like home visits, telephone calls and mailed reminders.

In view of the introduction of a HIV vaccine in developing countries these observations mean, firstly, that poor populations eligible for introduction of the vaccine need special attention because they are often difficult to reach. Secondly, that a special strategy needs to be developed for populations in civil war conditions. Thirdly, weak public health programs are not really suited to introduce and boost a new vaccine, certainly not one as sensitive as a HIV vaccine. Therefore, the global support to public health programs that is presently on the way should be enhanced and sustained. It is a necessary condition for the success of the vaccine introduction. Fourthly, socio-cultural aspects of gender and inequality should be taken into account when designing the introduction trajectory of an HIV vaccine. In this respect good situational studies are indispensable. Fifthly, certainly in the early stages of an introduction process it is crucial that information coming from the fieldworkers reaches the managers. Those planning and supervising the introduction should have an open eye for obstructing elements of organisational culture. Finally, HIV immunization will be on a voluntary basis and coverage will be enhanced by way of social marketing, but this approach needs special attention if it is to be implemented under the conditions of a prescriptive vaccination regime.

3. Images of epidemics and vaccination cultures

So far, the focus has been on the perspective of the vaccination program as the significant part of the receptive landscape into which the HIV vaccine will be introduced. Now emphasis shifts to the perspective of the receivers of

vaccinations. The initial information that a HIV vaccine becomes available will spread around the world swiftly and with enormous coverage. But it will be news that contains in its initial form lots of conditionalities, notably about efficacy, appropriateness for different populations, vaccination schedules, costs, and probably the sequence of introduction. It is doubtful if the specific information on all these conditions will have great coverage; it probably will not. On the contrary, the news will be simplified and raise expectations that will be related to people's images of the HIV/AIDS epidemic around them. Additionally, these expectations will connect to people's views of and experiences with vaccination services.

3.1. Images of epidemics

The HIV/AIDS pandemic is a mosaic of different national and even local epidemics. Each of these epidemics has specific epidemiological characteristics in terms of HIV and AIDS incidence and prevalence. However, epidemics are also social phenomena [15,16]. The infection spreads under specific social conditions, which are co-determining the epidemic process. The medical characteristics of the disease have a profound influence on society. During epidemics a dual pattern evolves of mutually influencing processes: what happens in one process, the development of the medical epidemic, leads to social reactions, including forms of social mobility, which in their turn impact on the disease process. The relation between medically defined and social epidemic is not a mechanistic one, but is negotiated through a process of cultural interpretation. People's cultural interpretation of an epidemic, their *imagined epidemic*, is inspired by their earlier experiences, lay epidemiological knowledge, news about the infectious disease elsewhere, and individual variations in trust in biomedicine [17].

Images of epidemics include disease aetiologies, notions of blame, fears of contagion, and ideas about disease control. Someone's image of a specific epidemic is shaped by how he or she socially and economically is positioned, and what knowledge and information is accessible. In addition to feelings of vulnerability to infection that may prevail more widely, someone's social and economic vulnerability are shaping his experience and perception of the epidemic [18]. Different images of the HIV/AIDS epidemic, for instance of those who, because they observe AIDS patients around them, feel directly at risk to fall victim of the disease, and of those who may live not very far away but feel safer because they have not yet seen the disease around them, may co-exist at any one time [19].

3.2. Vaccination cultures

People discuss their negative vaccination experiences, including shortage of vaccines, adverse effects, rude behaviour of vaccinators, with people living around them. In the process of sharing, the experiences become elements of local lore. Together with shared ideas on vaccine potency and efficacy, disease aetiology and trust in biomedicine, these experiences become part of local vaccination cultures. These local cultures also include local interpretations of globally defined messages about vaccination and vaccines. They influence future vaccination decisions.

Most people in developing countries are familiar with vaccination under routine conditions, in health centres or mobile clinics. Exceptions are National Immunization Days (polio), the smallpox eradication campaign, and specific campaigns related to local epidemics.

The familiarity associated with routine immunization will at times contrast sharply with the conditions that characterize campaigns. Something that is a self-evident procedure, namely taking a child for vaccination, will then become a special event possibly eliciting questions about vaccines and vaccination that not usually are asked.

Prevailing images of the HIV/AIDS epidemic and local vaccination cultures are important in relation to the introduction of a HIV vaccine in a local setting. They will provide part of the explanations for rumours, acceptance and non-acceptance of vaccination. Hence it is important that vaccination staff and reporting systems are sensitive to local variations in responses from communities during the introduction phase. Understanding of these variations will also be beneficial for the phase of sustained HIV vaccine delivery.

4. Acceptance of and demand for a new HIV vaccine

When a new HIV vaccine becomes available will people accept it? Will they demand they get it as soon as possible? To answer such questions we must realize that people react to a new vaccine on the basis of what they assume about its protective value, its adverse effects and the way in which they may or may not receive the vaccination. The scientific facts about the safety and efficacy of a vaccine are not the main determining factor for people's reactions to it, but their interpretations of these facts in so far as they have information about them.

4.1. Views about diseases, vaccines and protection

Research in Africa and Asia about what mothers know of six EPI immunizable diseases has shown that they have a wide range of knowledge, both biomedically valid and traditionally inspired. Specific and general views about the relation between a vaccination and the disease it prevents may prevail at the same time. Mothers may recognize that the measles vaccination protects their children *specifically* against that disease, but also adhere to the view that measles vaccinations strengthen health *in general*, or will *in general* mitigate the seriousness of future illness. Mothers have usually different options for prevention. In Gurage district in Ethiopia, for instance, the activities of mothers to prevent

childhood illness to occur include: providing the new born with an amulet, applying the juice of herbs to a baby's bath or drink, providing small quantities of butter, avoidance of contact with children infected with measles or pertussis, keeping personal hygiene, going for vaccinations [13]. Vaccination is one important option for parents who seek to enhance their children's health or to prevent a childhood illness [8,9,24]. The fact that, with the exception of BCG, EPI vaccines have high protective efficacy is very important. They do protect, that is evident. Expectations are met and educational messages confirmed over and over again.

In the case of a new HIV vaccine the situation is entirely different. Firstly, efficacy of the vaccine will be moderately to low and, secondly, it will usually be unknown if the vaccinee is already infected with HIV. The result of these two facts will be that at least some of the people vaccinated will eventually turn out to have AIDS. The complicating factor is the uncertainty about when these people will fall ill. If it will be soon after the vaccination it may affect views of vaccine potency, of its possibility to protect. However, if only very few vaccinated people will show signs of being infected, it also may be explained to the specific link between the vaccination and that specific person: the vaccine did not fit that person. The consequence of that view is that the trust in the HIV vaccine in general remains intact. If a person gets AIDS rather long after receiving the vaccination it may still be considered the consequence of a bad fit, but also as a sign that the vaccine does not work in case one does not also change one's sexual behaviour. The social marketing of a low efficacy vaccine will be a tremendous challenge. It will be crucial to use different pilot settings to seek culturally appropriate ways to explain what the vaccine may be expected to achieve and what not.

There is yet another side to people's perceptions of vaccine potency and efficacy. It may happen that these perceptions attach great value to the quality of a new vaccine to boost general health, or to make people who are still HIV negative rather invulnerable to infection. It is important to realise that such assumptions are related to estimations of personal risk that may be rather complex. When I did research in Mwanza, Tanzania, I talked with a man who proved to be quite familiar with biomedical aspects of HIV transmission. He told me that because of his fear to become infected through sexual intercourse with a HIV positive woman he always was careful to use condoms. Then he added: *But that is during the week. Saturday night is Saturday night, nothing ever happens to me on Saturday night.*

4.2. The issue of adverse effects

Adverse effects of a vaccine may be layperson defined and professionally denied, or agreed between both constituencies. In writings about assumptions about safety and adverse effects of certain vaccines in the North the emphasis is often on the relation between alleged adverse effects and popular reactions of resistance against a certain vaccination [10,20].

Research in Africa and Asia focussing on vaccination of children and pregnant women points out that, firstly, the biomedical confirmation of an alleged adverse reaction is not really relevant in relation to whether the assertion will have social effects. Secondly, a *mild* reaction is often seen as a confirmation of the efficacy of the vaccine. Thirdly, an adverse reaction may be seen as a sign that the vaccine does not "fit" this specific person, which implies that the value of the specific vaccine or of vaccine technology in general is not challenged. Fourthly, a *serious* alleged adverse effect, particularly the association of the death of a child and a vaccination, may have serious social and political consequences [21]. Fifthly, some *serious* adverse effects like an abscess are related to bad vaccination practice and not to the vaccine. Consequently, when a serious effect like this occurs it will be the vaccinator who will be blamed. Finally, there is the real possibility that a vaccine is alleged to purposely have negative side effects. A good example is the case of the tetanus toxoid vaccination used for pregnant women. In the Philippines, and other developing countries, the alleged fertility restricting potential of this vaccination became the subject of a large social conflict [22,23].

Alleged adverse effects of a vaccine or vaccination practice are potentially extremely harmful to the acceptance of a new vaccine. Therefore, when a HIV vaccine is introduced the vaccinators and their supervisors should be focussed on proper vaccination practice and an adequate follow up procedure of any cases of and rumors about adverse effects.

4.3. Non-acceptance: individual refusal and collective resistance

In case of childhood vaccination it often occurs that mothers are willing to attend the routine vaccination session, but are unable to do so for a pressing reason, such as the need to participate in the harvesting, to attend a funeral, or illness in the household. However, a parent may also refuse to have their child vaccinated. Two reasons stand out for such an *individual refusal*. The first one is the experience of malfunctioning or inadequacy of the vaccination service: lack of vaccines, no-show of an outreach clinic, inappropriate timing, and, particularly, rude behaviour of the vaccinators. The second reason is the experience of an adverse effect of a vaccination, which may cause a parent, and sometimes also others, to stop, maybe temporarily, with vaccinations.

Alleged adverse effects of a specific vaccination may everywhere be a reason for *collective resistance* emerging against it. Such resistance may be well organised and receive much media exposure. Another widely prevailing determinant of resistance against vaccination is the religious conviction that this kind of disease prevention is irreconcilable with the view that God determines everything. Particularly in the North, we observe yet another background to resistance, namely adherence to alternative assumptions about the immune system [10].

Apart from malfunctioning of vaccination provision, or alleged adverse effects, avoidance of stigmatisation may be a reason for individual refusal to receive a new HIV vaccine. Some people may feel there is a danger of becoming stigmatised associated with the vaccination provision conditions. Particularly at an early stage the HIV vaccination may be directed at specific target groups. Such a singling out of persons provides potentially stigmatising conditions, namely in case that the vaccination is culturally defined as a therapeutic vaccination preventing AIDS among HIV positive persons. This does not appear to be a farfetched possibility. Another reason for possible individual refusal may be an experience of rude, intimidating or even coercive behaviour on the side of the vaccinating health staff. Under intimidating conditions, certainly if these are accompanied by rumours circulating about possible negative side effects of the vaccine, people may do their best to avoid vaccination. Such a combination of adverse conditions may seem unlikely, but avoiding its occurrence must be a central policy aim. In view of this, training the vaccinators in communication skills is a crucial step.

4.4. Will there be social demand for the vaccine?

In sharp contrast with refusal to have a vaccination stands the possibility that people may request the authorities for the vaccine. The major form of social demand for vaccination that emerged during the research in Africa and Asia was a demand for better quality vaccination practice by the health staff. But it is a real possibility that in case of a widely prevailing deadly disease as AIDS people will be highly motivated to get the vaccine as soon as they may assume that it is available. The demand will be related to people's assessment of their own need and of the potency of the vaccine.

It is in the combination of a popularly defined scarcity of vaccine, due to a sharply targeted vaccination campaign or the perceived high price of vaccine when this is available in the market, and the fear of a widely prevailing deadly disease that the possibility emerges of social demand expressing itself clearly and outspokenly. Public health authorities will have to thread carefully here and beware not to raise expectations they cannot satisfy.

5. Socio-cultural aspects of the introduction trajectory

The introductory path of a HIV vaccine will almost certainly begin with a promise, a rumour, efforts at providing biomedically correct information, and a wide range of expectations. Local vaccination cultures and images of the HIV/AIDS epidemic will feed into these. During this initial phase emphasis needs to be on explanation of delay. Besides, it has to be stressed that a vaccine is not a magic bullit, but one possible way of protection, next to others. Subsequently, there will be a phase when only some people will be targeted for receiving a vaccine that will have low efficacy. During this phase, emphasis will have to be on provision of information that (a) explains why some groups are singled out to receive a vaccination and others do not get it as yet, without in any way putting a stigma on those who get the vaccine; (b) explains that even after having been vaccinated some people may still get AIDS; (c) explains the delay for the others; and (d) stresses to those who receive the vaccine that they still have to practice safe sex. Then, during the third phase, there will be wider coverage by a vaccination campaign approach. In this phase, education messages must be directed particularly at explaining that receiving a vaccination will not necessarily imply that someone will not get AIDS. At all stages of the introduction of the vaccine, also when the vaccination eventually will become a routine procedure, a major message will have to be that people need to practice safe sex.

Certainly as important as the content of the messages will be who delivers them. Apart from the possibilities of using radio or even TV and the Internet, it appears crucial to impart messages at community level using trusted persons informed by professionals to discuss the messages in groups of people as well as in one on one situations. The messages will be given in an environment of rumours and expectations, particularly about the protective potential of the vaccine. It requires a well-prepared professional input to deal with different kinds of assertions.

6. In conclusion

When a safe and efficacious HIV vaccine for populations in developing countries is found this will be an event of immense global importance. It will also mark the beginning of the trajectory to introduce the new vaccine that so many people have been waiting for. The present paper discusses the introduction process from three perspectives. Firstly, it shows how at the side of public health programs in general and vaccination programs in particular there are local differences that will impact on the introduction of a new vaccine. Secondly, it elaborates how at the side of the users of vaccinations acceptance, non-acceptance and demand of and for a new vaccine are related to local vaccination cultures, images of the HIV/AIDS epidemic, and perceptions of vaccine potency and efficacy. Thirdly, it points out socio-cultural aspects of the introductory process.

The general messages that permeate the paper are two. Firstly, that although some decisions, notably whether the vaccine will be provided through an AIDS control program or a vaccination program, will be taken at global and national levels, it is in the end the tailoring to local conditions and local interpretations of globally and nationally provided information that will be decisive for a successful introduction. Secondly, that health workers and their managers must be open to the old motto "be prepared", in this case particularly for local differences and unexpected events.

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