

# ABC of AIDS

D JEFFRIES

## CONTROL OF INFECTION POLICIES

### Selected guidelines

Advisory Committee on Dangerous Pathogens LAV/HTLV III. *The Causative Agent of AIDS and Related Conditions. Revised Guidelines.* DHSS, June 1986.

*Acquired Immune Deficiency Syndrome—General Information for Doctors.* DHSS, May 1985.

*Acquired Immune Deficiency Syndrome. Booklet 3. Guidance for Surgeons, Anaesthetists, Dentists and their teams in dealing with patients infected with HTLV III.* DHSS, April 1986.

*Children at School and Problems related to AIDS.* Department of Education and Science and Welsh Office, June 1986.

*Information and Guidance on AIDS for Local Authority Staff.* DHSS, July 1986.

*Acquired Immune Deficiency Syndrome. Guidance Notes for Environmental Health Officers.* Institution of Environmental Health Office, 1987.

Intensive epidemiological studies of human immunodeficiency virus (HIV) infection have shown that it is not transmitted in the community by casual or intimate non-sexual contact. There are only four known cases of health care staff being infected through inoculation injuries despite the fact that hundreds of people are known to have had penetrating wounds from instruments and needles used for HIV positive patients. A large survey of ward and laboratory staff (1758) who had been in constant contact with infected patients and their body fluids since the beginning of the epidemic showed two other possible cases of needlestick infection. Five cases of infection have occurred after exposure of broken skin and mucous membranes to the blood of HIV infected patients.

With these facts in mind, it is important to design infection control policies which, while protecting staff against the remote risk of infection from exposure of mucous membrane and skin and from penetrating wounds, allow the patient to receive full medical and dental care. The extremely low infectivity of HIV in health care, where inoculation injury is relatively common, emphasises the much lower risks in the community from patients with AIDS or asymptomatic carriers of HIV. The absence of a threat to public health other than by sexual contact or blood transfer renders it unnecessary to consider any form of routine screening programme. Thus health care workers and society in general will need to adjust to the potential, albeit remote, risk of exposure to the blood of others. In the United Kingdom the Department of Health and Social Security and many other bodies have issued guidelines to educate and protect health care and community workers.

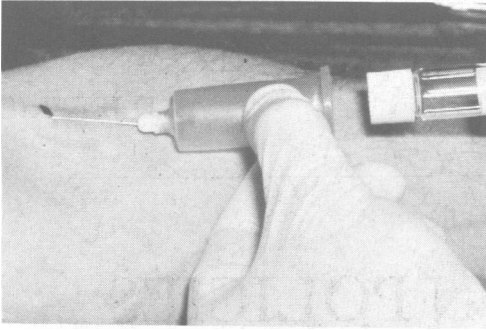
### Hospital care



Bronchoscopy in a patient infected with HIV.

HIV positivity per se is not an indication for isolating the patient. It is important to isolate the patient, however, if he or she has other infections, such as tuberculosis or salmonellosis, or if there is a likelihood of extensive exposure to body fluids—for example, because of extensive haemorrhage or severe diarrhoea. Medical practices in most countries should be of a sufficiently high standard to eliminate any risk of patient to patient spread of HIV in hospital. This is achieved, as part of general infection control procedures, by using disposables and by paying careful attention to decontamination and sterilisation. Attempts to recycle disposables or to bypass accepted disinfection procedures may lead to nosocomial infection.

Staff should adopt sensible precautions if contamination with blood or other body fluids is likely. This applies particularly to the management of known virus carriers but should also be considered for any patient. In most cases precautions entail no more than wearing disposable gloves and an apron, but in certain circumstances, such as bronchoscopy, protective spectacles and a mask may be necessary to protect the eyes and lips. Most aspects of patient care and examination do not expose the staff to body fluids, and protective clothing is not required. Disposable gloves do not protect against needle injury, which presents a major threat to clinical staff. Many staff suffer inoculation injuries while manipulating needles and sharp instruments. Education and careful attention to technique will reduce the risks to a minimum. No attempt should be made to resheath needles and they should be placed immediately into safe sharps disposal containers.



A vacuum collection system of the type shown reduces the risk of spillage when large volumes of blood are required.

## Laboratory work



The international biohazard symbol.

Although there is little epidemiological evidence of increased risk, most hospitals assume that special care should be taken during surgery on HIV carriers. This usually means adopting pre-existing policies for hepatitis B carriers. Preventing unnecessary exposure to body fluids and trying to reduce the incidence of penetrating injuries to a minimum are the best defence against infections, which may be present, but unsuspected, in any patient.

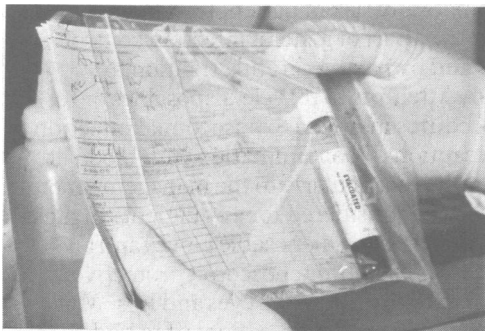
There is no evidence that health care workers who are carriers of HIV present a risk to their patients. Careful attention to personal hygiene will ensure that there is no danger of transferring blood or other body fluids.

Clinical laboratory staff are at risk from certain pathogens, particularly *Mycobacterium tuberculosis* and hepatitis B virus. The Advisory Committee on Dangerous Pathogens has produced specific guidelines for work on samples from HIV positive patients. The most important aspects of safety in the laboratory are education, training, and prevention of inoculation and skin contact with body fluids. It is important to review all laboratory procedures to reduce the use of needles and the danger of exposure to glass fragments to a minimum. Reducing the risk may necessitate increased investment in automatic pipetting systems to replace the need for glass pipettes. The absence of evidence of airborne transmission means that HIV positive samples may be handled on the open bench. The current practice of alerting laboratory staff to samples from known or suspected HIV positive patients by the use of biohazard stickers may be defended on the basis that it reduces risks. It must, however, be emphasised constantly that in the present epidemic no unfixed specimen can be considered free from infection.

## Community aspects

Cutlery, crockery, clothing  
—decontaminated by normal washing

Decontaminate blood spillages with bleach  
(hypochlorite)



Secure bagging for specimen and request sent to laboratory.

HIV carriers in the community present no risk to others from normal day to day contact. The combined effects of dilution, temperature, and detergent action ensure that standard washing procedures will satisfactorily decontaminate cutlery, crockery, and clothing. Although the dangers are remote, it is sensible to ensure that blood spillages (from anyone) are decontaminated with hypochlorite (bleach) and carefully cleaned up. The absence of evidence that saliva can transmit HIV means that nobody should withhold mouth to mouth resuscitation from someone who has suffered a respiratory arrest. Protective clothing should be available for use in certain specialised areas, particularly if there is a likelihood of contamination of skin and clothing with body fluids, but in general the need for such precautions will be rare. Members of the rescue services who frequently carry out resuscitation, often in cases in which facial injury exposes them to blood as well as saliva, are provided with masks and other devices. But anyone attempting to use a resuscitation device must be adequately trained as, in the wrong hands, it may prejudice the life of the casualty and in some cases increase the potential risks to the operator by causing bleeding.

## Disinfection

### Disinfection

Autoclave or use disposables if possible

Hypochlorite (1000 ppm available chlorine)  
for general decontamination

Hypochlorite (10 000 ppm available chlorine)  
If organic matter present

2% Glutaraldehyde (freshly activated),  
10% formalin (4% formaldehyde),  
2% phenolics,  
70% ethyl and isopropyl alcohols, and  
strong acid (pH <2.0) will inactivate HIV but  
not all other pathogens

An important method of reducing the potential infectivity of viruses is dilution. Thus procedures such as thorough cleaning and handwashing are central to any infection control policy and must never be neglected. HIV has been described as a fragile virus, and this is true to an extent. Although it is effectively inactivated by many different agents, the virus may survive for prolonged periods at ambient temperatures. This means that any surfaces and fomites that have been in contact with clinical material must be decontaminated.

The trend towards the use of disposables reduces the need for decontamination in many areas. Thorough cleaning followed by heat sterilisation should be adopted, if at all possible, for any reusable equipment. Although HIV is rapidly inactivated by boiling, autoclaving will, it is to be hoped, become the norm in clinical practice. With increasing numbers of potentially vulnerable HIV carriers in the community it is important to ensure that instruments are rendered free of all organisms, including bacterial and fungal spores.

Liquid disinfectants must always be considered a poor alternative to heat sterilisation. Difficulties exist in controlling their potency, some are caustic, and some are rapidly inactivated by organic matter. For most purposes in hospital or community use if it is necessary to use a liquid disinfectant it is sensible to choose one which is known to inactivate hepatitis B and other pathogens as well as HIV. This restricts the choice to hypochlorite (which corrodes metal) or glutaraldehyde. Other agents known to inactivate HIV, such as alcohol and phenolics, may have some use in decontamination but are not effective against other important pathogens.

## First aid and inoculation injuries

### First aid

Body fluids on skin, in eyes, or in mouth  
—wash away immediately

Penetrating wounds—  
(a) encourage bleeding

(b) wash with soap and water

(c) report to supervisor and medical officer

Any blood or other body fluids on the skin should be washed away with soap and water. Splashes into the mouth or eye should be diluted by washing, and sterile eye wash bottles should be provided in any areas where this is likely to occur. A skin puncture should be encouraged to bleed in an attempt to express any material deposited in the wound. The wound should then be washed thoroughly. Any injury to a member of staff should be immediately reported to the person in charge and then to the occupational health physician or other medical advisor. In hospital this allows the opportunity to investigate the state of health of the person inoculated and, if necessary, to take protective measures such as hepatitis B prophylaxis or antibiotic cover. The staff member and the medical advisor should discuss whether blood samples should be taken for future reference or HIV testing and whether a programme of follow up consultations should be started. Those concerned in counselling people who have suffered inoculation injuries should have enough knowledge to reassure them of the extremely low risks of infection.

Finally, to return to the theme of education, it is essential that all people in contact with the body fluids of others, including health care workers and members of the rescue services, should be aware of the potential danger of hand lesions. In most cases cuts and grazes can be covered adequately with a waterproof dressing. More extensive lesions such as eczema may require the use of disposable gloves until healing has occurred.

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