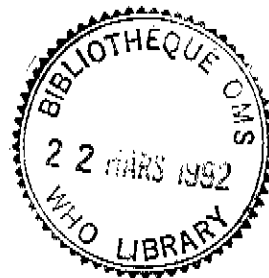

GLOBAL
PROGRAMME
ON
AIDS

STATEMENT FROM THE CONSULTATION
ON ACTION TO BE TAKEN AFTER OCCUPATIONAL
EXPOSURE OF HEALTH CARE WORKERS TO HIV

GENEVA
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WORLD
HEALTH
ORGANIZATION
IN ASSOCIATION WITH
INTERNATIONAL
LABOUR OFFICE



1. Introduction

As the number of people with HIV infection and disease increases, so does the risk to health care workers of occupational exposure to HIV infection.

From 2 to 4 October 1989, a consultation was held by the World Health Organization in association with the International Labour Office to consider action to be taken after occupational exposure of health care workers to HIV.

Thirty-four experts from 14 countries participated and made recommendations in four areas of concern following occupational exposure of a health care worker to known HIV-infected material:

- first aid, laboratory testing and clinical follow-up;
- education and counselling;
- chemoprophylaxis;
- implications for employment, labour relations and workers' rights.

This consultation did not consider the additional medical, psychosocial, ethical and legal issues regarding occupational exposure to material not documented to be HIV-infected (e.g., when the HIV status of the source patient is unknown.)

2. Definitions

For the purposes of this document, the following definitions were adopted.

Occupational exposure

This is contact with *known* HIV-infected material resulting from:

- percutaneous inoculation (i.e., from a needlestick or a cut with a sharp object);
- contamination of an open wound;
- contamination of non-intact skin (e.g. when the exposed skin is chapped, abraded or afflicted with dermatitis); or
- contamination of a mucous membrane, including the conjunctiva.

Health care workers

These are persons who:

- provide direct or indirect health care to people (e.g. nurses, midwives, physicians, community health workers, hospital housekeepers); or
- handle samples of body fluids or tissues (e.g. laboratory technicians, pathologists).

Personnel in research laboratories who handle amounts of virus that are more concentrated than are found in human body fluids are not considered health care workers for purposes of this document. They need to adhere to stringent biosafety precautions, which are not considered here (1).

Known HIV-infected material

This is:

- blood; or
- other designated body fluid (see below) or tissue

that has been taken from an HIV-infected person or that is known to contain HIV.

- (1) *Blood, blood products and body fluids containing visible blood* are known to have transmitted HIV in health care settings. They definitely require postexposure follow-up.
- (2) *Semen, vaginal secretions and breast milk* are known to transmit HIV. Although they have not been known to transmit HIV in health care settings, occupational exposure to these body fluids also warrants follow-up.
- (3) *Amniotic, pericardial, peritoneal, pleural, synovial and cerebrospinal fluids* have not been known to transmit HIV in health care settings but experts believe they may pose a risk. They also require postexposure follow-up.
- (4) *Saliva, tears, urine, faeces, nasal secretions, sweat, sputum and vomitus* are commonly encountered body substances that are not known to have transmitted HIV in any setting and are not felt, on the basis of epidemiological and virological studies, to pose a risk to health care workers or others. They do not require postexposure follow-up unless they contain visible blood.

Universal blood and body fluid precautions

These are based on the concept that all persons should be assumed to be infective for HIV and other bloodborne pathogens (2), and therefore that appropriate precautions against transmission of infection should be used by health care workers whenever they handle blood and body fluids designated above as potentially infectious, i.e. (1)-(3).

3. Risk of HIV transmission

Prospective studies demonstrate that the risk of transmission of HIV per episode of percutaneous exposure to HIV-infected blood is approximately 0.4% (i.e., 1 per 250 exposures). These studies also suggest that the risk of HIV transmission per episode of mucous membrane or non-intact skin exposure to HIV-infected blood is less than that associated with a percutaneous exposure, although transmission resulting from such exposures has been reported (3,4). While there is a theoretical risk associated with microabrasions in apparently intact skin, there is no documented evidence of HIV transmission via this type of exposure.

Most experts agree that the larger the volume of blood involved in the exposure, the greater the risk of infection. The risk of HIV transmission through occupational exposure to body fluids other than blood (and for which universal precautions are recommended) is unknown (5).

4. First aid, laboratory testing and clinical follow-up of HIV-exposed health care workers

4.1 First aid

First aid treatment must begin as soon as possible after the exposure. If the health care worker is involved in patient care at the time of the incident, the patient's safety must also be considered. The normal principles of minor wound care should be followed. There are no additional first aid actions to be taken if the exposure involves HIV.

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- *Minor bleeding from percutaneous inoculation* (penetration of the skin by needle, sharp instrument, or other material, e.g. metal, glass or bone). The wound should be allowed to bleed briefly. If foreign material (e.g. contaminated glass, metal or bone fragments) is embedded, surgical removal may be required.
 - *Open skin wounds or non-intact skin*. Wounds and skin should be washed with soap and clean water, preferably running water. The use of antiseptic solutions as substitutes for water has not been proven to have any advantage and is not recommended because of the possible caustic effect. Antiseptics could be considered, however, when water is not available.
 - *Exposed mucous membranes, including conjunctivae*. Conjunctivae should be irrigated with copious volumes of sterile saline; if that is not available, sterile water; if that is not available, tap water. The mouth should be irrigated with clean water.

4.2 Reporting

The accident should be reported to the appropriate authority in the institution as soon as possible, and the record should contain the following information:

- employee identification;
- date, time and place of the accident;
- circumstances surrounding the accident;
- action taken.

The record should be made in a manner that protects the confidentiality of the source patient and employee, and records should be kept in accordance with national regulations.

4.3 Initial consultation

The appropriate authority should ensure that the injured person has access to a medical adviser (in a component of the occupational health service if available), who will be responsible for follow-up. The medical adviser should determine whether an exposure to HIV has occurred, review the first aid given, and propose further action, if any, to be taken. If exposure to HIV is found, the medical adviser should provide pretest counselling and propose laboratory and clinical follow-up. In the initial consultation, it is important that the medical adviser provide clear information to the health care worker about (a) the health care worker's potential for transmitting HIV prior to seroconversion and, therefore, behaviours to limit the risk of further HIV transmission until his or her HIV-antibody status has been established; and (b) the rationale for obtaining an initial baseline postexposure HIV-antibody test.

While advice should be available at short notice, the health care worker should have the right to decide whether to accept this advice.

Because of the stressful nature of the injury itself, the information provided at the initial consultation, and the decisions the health care worker must make, the medical adviser should refer the health care worker to counselling services or, if these are unavailable, should undertake such counselling himself or herself as part of the clinical follow-up.

4.4 Laboratory testing

With the health care worker's consent, a baseline blood sample should be drawn as soon as possible after the exposure, preferably within 2 weeks. Testing should always be accompanied by counselling. If the health care worker consents, the specimen should be tested for HIV antibody in a qualified laboratory. Alternatively, the specimen may be stored in a freezer for possible later testing.

Serum or plasma should be tested by a recognized standard antibody test (e.g. enzyme-linked immunosorbent assay - ELISA). If the result is reactive, the specimen should be retested. If the retest is reactive, then a supplemental test (e.g. Western blot) should be done. If this is judged positive by widely accepted criteria then the specimen is considered antibody-positive. If it is considered negative then the specimen is considered antibody-negative.

Whenever either antibody-positive or inconclusive results are obtained, a second specimen should be requested and tested as soon as possible to eliminate possible laboratory or sampling error. If the second specimen is also considered antibody-positive, this confirms the laboratory diagnosis of HIV infection. If results with the second specimen are again inconclusive, it may be useful to retest the specimen using another supplemental test such as radioimmunoprecipitation assay (RIPA) if available. If the specimen again gives an inconclusive result, the person should be followed clinically and serologically at 3-month intervals for at least 6 months. A person whose Western blot test results continue to be consistently indeterminate for at least 6 months - in the absence of any known risk factors, clinical symptoms, or other findings - may be considered to be negative for antibody to HIV.

Health care workers whose initial serological test is antibody-positive should be referred for appropriate medical follow-up and counselling. (A positive baseline antibody test within 2 weeks of exposure generally indicates that the health care worker was already infected before the specific occupational exposure.)

Workers whose initial test is non-reactive are considered to be antibody-negative. These workers should be retested at 6 weeks, 3 months and 6 months after exposure. If infection has been acquired, seroconversion (i.e. a positive antibody test) will usually occur within 3-4 months and, in almost all cases, within 6 months of exposure to HIV. Longer follow-up may be indicated for health care workers who have taken chemoprophylactic agents, which could cause a delay in seroconversion. In general, health care workers who request additional testing (e.g. at other than recommended intervals) should be offered such testing to help reassure them.

For health care workers who sustain multiple exposures, a baseline test should be obtained after each exposure, with follow-up testing continuing until at least 6 months after the latest exposure. Particular attention should be paid to education and counselling of individuals who continue to sustain occupational exposures.

4.5 Clinical follow-up

The health care worker should be advised to inform the medical adviser of any infections and symptoms such as fever, pharyngitis, rash, malaise, lymphadenopathy, myalgia and arthralgia occurring within 6 months of exposure. If referred to another medical adviser, the health care worker should inform the adviser about the possible exposure to HIV. Great care should be taken to ensure confidentiality. Management of trauma or possible exposure to other infectious agents (e.g. hepatitis B) resulting from the incident should be handled according to the institution's established protocols.

5. Education and counselling of HIV-exposed health care workers

Two of the ongoing needs highlighted by the HIV pandemic are for:

- the means to prevent occupational exposure to HIV and other bloodborne pathogens;
- counselling for those exposed or potentially exposed to HIV-infected material.

Recognizing this, the following recommendations are made.

5.1 Information and education

All health care workers should regularly be provided with up-to-date occupationally specific and culturally appropriate information and training on:

- HIV infection and disease;
- means of avoiding occupational exposures, including the use of universal precautions to prevent transmission of bloodborne infections in health care settings; and
- action to take in the event of an occupational exposure to HIV.

These should be provided in all medical and allied health school curricula and in continuing education in health care settings.

Adequate and appropriate supplies should be provided for the implementation of appropriate precautions against transmission of HIV.

5.2 Postexposure counselling

The principles of HIV counselling should serve as the basis for counselling health care workers occupationally exposed to HIV (6), supplemented by the recommendations contained in this document.

5.2.1 Prerequisites of counselling sessions include the assurance of (1) confidentiality; (2) easy availability and accessibility; (3) adequate frequency and duration; and (4) quality and expertise. Counselling should not be conditional (e.g. contingent upon enrolment in experimental or treatment regimens, or HIV testing).

5.2.2 In the development of a counselling programme to address occupational exposure the following should be considered:

- If possible, the programme should be integrated into existing institutional systems, such as an occupational health programme; where counselling is not available, a programme should be developed to train specified staff to provide counselling.
- If a counselling programme at the workplace is not possible (e.g. if the workplace is a private practitioner's office), existing services in other institutions in the community should be identified, characterized and used for appropriate referral.
- It is essential to ensure the provision of culturally sensitive training materials and ongoing support as necessary.
- The programme must take account of national and local policies regarding non-discrimination in relation to HIV-infected persons.

5.2.3 Issues to be addressed in postexposure counselling. Much of the counselling of HIV-exposed health care workers will consist of addressing issues of importance in any programme of voluntary HIV testing (6). Information should be current and accurate, be given in a manner that is easy to understand, and include reassurance about the relatively low risk of HIV transmission in most occupational exposures. Prior to HIV-antibody testing, information should be provided on the technical aspects of testing and on the personal, medical, social, psychological and legal implications of being tested and of being found positive or negative for HIV antibody. This should include the rationale for obtaining a baseline HIV-antibody test. Postexposure counselling should address the following.

- *Psychosocial issues.* Health care workers exposed to blood or body fluids that may contain HIV may experience considerable anxiety and other psychological disturbances such as depression that reflect the uncertainties associated with possible HIV infection, the value of chemoprophylaxis, and the implications for and reactions of co-workers, friends and loved ones.

When first seen for counselling, the employees should be assessed as to their psychological state, to determine their ability to cope with the situation and their vulnerability to potential adverse consequences such as stigmatization, misplaced anger directed against the source person/group, insomnia, hypochondriasis, and estrangement from loved ones, friends and co-workers. Resources should be identified for emotional, social and spiritual support, and, if desired, referrals should be made for counselling or support outside the workplace.

Counselling should accompany the results of the baseline and subsequent HIV-antibody tests, particularly since the anticipation of possible seroconversion may be very stressful.

- *Behavioural issues.* To prevent possible sexual, perinatal or other transmission of HIV, the following behaviours should be encouraged until the health care worker's postexposure HIV status is clarified:*

- abstinence from sex, or adherence to safer sex practices (e.g. proper and consistent use of latex condoms for sexual intercourse) (7);
- postponement of pregnancy;
- no donation of blood, organs or semen.

These behaviours should be discussed on the first visit, and support for preventive behaviour should be maintained for at least 6 months after exposure or until HIV status is clarified.

- *Employment issues.*

- *Other important issues.* If postexposure chemoprophylaxis is offered to employees, it should be discussed during counselling. Family participation in counselling, and decisions about who should be told about the exposure should also be discussed.

Counselling should emphasize the importance of taking positive action, including reviewing the accident to identify ways of preventing similar ones in the future. Use of universal precautions in the workplace should be stressed.

6. Chemoprophylaxis

To date, zidovudine (azidothymidine, AZT) is the only agent with proven efficacy for the treatment of HIV infection (8). Recent data suggest that zidovudine may be useful in treating both symptomatic and asymptomatic HIV-infected persons with evidence of declining immunity (an absolute CD4+ lymphocyte count of less than 500/mm³). Dosage regimens have ranged from 500 to 1200 mg per day, depending on the stage of HIV infection, generally divided into five or six doses (9). (The dosage most frequently used in treatment protocols for HIV-infected patients has been 200 mg every 4 hours.)

Because of its efficacy in treating established HIV infection, it has been proposed that zidovudine should be given as prophylaxis following occupational exposure, and some clinicians have offered this option (10). However, there are not enough scientific data to define the clinical efficacy or the side-effects of zidovudine when used for this purpose. The possible long-term adverse effects of zidovudine are of particular concern in considering its use as prophylaxis in health care workers who have been occupationally exposed to HIV.** The routine administration of zidovudine following occupational exposure to HIV can therefore not be recommended at this time.

Where available, chemoprophylaxis using zidovudine might be considered as an experimental approach. The benefit/risk ratio for zidovudine is likely to be highest for exposures entailing the greatest risk of HIV infection.

* The WHO Secretariat wishes to point out, based on information that has become available since the Consultation, that the risk of HIV transmission through breast milk is higher around the time of seroconversion. A nursing health care worker who suspects she may recently have been infected through occupational exposure therefore needs to weigh carefully the important immunological, nutritional, psychosocial and child-spacing benefits of breast-feeding against the risk of transmitting HIV to her baby. She should consider alternative modes of infant feeding, which are likely to be safe, available and affordable in sufficient quantities throughout infancy. In other circumstances, however, and particularly where the safe and effective use of alternatives is not available, breast-feeding by the biological mother should continue to be the feeding method of choice.

** In lifetime studies of zidovudine carcinogenicity, mice and rats given zidovudine were found to develop vaginal neoplasms, including carcinomas; the earliest occurred after 19 months of treatment (Comprehensive Information for Investigators, Brochure for Retrovir, Burroughs Wellcome Company, January 1989). However, these animal studies must be interpreted with caution; they do not establish that the drug has a carcinogenic effect in humans.

When zidovudine prophylaxis is being considered, the health care worker should be counselled regarding: (a) the theoretical rationale for postexposure prophylaxis; (b) the risk of occupationally acquired HIV infection; (c) the limitations on current knowledge of the efficacy and side-effects of zidovudine when used for postexposure prophylaxis; (d) the risk of adverse side-effects of zidovudine; (e) the need to consider longer postexposure follow-up (including HIV serological testing) if zidovudine is used; and (f) the need for follow-up after the treatment regimen is discontinued. Any prophylactic medication must be offered with informed consent, on a voluntary basis. The worker's right to refuse to participate in such action must be without recrimination. Consideration should be given, in accordance with local standards for research, to obtaining written informed consent from the worker for this experimental use of zidovudine.

If zidovudine is taken, clinical evaluation for toxicity is necessary during treatment. Side-effects of the drug in asymptomatic HIV-infected persons have included moderate-to-severe haematological toxicity (anaemia, granulocytopenia and low platelet count), nausea and vomiting (9).

HIV serological testing should be performed according to the protocol recommended in section 1.4 and continued until at least 6 months after the completion of prophylaxis.

Because of the unknown risk of teratogenesis associated with this drug, men and women of childbearing age should abstain from sexual intercourse or should use appropriate contraception for preventing pregnancy throughout the time zidovudine is being taken. This is in addition to the recommendation that all exposed health care workers should postpone pregnancy and abstain from sexual intercourse or use latex condoms during sexual intercourse, in order to prevent possible perinatal and sexual transmission of HIV. Women should refrain from breast-feeding while taking zidovudine since the effects on the child are unknown.

Data from animal studies suggest that zidovudine prophylaxis is less likely to be of benefit as prophylaxis if not started promptly (11-13); it should be started preferably within one hour of the exposure and certainly within the first 2-5 days.

These considerations will require periodic re-evaluation as new data on the efficacy and toxicity of zidovudine and/or other prophylactic interventions become available.

7. Implications for employment, labour relations and workers' rights

Consistent policies and procedures concerning action to be taken after occupational exposure of health care workers to HIV should be developed through consultations between workers and employers and their organizations, and, where appropriate, government agencies and other organizations. These policies and procedures must be communicated to all those concerned.

7.1 Postexposure procedures

Exposed health care workers should be given immediate access to confidential medical care and counselling, at no cost to the employees. One means of ensuring confidentiality is to have medical care and counselling carried out by persons with whom the employee does not have a close working relationship.

While highly recommended, participation in actions such as receiving counselling, storing blood specimens, testing and taking any prophylactic medication following exposure must be voluntary, and the health care worker's right to refuse to participate in such action must be without recrimination.

While the confidentiality of the medical information relating to the health care worker must be maintained, all incidents of occupational exposure should be reported to the appropriate authority. The confidentiality of the source patient must also be respected.

7.2 Protection of the employee

Persons in the workplace infected with, or perceived to be infected with, HIV must be protected from stigmatization and discrimination by colleagues, unions, employers, patients or clients. Information and education are essential to maintain the climate of mutual understanding necessary to ensure this protection.

7.3 Continuation of the employment relationship

In general, an HIV-exposed health care worker does not pose a risk to patients or co-workers, and work restrictions are not needed. If working conditions need to be altered because of the worker's health status or emotional reaction resulting from HIV exposure, reasonable alternative arrangements should be made. The relevant decisions should be taken by the responsible occupational health service or other appropriate authority, in consultation with the exposed health care worker and, if desired, his or her chosen representative. If there is no appropriate alternative work available, the exposed employee should have access to benefits such as social security and occupationally related benefits equal to those of workers with other occupationally acquired diseases.

7.4 Protection from termination of employment

Exposure to HIV infection is not grounds for termination of employment of health care workers.

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