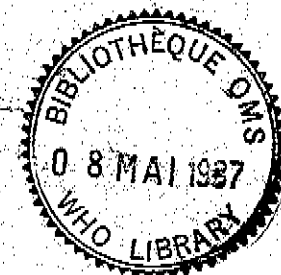


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SPECIAL
PROGRAMME
ON AIDS

REPORT OF THE
CONSULTATION ON
INTERNATIONAL TRAVEL
AND HIV INFECTION

GENEVA
2-3 MARCH 1987



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International Travel and HIV Infection

1. INTRODUCTION

The emergence of the AIDS epidemic on a global scale has raised several issues regarding HIV infection and international travel. First, the question of Human Immunodeficiency Virus (HIV) screening of international travellers has been discussed in some countries. The apparent rationale for HIV screening of international travellers* for a country could be the attempt to exclude HIV from its territory and/or to retard HIV spread within the country. Second, the use of public conveyances by HIV-infected persons has been questioned. Finally, the need for information for international travellers on the prevention of HIV infection has become evident. A consultation was convened by the World Health Organization Special Programme on Aids to examine these three issues involved in international travel and HIV infection.

Dr J. Cohen, Adviser on Health Policy to the Director-General of the World Health Organization, welcomed the participants and drew attention to the topicality and pertinence of the subject of the consultation.

Dr J. Adams (Australia) chaired the meeting and Professor F. Feachem (UK) and Dr J. Osborn (USA) acted as rapporteurs.

2. HIV SCREENING OF INTERNATIONAL TRAVELLERS

2.1 Introduction

The consultation noted that the International Health Regulations, in their current form, limit the health measures that national authorities may take with respect to international travellers. No measures, and no health document, other than those provided for in the Regulations, may be imposed on arriving travellers. The consultation was, however, aware that some national authorities are considering the implementation of additional measures designed to limit the entry of HIV-positive persons.

2.2 Epidemiological context

2.2.1 Global dimensions of HIV infection and AIDS

No region of the world is free from HIV infection and AIDS. As of the date of the consultation 91 countries from all WHO regions were reporting AIDS cases. In some of these countries the true number of cases is likely to be far greater than the number reported and in all countries the number of persons with HIV infection is certainly far larger (by a factor of 25 to 100) than the number of AIDS cases. Current estimates are that there have been more than 100,000 AIDS cases since the beginning of the epidemic and that 5 to 10 million persons are HIV-infected in the world today. While certain areas (notably North America, Western Europe and parts of Africa) may have the majority of these cases and infections, HIV is continuing to be recognised world-wide and it is considered likely that all countries in the world are already or will soon be affected by the AIDS pandemic.

2.2.2 Modes of transmission

Three major routes of HIV transmission have been documented repeatedly in epidemiological studies in Europe, the Americas, Africa and Australia. These are:

- transmission by sexual intercourse (heterosexual or homosexual);

* "International traveller" is defined broadly to include all persons crossing international boundaries.

- transmission by blood or blood products as, for instance, through blood transfusion or the use of unsterilized syringes and needles;
- transmission from mother to child, before, during or shortly after birth.

There is no evidence that HIV is spread by close inter-personal contact of a non-sexual nature, by food, water, air, or by insect vectors. In any consideration of public health policies, it is important to bear the routes of HIV transmission in mind. It is especially relevant to the present discussion that HIV is not transmitted by casual contact with an infected person.

2.2.3 Infection, immune response and disease

The natural history of HIV infection is relevant to any proposed screening programme. Persons with AIDS represent only the late stage of HIV infection and may not be as infectious as those individuals who are earlier in the course of their infection. In addition, most of the clinical signs and symptoms of AIDS-related complex and AIDS are relatively non-specific. Thus it makes little sense, in public health terms, to undertake screening of international travellers using clinical aspects of AIDS as criteria for exclusion.

Antibodies to HIV do not commonly appear before six weeks post-infection; the great majority of individuals then develop readily demonstrable antibody responses over the next six weeks. Only a rare individual remains antibody-negative while harboring virus beyond three months. Thus there is a short "window" of time during which antibody tests will not identify a newly infected person even though s/he is capable of transmitting virus. All available antibody tests would miss such an individual during this limited interval and technological advances in testing methods may reduce the duration of, but will not eliminate, the "window period" phenomenon.

2.3 Technical context

2.3.1 HIV antibody tests

With the isolation and identification of the human immunodeficiency virus (HIV), serologic tests to detect antibodies against this virus were rapidly developed and became available for general use in 1985. In contrast to some other viral infections, HIV induces antibodies that do not, in most cases, appear to confer immunity to the individual. Most persons with positive tests for HIV antibody are simultaneously and actively infected by HIV and must be considered potentially infectious.

Antibodies to HIV can be detected by several techniques, including enzyme-linked immunosorbent assays (ELISA), immunofluorescent assays (IFA), and Western blot (WB) analysis. Each of these techniques, when performed by experienced technicians, is very accurate in detecting antibody either to the whole virus or to its subcomponents.

Currently available ELISA tests are extremely accurate (i.e. their sensitivity and specificity under optimal laboratory conditions are at least 99%). Blood banks in most industrialized countries use ELISA tests for the initial screening of collected blood. In order to minimize the false positive results which can occur with the routine ELISA test, additional (or supplemental) tests by either IFA or WB are usually carried out on samples found positive by ELISA. These supplemental tests are more costly and more technically demanding than the routine ELISA tests.

2.3.2 Sensitivity, specificity and predictive value

The ideal of 100% sensitivity (all true positives correctly identified) and 100% specificity (all true negatives correctly identified) is never met in serological assays. The implications of less-than-perfect serological identification of HIV positive individuals during screening of international travellers require careful consideration.

Any deficiency in sensitivity will mean that some HIV positive individuals will not be detected. This number will be additional to those who remain undetected because of the kinetics of antibody response to exposure to HIV (see 2.2.3). Any deficiency in specificity will mean that a number of HIV negative individuals will be falsely classified as positive.

In populations where the prevalence of infection is low, the predictive value of a positive test (i.e. the degree of confidence as to whether a positive test represents a person who is truly positive) is usually unacceptably low. For example, consider a cohort of 1,000,000 travellers, among whom 1% (10,000) are truly HIV positive and 99% (990,000) are negative. If the serologic screening test has a sensitivity (accuracy in identifying true positives) of 99%, then 9,900 of the 10,000 true positives would be identified and 100 would be undetected (false negatives). If the serologic test has a specificity (accuracy in identifying true negatives) of 99%, then of the total 990,000 true negatives, this test would correctly identify 980,100 but would label 9,900 negatives as falsely positive. Thus of the total 19,800 "positives" identified by the screening of this population, half are true positives and half are false positives. The positive predictive value of the screening test in this situation would be 50%. In addition, 100 true positive (HIV infected) persons would be falsely identified as negative. Therefore, even a test of very high sensitivity and specificity can lead to a massive misallocation of resources in response to false positive individuals, while allowing some truly positive individuals to remain undetected. In practice, sensitivity and specificity may fall below 99%, especially in busy laboratories lacking adequate resources of equipment, skilled staff, supervision and quality control.

2.4 Essential considerations regarding the screening of international travellers for HIV infection

2.4.1 Public health effectiveness

The primary public health objective for a given country in screening incoming travellers for HIV infection would be to reduce the rate of HIV spread to and within the country. The likelihood that this objective could be achieved is considered below.

However, first consider a country that has no HIV infection, of which there are certainly very few, if any, by mid-1987. Even in this setting, screening of international travellers could not prevent the introduction of HIV, because returning nationals of the country would presumably have to be admitted and, in addition, some HIV positive individuals would remain undetected due to the technical and practical reasons described in sections 2.2.3, 2.3.2 and 2.4.2. For the same reasons, it is extremely unlikely that a screening programme could delay the introduction of HIV for more than a very brief time.

Therefore, consider the more typical situation of a country having HIV positive residents and AIDS cases and wishing to reduce the rate of HIV spread within the country. The rate at which new HIV infections occur depends on the number of infected persons present and, especially, on the number of infected persons whose behaviour (particularly sexual behaviour) places other people at risk. The most extreme situation would arise when a relatively small country, documented to have a very small number of HIV-infected persons, receives a large number of international visitors from areas with a high HIV seroprevalence. Screening of international travellers could reduce the number of, but not eliminate, HIV-infected entrants. In addition, the admittance of infected nationals returning from foreign travel, and the "window" phenomenon would guarantee repeated introductions of HIV into the country. Ultimately, the prevention of HIV transmission will depend upon the behaviour (especially sexual) of both the visitors and the nationals (while in the country and while travelling abroad), and resources would be better allocated to changing these behaviours.

2.4.2 Design of a screening programme

Several key issues in the design of a screening programme would greatly influence its effectiveness, cost and feasibility.

i) Who to screen: A country may decide to screen all incoming travellers. This is the most expensive and least efficient option. Many of the individuals tested for HIV will be in low risk groups, such as children or elderly persons, and it may be either unnecessary or unacceptable to screen certain special categories (e.g. members of religious orders, pilgrims, political delegations, staff of international organizations). A country could elect to screen persons in certain age groups coming from specified countries where the prevalence of HIV infection is believed to be high. It will be very difficult, however, to correctly identify these countries, as countries may not have reliable data or may not report their AIDS cases or results of serological screening. If reporting of AIDS cases is likely to lead to the imposition of screening requirements by other countries, some governments may be reluctant to report openly; a similar reluctance has been evident for cholera reporting in recent years. Furthermore, a selective approach to screening based on country of origin may lead to retaliatory counter-measures by countries or regions.

Whichever approach is adopted, it is essential that returning nationals be included in the screen, along with incoming international travellers. To exclude returning nationals from the screening programme would fatally undermine the public health justification for screening and makes the screening appear particularly discriminatory or xenophobic.

ii) Where to screen: HIV screening can be done prior to travel or at the port of entry. In the first approach, the country concerned would require that incoming travellers carry a certificate of freedom from HIV infection. The cost and arrangements for the test and the certificate would presumably be borne by the traveller. The disadvantage of this approach is that it will certainly lead to a market in false certificates. The clients for this market might well be especially those who have reason to believe that they may be HIV positive and who, therefore, have an above-average prevalence rate of HIV infection. A requirement that HIV certificates be validated by the health authorities of the country of origin of the traveller is likely to be complicated by the refusal to participate of countries that are opposed to the screening of travellers.

In the second approach, screening at the port of entry, the costs and logistic complexity of this procedure would be immense. At busy land, sea or air border crossings it would typically be impossible to screen more than a very small fraction of arrivals without bringing the facilities to a complete standstill. In addition, current tests require at least 2 hours to conduct and more rapid tests are likely to have a lower sensitivity and specificity than present tests.

iii) When to screen: The timing of the test in relation to the date of travel would be important in determining whether HIV positive persons are detected. If screening is done prior to start of travel, what period between the test and the travel would be permitted? The longer the period, the greater the chance that the individual has become infected between test and travel. If the period is short (e.g. one month) a frequent traveller would need to have repeated tests each year.

Whenever the test is performed (1 month before, the day prior to travel, or on arrival), there is still the possibility that exposure was recent and that the immune response is developing (window phenomenon). For this reason, further testing would be required after 3-12 weeks for medium- or long-term visitors.

2.4.3 Management of positives

The management of data concerning HIV screening of international travellers is complicated for a number of reasons. First, the volume of international travel means that an enormous level of testing activity would be required, with intrinsic potential error and mismatching of data. Second, information concerning seropositive status is perceived as highly threatening to the individual, and it has been strongly and repeatedly recommended that such information be delivered only in association with pre- and post-test counselling, which requires additional trained personnel and a suitable context in which to provide such advice. Thirdly, maintenance of the confidentiality of such information is of great importance as a right of the individual tested. In some countries, confidentiality is also a legal requirement. It should be noted that these considerations pertain to all

international travellers, whether they be foreign nationals or citizens returning from abroad; the logistics of their application to real situations are bound to be extraordinarily complex and prone to error of many sorts, including false exclusion of uninfected individuals and a false "clean bill of health" for some HIV-infected persons.

2.4.4 Legal and ethical considerations

Specific legal considerations raised by a screening programme vary from country to country. In many countries implementation of screening policies and prohibition of travel on the basis of its results would require special laws or regulations to be enacted.

The ethical considerations raised by a screening programme are manifold and involve confidentiality and the right to humane counselling and care (in the context of psychological distress).

2.4.5 Costs

The direct and indirect costs of an HIV screening programme for international travellers can be considerable. Direct costs are the costs of the screening programme, involving the testing itself (including repeat and supplemental examinations), the personnel and resources required to establish, maintain and monitor the screening activity, and the infrastructure needed to monitor and manage incoming travellers at all ports of entry (for air, sea, and all forms of land transport). These direct costs are likely to be at least US\$10-20 per traveller screened. Given the enormous numbers of persons crossing international borders (over 180 million by air transport alone in 1984), the total expenditure for screening of travellers would be extraordinary and wasteful. If these costs are borne by the traveller, they will be unaffordable to many land travellers. If these costs are met by the recipient government, they may place an unacceptable burden on public finances. In poorer countries with large numbers of visitors (for instance, developing countries with major tourist industries), the costs of HIV screening could be a substantial proportion of the total health sector budget and, therefore, seriously distort national health priorities.

It could be reasonably anticipated that a restrictive policy for international travellers based on HIV screening would result in a decline in tourism and international commerce. These potentially important costs would be difficult to evaluate in advance of implementing an HIV screening programme. Indirect costs could also include the reduction of international movement, with its associated social, cultural, economic and political consequences, and the fostering of a "black market" in HIV screening services or provision of counterfeit travel certificates.

2.4.6 Social and political acceptability

The social and political consequences following imposition of an HIV screening programme for international travellers could include a marked deterioration of bilateral or regional relations and the heightened stigmatization of certain groups or nationalities. These effects would likely be aggravated if the screening programme were to be applied according to geographical or geopolitical criteria.

2.5 Detrimental consequences of screening for national AIDS control programmes

It is important to emphasize that there are several distinctly detrimental consequences that a nation might incur through an HIV screening programme for international travellers. The most obvious is the diversion of resources, which would be more effectively directed to educating the population concerning HIV or to screening of blood for transfusion. A less obvious negative effect could be a false sense of security about seronegative travellers, leading to laxity regarding behaviours which spread the virus and an actual increase in overall risk for HIV transmission from international travellers to national residents. Finally, it is quite possible that HIV screening of international travellers, if practised on a selective geographical basis, would provide a disincentive for the reporting of AIDS, resulting in further distortion of the critical surveillance function necessary for ongoing monitoring of the worldwide epidemic.

2.6 Alternative measures

Strategies for control of AIDS in travellers are identical to those for control of AIDS in the general community. Clear and culturally acceptable information must be provided concerning the nature of HIV infection, modes of spread, and measures that individuals can take to protect their own health. Travellers across international borders can be given appropriate written or pictorial information. They could also be asked to enter voluntarily into an agreement to act responsibly with regard to AIDS while staying in the host country. Such an agreement would have no legal authority, but could heighten awareness and promote risk-reducing behaviours.

2.7 Conclusion

The consultation strongly recommends that all the above-mentioned considerations must be addressed and resolved if any screening programme for international travellers is to be considered. The diversion of resources towards HIV screening of international travellers and away from educational programmes, protection of the blood supply and other measures to prevent parenteral and perinatal transmission, will be difficult to justify in view of the epidemiological, legal, economic, political, cultural and ethical factors mitigating against adoption of such a policy. No screening programme of international travellers can prevent the introduction and spread of HIV infection. Therefore the consultation concludes that HIV screening programmes for international travellers would, at best and at great cost, retard only briefly the dissemination of HIV both globally and with respect to any particular country.

3. TRAVEL OF HIV INFECTED PERSONS BY PUBLIC CONVEYANCE

Use of any public conveyance (e.g. train, bus, airplane, boat) by persons infected with HIV does not create a risk of infection for others sharing the same conveyance. This statement applies equally to persons infected with the AIDS virus but without symptoms ("healthy carriers") and to persons with clinical manifestations of HIV infection, including AIDS. Therefore, there is no specific reason to limit the use of public conveyances by HIV-infected persons.

4. RECOMMENDATIONS FOR INTERNATIONAL TRAVELLERS ON PREVENTION OF HIV INFECTION

The routes of HIV transmission have been documented to be the same throughout the world. Therefore, the behaviours that put individuals at risk of acquiring HIV are similar worldwide. Preventive measures against HIV are also the same worldwide, regardless of whether the individual is a traveller or a resident of a given country.

Educational material should be made available for international travellers to increase awareness of how HIV is transmitted and how it can be prevented. It could be distributed through travel agencies, transport companies, tourist accommodation facilities, travel clinics, private and public medical practitioners, occupational physicians and to the public at large. Such educational material should indicate specific preventive measures, in clear, easily understood language. This necessitates a difficult balance since transmission of HIV is primarily sexual and therefore involves many social and cultural sensitivities. However, it is essential to discuss these sensitive issues openly to protect the international traveller.

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