HEALTH NOTICE

DEPARTMENT OF HEALTH AND SOCIAL SECURITY

To: Regional Health Authorities
District Health Authorities
Special Health Authorities for the London
Postgraduates Teaching Hospitals
Central Blood Laboratories Authority
Public Health Laboratory Service Board
Family Practitioner Committees
Community Health Councils

— for information

June 1986

HEALTH SERVICES DEVELOPMENT

ADVISORY COMMITTEE ON DANGEROUS PATHOGENS (ACDP):
REVISED GUIDELINES ON LAV/HTLV III – THE CAUSATIVE
AGENT OF AIDS AND RELATED CONDITIONS

SUMMARY

This Notice introduces Guidelines, drawn up by the Advisory Committee on Dangerous Pathogens, which set out the measures to be taken to safeguard the health and safety of people who, because of their work, come into direct contact with AIDS or other LAV/HTLV III infected patients, or specimens from them. They are a revision of Interim Guidelines issued under cover of HC(85)2.

INTRODUCTION

1. In its revision of the Guidelines the ACDP is still aiming primarily at clinical and laboratory staff, other hospital workers and researchers who may have contact with AIDS patients and others infected with LAV/HTLV III, or specimens from them. However the Guidelines contain a great deal of information, based on the most up to date scientific work, that will be of interest to a wider audience. ACDP recommends that the Guidelines be adopted whenever LAV/HTLV III infection is suspected or has been diagnosed. The Committee will continue to keep abreast of scientific development and knowledge in respect of LAV/HTLV III, the enclosed Guidelines will however remain in force for the foreseeable future.

CONTENT AND IMPLEMENTATION

2. These new Guidelines reflect a substantial body of epidemiological information which shows that airborne transmission of the virus during the course of patient contact and treatment and in clinical laboratory work is most unlikely.

3. Emphasis is placed on avoiding direct (or indirect) parenteral exposure to blood and body fluids which is the main risk, but as the possibility of LAV/HTLV III infection arising from an unusually high respiratory challenge still can not be entirely dismissed it is recommended that propagation and concentration of the virus be conducted at Containment Level 3. The Guidelines encourage the maintenance and use of good practice in terms of disinfection, simple personal protection measures and the safe disposal of contaminated waste.

4. For the clinical laboratory examination of LAV/HTLV III specimens, work should be conducted at a defined work-station in a laboratory at not less than Containment Level 2. According to the anticipated work-load this work station, which allows seclusion primarily to avoid inoculation accidents, may be sited either in a separate room or within a working laboratory. No microbiological safety cabinet is required unless the virus is to be propagated or concentrated, or unless processes are to be used which disperse significant numbers of airborne droplets, or the specimens under examination contain other pathogens for which airborne transmission is a recognised risk.
5. The need to dedicate analytical equipment for work on LAV/HTLV III specimens will come only from a local decision to segregate the work altogether because of the size of the work-load.

6. Isolation of patients infected with LAV/HTLV III is not recommended except where the attending physician considers it necessary for the welfare of the patient or where a secondary infection presents a risk to others, or where the patient is incontinent, bleeding or mentally disturbed.

7. The Guidelines recommend the involvement of all health care workers through safety committees and safety representatives in the development of local policies for infection control.

8. It is the Department's view that any health care staff who experience parenteral exposure to LAV/HTLV III infection in the course of their work should be encouraged to participate in the confidential surveillance scheme operated jointly by the Association of Medical Microbiologists and the Communicable Disease Surveillance Centre of the PHLS.

**ACTION**

9. Health Authorities are asked to comply with the recommendations in the revised Guidelines as soon as practicable, and to bring them and this circular to the attention of appropriate staff.

**CANCELLATION OF PREVIOUS GUIDANCE**

10. HC(85)2 is cancelled.

11. Further copies of the Guidelines are available free of charge from the address below.*

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*From:
Health Services Division 1B
Room 1225
Hannibal House
Elephant and Castle
LONDON SE1 6TE

Tel. 01-703 6380 Ext 3536

*Further copies of this Notice and the Guidelines may be obtained from DHSS Store, Health Publications Unit, No 2 Sites, Manchester Road, Heywood, Lancs OL10 2PZ quoting code and serial number appearing at top right hand corner.

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Foreword

The Interim Guidelines on AIDS were issued in January 1985. The Advisory Committee on Dangerous Pathogens (ACDP) recommended that the guidelines should be reviewed 12 months after publication.

In the intervening period considerable experience has been gained of the practicalities of implementation. The Health and Safety Commission's Health Services Advisory Committee has considered this aspect of the recommended control measures and has made its views known to the ACDP.

Since publication of the Interim Guidelines, there has been a considerable increase in knowledge of the epidemiology and natural history of LAV/HTLV III infection, much aided by the introduction of screening tests. The work of doctors and scientists worldwide in studying all aspects of this infection is leading to new information becoming increasingly available on a number of fronts and the ACDP will continue to keep abreast of developments.

The preface to the Interim Guidelines invited those who wished to provide information or to comment to write to the ACDP. The Committee was most grateful to the many individuals and organisations who responded so helpfully.

The revised guidelines in this document have been prepared in the light of recently published information on the subject and the comment received from many sources. The Committee has not altered its view of the intrinsic hazard of the virus responsible for AIDS, and LAV/HTLV III is therefore still categorised as a Hazard Group 3 pathogen. The Committee has, however, been able to provide an up-to-date assessment of the risks of infection. It is reassuring to learn that despite the large number of recorded incidents of direct exposure both here and abroad, transmission of the infection in the work environment is an exceedingly rare event.

The revised guidelines provided by the Advisory Committee on Dangerous Pathogens and endorsed by the Health Departments, the Health and Safety Commission and the Health and Safety Executive will allow concentration of effort and resources on the most appropriate control measures.

June 1986
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PREFACE

When the Interim Guidelines on AIDS were published in 1984 the ACDP fully recognised that there would be a need to reconsider its advice within a set period. Because of the special nature of AIDS there has, in a very short time, been an unprecedented level of international interest and effort directed at understanding and dealing with this new disease.

In revising its guidance the Committee has examined all the new evidence available to it arising from scientific work and taken account of the informed comment provided during the interim period. Some important facts about LAV/HTLV III (the 'AIDS virus') have emerged. It is now known to be associated with a number of disease states, a low transmissibility is apparent and spread has been almost exclusively by sexual activity, direct contact with contaminated blood (particularly through needle-sharing by drug-abusers) and the administration of contaminated blood and blood products for medical purposes.

It now also seems that the number of those known to be infected with the virus who have progressed to AIDS during the study period are in a minority. Now that screening tests have become more widely available it is estimated that for every known case of AIDS there may be as many as 50 to 100 infected individuals not all of whom will necessarily show any overt signs of illness. The original criteria for the diagnosis of AIDS have been slightly modified but cases continue to fall almost entirely into the recognised risk groups none of which is associated with any particular occupation. We now have knowledge of very many incidents of direct exposure of health care staff to the body fluids of infected patients (many by accidental self-inoculation) but there have been only two fully substantiated cases of sero-conversion. In the USA there are 3 other possibly work-associated but less well substantiated cases in which there is serological evidence of infection. None of these has developed AIDS.

Although the Committee has not altered its view of the potential hazard of LAV/HTLV III it is now in a position to revise its assessment of the risk of infection. The following recommendations will allow concentration of effort and resources on those precautionary measures which are most appropriate to deal with the risk, and should be read in the context of:

1. The legal responsibility of employers under Section 2(1) of the Health and Safety at Work etc Act 1974 to ensure so far as is reasonably practicable the health, safety and welfare at work of their employees.


ACDP
May 1986
INTRODUCTION

AIDS AND LAV/HTLV III

This summary of the background to this important new disease is intended for the general reader. More detailed clinical and scientific information is available in a number of reviews, some of which are listed below.

i. The virus that causes AIDS destroys the defences that protect humans against infection by many different agents. Humans can resist infection as a result of the activities of a variety of specialised cells which are to be found scattered throughout the body and also concentrated in various organs such as the lymph nodes and the spleen.

ii. Some of these cells, called phagocytes, take up and destroy invading bacteria. Other cells known as lymphocytes, of which there are several types with different functions, produce antibodies (B lymphocytes) and attack virus-infected cells and parasites and induce sensitivity reactions (T lymphocytes). Some types of lymphocytes have a controlling influence on the activity of other cells of the immune system. One sub-population of these promotes the immune response to infection and these cells are therefore called T-helpers (Th). Another sub-population regulates the response and thereby exerts control. These are known as T-suppressor cells (Ts). The different types of lymphocyte can be distinguished in the laboratory by treating them with antibodies which attach to specific chemical groups on their surfaces.

iii. Following methods originally developed in the USA for cultivating lymphocytes in the laboratory, discovery of the virus now known to cause AIDS was made in France in 1983 by cultivating the cells of an infected patient. Many more isolations were subsequently made in France and the USA from a wide range of cases and it is now agreed that all these viruses, although differently named, are closely related. The first French isolate came from a patient with enlarged lymph glands and was called lymphadenopathy-associated virus (LAV). The first American isolates were named human T cell lymphotropic virus Type III (HTLV III) as they were the third type of virus that the investigators had found that specifically attacked the T cells of man. Other isolates have been variously termed AIDS related virus (ARV) and immunodeficiency associated virus (IDAV). Current terminology has favoured a combination of the first two abbreviations and in these guidelines the form LAV/HTLV III has been used throughout. Very recently the International Committee on the Taxonomy of Viruses has proposed the term - human immunodeficiency viruses or HIV to cover all these agents. This proposal has yet to receive general acceptance.

iv. The genes of all these viruses are made up of ribonucleic acid (RNA) which, as the virus multiplies, is transcribed into deoxyribonucleic acid (DNA) by the use of a unique enzyme called reverse transcriptase. This is so called because it works 'backwards' in the sense that ordinarily RNA is made using DNA as a template rather than the reverse. Such viruses are therefore known as retroviruses because of this unusual property. LAV/HTLV III belongs to a sub-group of the family of retroviruses called lentiviruses, all of which tend to destroy the cells they invade, although the DNA formed by the reverse transcriptase in the virus may become integrated into the DNA of some of the infected cells and can apparently remain there permanently if the cells survive.

v. Before LAV/HTLV III can infect cells it must first attach to receptors (T4) which are found, in some number, on the surface of the T-helper
lymphocytes. As a result of infection the Th cells may be irreversibly damaged and lost from the blood and this can be recognised as a reduced cell count or a change in the ratio of Th to Ts cells. It is this depletion of the cells responsible for activating the immune response that reduces the ability of an individual to resist infection. Despite this immunodeficiency, an infected person can remain healthy. However some patients may develop serious secondary 'opportunistic' infections particularly with organisms against which T cells normally provide protection. They may also be more likely to develop certain tumours. Similar opportunistic infections are commonly seen in some other patients who are immunodeficient, because for instance they were born with faulty T cells or are under treatment with drugs which kill T cells. So acquired immune deficiency can be recognised with some certainty when a previously healthy individual with no other known reason for this form of debility develops for example, pneumonia due to the normally harmless parasite Pneumocystis carinii or the uncommon tumour known as Kaposi’s sarcoma.

It now seems that T4 type receptors are also present on a few other kinds of cell including some in the brain. LAV/HTLV III has been recovered from neural tissue and may therefore be the direct cause of the dementia which has now been recognised as one of the complications suffered by a number of AIDS patients. It is possible that an LAV/HTLV III encephalopathy with ensuing dementia or other neurological signs may be one of the longer term consequences of this infection even for those who do not go on to develop the characteristic features of the acquired immune deficiency syndrome.

vi. The syndrome or characteristic clinical pattern that we now know as AIDS was first recognised in the USA in 1981 and a formal definition of it was drawn up by the Centers for Disease Control (CDC) in Atlanta:

'.for the limited purposes of epidemiological surveillance a case of acquired immune deficiency syndrome is defined as one in which a person has a reliably diagnosed disease that is at least moderately indicative of an underlying cellular immune deficiency (such as an opportunistic infection or Kaposi's sarcoma in a person aged less than 60 years) but who at the same time, has no known underlying cause of cellular immune deficiency nor any other cause of reduced resistance reported to be associated with that disease.'

This and latterly the current wider definition from the CDC (see Appendix 4) have been in use throughout the world for epidemiological and statistical purposes.

vii. When an individual becomes infected with LAV/HTLV III, antibodies to viral proteins are produced, but unlike the case in most other infections, these antibodies appear to have little or no ability to neutralise the virus. While they do not apparently benefit the patient, they can be useful as a marker of infection in laboratory tests. LAV/HTLV III can be grown in quantity in the laboratory by infecting lymphocyte cultures and the viral proteins produced can be used in a variety of laboratory methods to test the serum of people who might be infected.

viii. Testing for antibodies is much quicker and simpler than attempting virus isolation and has particular value in studying the spread of infection in the community, in diagnosing individual cases of the disease and also in screening blood to avoid the use of donations from infected persons. However no test is perfect and it is usual to confirm any apparently positive result found in an antibody screening test by using one or more of a number of alternative methods.
ix. The majority of those infected with LAV/HTLV III have so far remained well but the proportion of LAV/HTLV III infections which lead to clinical disease is still uncertain. In the UK it is currently estimated that one in three seropositive individuals may become ill and one in ten develop AIDS.

x. After a short incubation period a small number of people have developed a self-limiting illness resembling infectious mononucleosis or glandular fever. After a longer incubation period others have developed a more persistent generalised enlargement of the lymph nodes (PGL) or one of the similar syndromes designated the AIDS-related complex (ARC). Some of these patients have been restored to good health and abnormalities detected by laboratory tests, such as altered Th/Ts ratios, have disappeared.

xi. A proportion of those infected with LAV/HTLV III progress to AIDS which invariably proves fatal. However the disease in some patients, especially those with Kaposi's sarcoma, may advance only slowly over a period of several years. The initial presentation may be that of a non-specific illness with fever, night sweats, weight-loss and perhaps diarrhoea. Lymph nodes may become enlarged and remain swollen for a long time. Infection with a yeast-like organism, Candida, may cause persistent thrush in the mouth and gullet and there may be a reactivation of latent infections such as herpes. Invasion of the lungs by Pneumocystis carinii may give rise to pneumonitis with shortness of breath and a diffuse shadowing may be seen on X-ray examination. Many other infections may supervene, ranging from bacteria such as salmonellae and mycobacteria, to viruses including cytomegalovirus and hepatitis B, and protozoa such as Toxoplasma in the brain and Giardia or Cryptosporidium in the bowel.

xii. Present methods for the isolation of the virus are rather cumbersome and do not allow a distinction between a 'latent' infection in which the patient is infected but not ill and those situations in which the patient suffers as a result of expression of the virus in destruction of lymphocytes in an active case of AIDS. The application of such methods has nevertheless taught us a great deal. Virus has been detected in blood and blood products, in breast milk, semen, vaginal fluid, saliva, tears, urine and brain tissue. LAV/HTLV III has been recovered from most of the seropositive individuals so far tested, including some who are healthy and show no laboratory evidence of immune deficiency. Moreover it has also been isolated from a number of persons in at-risk groups and known to be seronegative.

xiii. The basic structure of the virus has been determined and remarkably quickly the detailed structure of the genes of several isolates has been described. The various viruses are seen to be very similar to each other however there are differences in the regions coding for a surface glycoprotein which is an important antigen governing entry of the virus into cells. The structure of the genes of LAV/HTLV III resembles that of other lentiviruses. Furthermore, using DNA technology it is now possible to clone these genes and produce virus proteins artificially by biosynthesis in bacterial or yeast cells. These proteins may be used as antigens for the next generation of diagnostic tests and may one day lead to the production of a vaccine to prevent infection.

xiv. The question of how the infection is transmitted is best answered by examining the results of epidemiological studies. When the epidemic began in the USA and before the virus was first detected, it was deduced that the infection was being spread mainly amongst sexually active homosexuals and that the risk was greater in those with many partners who indulged in
practices such as receptive anal intercourse. Similar epidemiological studies are being conducted in the UK.

xv. At the time when blood was not being screened, some of the infected persons in this group were part of the blood donor population so many haemophiliacs became infected as did a few patients who received transfusions. These routes of infection have now been closed by a combination of measures:-- publicity to deter those in the risk groups from donating blood, heat-treating blood products to inactivate any virus they might contain and testing all blood donations for antibody discarding any that are found to be positive.

xvi. The virus can obviously be transmitted by the use of contaminated needles and the infection has spread rapidly in many countries amongst intravenous drug-abusers and has begun to do so now in the UK. The female sexual contacts of infected men (e.g. haemophiliacs and bisexuals) and female drug-abusers have themselves been infected and the babies born by these women have a high risk of contracting the disease. It has been disputed whether infection is transmitted from women to men, but instances appear to have occurred and it is suggested that this is the main reason why there are roughly equal numbers of male and female AIDS patients in Africa. In the UK at present more than 90% of all AIDS cases are in males.

xvii. Except for cases of congenital infection, the children of seropositive parents have not been shown to have contracted the infection. Similarly there is no evidence of transmission to those who meet infected persons either socially or in the course of their work.

xviii. As an occupational group, those engaged in the care of sick patients have not been shown to be especially at risk, although by and large they have used precautions like those recommended in these guidelines. Even when such precautions have been relaxed or have broken down, as when the body fluid of an infected patient has been inadvertently splashed onto a mucous membrane or where there has been an accident with a contaminated needle there have been, with two well documented exceptions, no accredited cases of occupationally acquired infection. This is based on the observation of now some hundreds of such exposed health-care workers who have been followed with regular blood tests for periods of over a year.

xix. These two cases of infection, one in a nurse in the UK and the other a US health care worker which both resulted from accidental self-inoculation with a small amount of AIDS patient's blood, do indicate that infection at work can occur and that there are occupational risks that must continue to be actively avoided.

xx. Cases of AIDS and infections without the clinical manifestations of AIDS have been found throughout Europe, including of course the UK, and the number of cases of AIDS continues to double every 6 to 12 months (see tables 1 and 2). In the USA where the epidemic started rather earlier the incidence of AIDS is significantly higher (see table 3). This indicates that there will inevitably be a steadily increasing number of possible sources of infection, including those in at risk groups who are apparently healthy and therefore go unrecognised.

xxi. In certain parts of Africa where LAV/HTLV III has probably been present longer than in the USA, small surveys have detected evidence of
infection in as much as a fifth of the sexually active population and in some parts of the USA it now seems that a majority of male homosexuals are infected. It is not assumed that this will necessarily happen in the UK but it has to be recorded that such levels of infection have been observed elsewhere.

xxii. At present there are no antiviral drugs which have been shown to confer clinical benefit in infections with LAV/HTLV III, though some do inhibit growth of the virus under laboratory conditions. No vaccine is in sight and it is not yet known whether vaccination could be effective in preventing this infection. Nevertheless, effective measures can be taken to prevent some forms of transmission. It is already possible to protect patients from infection by blood and blood products and those who work with the virus or with LAV/HTLV III infected patients can be protected by the application of the simple precautions that are recommended here. These measures will not of course influence the spread of the infection in the general population; epidemiological evidence indicates that this will require changes in social behaviour, particularly in limiting sexual intercourse to one partner and avoiding drug-abuse.

Table 1

Reported acquired immunodeficiency syndrome cases and estimated rates per million population - 21 European countries, October 1, 1984 - September 30, 1985

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>13</td>
<td>18</td>
<td>23</td>
<td>3.1</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>81</td>
<td>99</td>
<td>118</td>
<td>11.9</td>
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<tr>
<td>Czechoslovakia</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Denmark</td>
<td>31</td>
<td>41</td>
<td>48</td>
<td>57</td>
<td>11.2</td>
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<tr>
<td>Federal Republic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of Germany</td>
<td>110</td>
<td>162</td>
<td>220</td>
<td>295</td>
<td>4.8</td>
</tr>
<tr>
<td>Finland</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>10</td>
<td>2.0</td>
</tr>
<tr>
<td>France</td>
<td>221</td>
<td>307</td>
<td>392</td>
<td>466</td>
<td>8.5</td>
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<tr>
<td>Greece</td>
<td>2</td>
<td>7</td>
<td>9</td>
<td>10</td>
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<td>Italy</td>
<td>10</td>
<td>22</td>
<td>52</td>
<td>92</td>
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<tr>
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<td>-</td>
<td>-</td>
<td>1</td>
<td>3</td>
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<tr>
<td>Netherlands</td>
<td>26</td>
<td>52</td>
<td>66</td>
<td>83</td>
<td>5.7</td>
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<tr>
<td>Norway</td>
<td>4</td>
<td>8</td>
<td>11</td>
<td>14</td>
<td>3.3</td>
</tr>
<tr>
<td>Poland</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Spain</td>
<td>18</td>
<td>29</td>
<td>38</td>
<td>63</td>
<td>1.6</td>
</tr>
<tr>
<td>Sweden</td>
<td>12</td>
<td>22</td>
<td>27</td>
<td>36</td>
<td>4.3</td>
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<tr>
<td>Switzerland</td>
<td>33</td>
<td>51</td>
<td>63</td>
<td>77</td>
<td>11.8</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>88</td>
<td>140</td>
<td>176</td>
<td>225</td>
<td>4.0</td>
</tr>
<tr>
<td>Union of Soviet</td>
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<tr>
<td>Socialist Republics</td>
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<tr>
<td>Yugoslavia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>559</td>
<td>940</td>
<td>1,226</td>
<td>1,573</td>
<td></td>
</tr>
</tbody>
</table>

* Per million population based on 1985 populations.
Table 2

ACQUIRED IMMUNE DEFICIENCY SYNDROME: UNITED KINGDOM: APRIL 1986

<table>
<thead>
<tr>
<th>Patient Characteristic</th>
<th>Males</th>
<th>Females</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homosexual/bisexual</td>
<td>296</td>
<td>-</td>
<td>142</td>
</tr>
<tr>
<td>Haemophilia</td>
<td>14</td>
<td>-</td>
<td>12</td>
</tr>
<tr>
<td>Recipient of blood</td>
<td>5</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Intravenous drug abuser</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Heterosexual contact</td>
<td>-</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Visited USA/Caribbean and at possible risk</td>
<td>3</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Directly associated with sub-Saharan Africa</td>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Indirectly associated with sub-Saharan Africa</td>
<td>-</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>324</td>
<td>11</td>
<td>170</td>
</tr>
</tbody>
</table>

The figures in this table represent cumulative totals of cases reported.

Table 3

Acquired immunodeficiency syndrome cases, by date of report and doubling time — United States, through January 13 1986

<table>
<thead>
<tr>
<th>Cumulative Cases reported</th>
<th>Date</th>
<th>Doubling time (months)</th>
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</thead>
<tbody>
<tr>
<td>129</td>
<td>September 1981</td>
<td>-</td>
</tr>
<tr>
<td>257</td>
<td>February 1982</td>
<td>5</td>
</tr>
<tr>
<td>514</td>
<td>July 1982</td>
<td>5</td>
</tr>
<tr>
<td>1,029</td>
<td>January 1983</td>
<td>6</td>
</tr>
<tr>
<td>2,057</td>
<td>August 1983</td>
<td>7</td>
</tr>
<tr>
<td>4,115</td>
<td>April 1984</td>
<td>8</td>
</tr>
<tr>
<td>8,229</td>
<td>February 1985</td>
<td>10</td>
</tr>
<tr>
<td>16,458</td>
<td>January 1986</td>
<td>11</td>
</tr>
</tbody>
</table>

Tables 1 and 3 appear with the permission of the Centers for Disease Control, US Department of Health and Human Services, Atlanta, Georgia, USA. and were first published in the Morbidity and Mortality Weekly Report.

Table 2 is reproduced here with the permission of the Communicable Disease Surveillance Centre, Public Health Laboratory Service, Colindale, London. NW9 5EQ.
FURTHER READING


LAV/HTLV III THE CAUSATIVE AGENT OF AIDS AND RELATED CONDITIONS

HAZARD CATEGORISATION OF LAV/HTLV III

1. It was stated in the AIDS Interim Guidelines that in using the definitions adopted by the ACDP (in Categorisation of Pathogens According to Hazard and Categories of Containment 1984), LAV/HTLV III did not fit neatly into either Hazard Group 3 or 4. While there is no doubt that infection with this virus can lead to severe disease for which there is no effective prophylaxis or treatment, it still does not present a high risk of spreading in the community except in the high risk groups. This view has not changed and on current evidence is unlikely to do so in the foreseeable future. The ACDP therefore sees no reason to revise its categorisation of the virus as a Hazard Group 3 pathogen. However, with increased knowledge of the characteristics and behaviour of LAV/HTLV III and a better understanding of its modes of transmission, it is now possible to provide an updated assessment of the risks.

2. Both epidemiological evidence and experience gained from work with large numbers of LAV/HTLV III positive patients and their clinical specimens strongly indicate that the conjectured risk of infection by the airborne route cannot be substantiated. It is therefore appropriate in considering precautions for clinical and laboratory work to concentrate effort on preventing parenteral exposure which is the main risk.

3. However at present there is insufficient information to enable the ACDP to dismiss the possibility that if the virus is propagated or concentrated then infection might result from an unusually high respiratory challenge. For this reason it is necessary to maintain the recommendation that such work continues to be conducted at Containment Level 3.

GENERAL HAZARD AND RISK STATEMENT

4. The increasing range of clinical conditions resulting from infection with LAV/HTLV III referred to in the Introduction, shows that there are very serious consequences for a proportion of those infected, although not all will necessarily develop AIDS, which to date has invariably been a fatal disease. For this reason the intrinsic hazard of infection should not be under-estimated. Estimates of the proportion of those infected who progress to AIDS over a maximum observation period of 5 years vary between 1% and 15% depending on the risk group examined. Amongst infected haemophiliacs, for example, the incidence of AIDS in a 3 year follow-up study has been approximately 1% while the higher figure is associated with the homosexual group. Steadily improving knowledge of the natural history of LAV/HTLV III indicates that the risk of becoming infected is small except for those in the recognised high risk groups none of which is associated with any particular occupation.

5. The main modes of transmission are now clearly seen to be sexual intercourse and parenteral inoculation with contaminated blood and body fluids; an increasing number of seroconversions is being observed amongst intravenous drug abusers. Earlier fears that AIDS might develop following exposure to respirable airborne droplets have not been borne out and no recorded case can be attributed to this form of exposure. Outside of the recognised high risk groups those with the most obvious potential occupational risk are clinical and laboratory workers who deal directly with infected patients and specimens. To date however even in this group
despite numerous recorded incidents of occupational exposure to LAV/HTLV III, no health care worker other than those in the high risk groups has developed AIDS. There are still only two case of zero-conversion which are definitely attributable to the accidental inoculation of infected blood. In these cases, tests showed no evidence of previous infection while three other cases of LAV/HTLV III infection said to be associated with work are less well substantiated.

6. Many haemophiliacs and some transfusion recipients have been infected with LAV/HTLV III due to the administration of contaminated blood and blood products but only a few of them have developed AIDS. Steps have now been taken to screen donations of blood and where necessary to heat-treat blood products so as to prevent further infection by these routes.

7. The epidemiology of LAV/HTLV III infection is becoming clearer and 5 years on from recognition of the first cases of AIDS in the USA it is apparent that infection has not been shown to be transmitted by everyday social and domestic contact e.g. in public places, in the home, at school or at work, in sharing meals or in using common facilities. There is at present no indication that pregnant women are intrinsically more susceptible to infection with LAV/HTLV III than anyone else. However there is now evidence to suggest that if a woman becomes pregnant while infected or contracts the infection during pregnancy then the risk of progression to AIDS is enhanced. In either case there is a high probability of transmitting the infection to the fetus and a substantial proportion of the infants of infected mothers have developed AIDS. Without doubt sexual contact with an infected person and direct parenteral exposure to contaminated blood or body fluids, which may arise from intravenous drug abuse for example, both carry a significant risk.

8. Apart from those dealing with patients and specimens day to day in hospitals and clinics there are other groups of workers who face a potential risk by virtue of incidental exposure to body fluids in the course of their duties. These will include community, welfare, custodial and emergency service workers and those responsible for the retrieval and disposal of bodies. Concern has also arisen in educational establishments where haemophiliac children are known to be present. There have been no recorded cases of infection arising from such activities but it is essential that training and hygiene practices should be reviewed to ensure that they are satisfactory for the protection of these groups and reference should be made to the appropriate occupational code of practice. In one unusual case of transmission it is probable that virus entered via the unprotected lesions of eczema on the hands and arms of a woman who had cared for an LAV/HTLV III infected neighbour. Workers responsible for the running and maintenance of hospital or public waste disposal systems and plant and those who are in daily contact with sewerage effluent should observe the precautionary measures which would usually be adopted in these circumstances for the prevention of other infections. These will provide suitable protection against LAV/HTLV III.

GENERAL COUNTER-INFECTION MEASURES

9. The primary counter-infection measures applicable to any occupational exposure to LAV/HTLV III are:

1. Prevention of puncture wounds, cuts and abrasions in the presence of blood and body fluids and the protection of existing wounds and skin lesions.
2. The application of simple protective measures designed to avoid contamination of the person or clothing and good basic hygiene practices including regular hand washing.

3. Control of surface contamination with blood and body fluids by containment and disinfection.

4. The safe disposal of contaminated waste.

10. General information and advice on avoiding or controlling infection risks has now been prepared for a number of occupational groups, for the high risk groups and the general public. Reference to them in Appendix 2 is for information and their inclusion does not necessarily imply the endorsement of this Committee. Public health provisions made under the Public Health (Control of Disease) Act 1984 are set out in Appendix 5.

11. More detailed guidance for clinical and laboratory staff is given below.

GUIDELINES FOR HEALTH CARE AND LABORATORY STAFF

12. It is essential to remember that there will always be patients or specimens which have not been identified as presenting a risk of infection. Some infected persons will inevitably appear in hospitals, clinics and dental surgeries for treatment of conditions unrelated to LAV/HTLV III. Some of these treatments may involve invasive procedures and this emphasises the importance of maintaining at all times a good standard of operational practice designed to avoid any inadvertent infection.

13. There is however a need to supplement these good basic control measures when circumstances demand it. Although not all cases of LAV/HTLV III infection will be known, 3 prime risk categories can be identified.

1. Confirmed or suspected cases of AIDS.

2. Patients with various symptoms recognised as highly indicative of LAV/HTLV III infection e.g. persistent generalised lymphadenopathy.

3. Other persons known to be LAV/HTLV III antibody positive or positive for other markers of infection.

14. All specimens, waste materials and the bodies of persons in these groups should always be handled so as to avoid any possibility of accidental self-inoculation or contamination of existing wounds, skin lesions or of mucous membranes.

15. From observation of the epidemiology of AIDS cases in the UK, it appears that the groups with an increased prevalence or likelihood of LAV/HTLV III infection are:

1. Homosexual and bisexual males

2. Intravenous drug abusers

3. Haemophiliacs
4. Persons who have returned from sub-Saharan Africa during the last 5 years

5. Sexual partners and babies of any of the above.

16. Application of LAV/HTLV III control measures to the groups listed in para 15 will be entirely dependent on knowledge of the individual case. It is the responsibility of the medical staff looking after the patient to assess whether he or she should be included in the high risk category.

HEPATITIS B IMMUNISATION AND LAV/HTLV III INFECTION

17. Genetically engineered and synthetic hepatitis B surface antigens are now under evaluation as immunogens for use in vaccine production. Until these new products, which should be free of any possible infection risk, have been fully developed, vaccines used to protect health care staff and others exposed to a risk of hepatitis B infection continue to be prepared from plasma of known carriers. It can be expected that some of these carriers will also be infected with LAV/HTLV III. However, the vaccine purification and inactivation process which involves several stages of physical and chemical treatment has been shown to provide a non-infectious product.

18. Recent work on the serology of hepatitis B vaccinees has not shown the development of LAV/HTLV III antibody nor is there any reason to believe that the many thousands of personnel in health care work who have now received hepatitis B vaccine have suffered any ill-effect attributable to LAV/HTLV III.

19. Hepatitis B specific immunoglobulin is often used for passive immunisation by intramuscular inoculation following accidents with known or suspected hepatitis B risk blood. Although in the USA at least some commercial preparations of both hepatitis B and normal immunoglobulins have been shown to contain LAV/HTLV III antibody, processing of the plasma from which they are derived by alcohol precipitation renders them safe. Furthermore the screening of blood donations for immunoglobulin preparation is now routine practice. No cases of LAV/HTLV III infection have been associated with the use of these products.

SERO TESTING OF HEALTH CARE STAFF

20. Staff exposed to patients or specimens infected with LAV/HTLV III should be made aware that laboratory tests for the detection of antibodies to the virus are now widely available. Personal arrangements for a test can be made by them through their general practitioners, at clinics for sexually transmitted diseases and at other clinics designated by local Health Authorities. (See AIDS Booklet No 2 - Information for Doctors Concerning the Introduction of the LAV/HTLV III Antibody Test - DHSS October 1985 CMO(85)12).

21. However it is recommended that as part of occupational health practice, local arrangements must be made either to test, or store for future testing on demand, the serum of those staff who make requests for this in connection with their work. Staff who have an accident with LAV/HTLV III virus or contaminated material should promptly be offered the chance of having their serum tested or stored for possible future testing. In this case an 'immediate' specimen would be required followed by further specimens at intervals thereafter.
22. In all cases this must be an entirely voluntary procedure with the clear understanding that no firm prognosis can be made if the result is positive and that the result of the test is a matter of strict confidence between the person tested and his or her medical counsellor.

23. A great deal has been learned about the risks of LAV/HTLV III infection to health care staff following numerous incidents of direct exposure both before and after the introduction of counter-infection measures. This information is available only because those involved volunteered to be tested.

PATIENTS

24. Persons with LAV/HTLV III infection as indicated by a confirmed positive antibody test or other specific marker of infection will present with a variety of conditions ranging from those with symptoms not directly associated with the infection through to the full syndrome of AIDS. Some of these may require a high level of support but to reduce the risk of transmitting infection, investigations involving invasive procedures should be undertaken only when they are essential.

25. Staff who have dealings with known or suspected seropositive patients (see paras 13, 15 and 16) whether in hospital or in the community, or handle specimens from them must be made fully aware of the risks and must be made thoroughly familiar with the appropriate infection-control measures. These must be part of written local codes of practice. The codes for those associated with the community care of AIDS patients and other LAV/HTLV III infected persons (e.g. the codes for ambulance staff and nursing and domiciliary health-care staff) must set out practices and procedures comparable with those described here. The need to preserve confidentiality must also be stressed. This difficult combination of factors which is aimed both at the welfare of the patient and the health and safety of the staff will be achieved only if good communication is effectively maintained.

PATIENT CARE

26. Only staff trained in the precautions appropriate for LAV/HTLV III should be engaged in patient care. (See paras 9 to 16, 24 and 25). Single room isolation of patients infected with LAV/HTLV III is not generally necessary for the safety of staff and other patients. However those undertaking invasive procedures should have sufficient working room so as to be free of the risk of disturbance or accidental contact with other people. Only when the patient suffers uncontrolled bleeding, is incontinent, is mentally disturbed or confused or where a secondary infection presents a risk to others will there be a need for isolation. The decision to adopt isolation measures must be based on individual clinical assessment and the need for privacy. Staff looking after patients requiring isolation should be properly trained in isolation techniques and the isolation unit should be adequately equipped. Gloves, gowns or aprons and eye protection will be necessary if there is likely to be exposure to blood and body fluids. Contaminated articles, especially sharps, must be disposed of safely in all circumstances and spillage of blood, excreta and body fluids dealt with by prompt disinfection.

27. It may be decided that some articles used by the patient will require special attention and need careful handling. Bagged linen for example should be laundered without sorting, using the hot wash cycle employed for 'infected' hospital laundry. Specific recommendations on the decontamination of equipment and the laundering of linen from LAV/HTLV III and hepatitis B patients are in preparation by the DHSS.
PRECAUTIONS FOR INVASIVE PROCEDURES INCLUDING SPECIMEN TAKING

28. LAV/HTLV III has been isolated from whole blood, cell free serum and plasma, breast milk, semen, vaginal and cervical secretions, urine, saliva, tears, cerebrospinal fluid, and brain tissue. Although there have been no reports of the virus appearing in faeces it is reasonable to assume that they too are a potential source of infection especially if contaminated with blood. Although LAV/HTLV III is obviously disseminated widely throughout the body there is no record to date of infection having occurred other than from blood, blood products, semen and possibly breast milk.

29. Particular care must be exercised when needles and other sharps are to be used for invasive procedures including specimen taking from patients known to be infected with LAV/HTLV III and from those who can be identified as belonging to one of the high risk groups. Blood, body fluids and tissue specimens must be taken only by trained and experienced staff who must wear gloves, gowns or aprons and where there is a risk of splashing, eye and mouth protection. Needles must be removed from syringes with the utmost care. As approximately 40% of self-inoculation accidents occur while resheathing needles, thus must not be done unless there is a safe means available. The fluid must be gently discharged from the syringe and external contamination of the specimen container avoided. If this does occur it must be dealt with by disinfection. All disposable sharps must immediately be placed in a puncture-proof bin* which is suitable for incineration and which must not be overfilled. Non-disposable items should be placed in a suitably secure enclosure for disinfection or sterilisation. Surface soiling at the site must be disinfected promptly.

30. Accidental puncture wounds in staff must be dealt with immediately by removing the glove and washing the wound liberally with soap and water while encouraging bleeding. Any puncture wound or contamination of broken skin or mucous membranes must be reported promptly to and recorded by the person with overall responsibility for the work. (see guidance on the recording of accidents and incidents in the health services, HSAC, 1986 ISBN 0 11 883861 X).

31. After checking the security of the closure, specimens must be labelled by whatever system is recognised locally to indicate a danger of infection. Labelled specimens must be sealed in individual plastic bags without the use of pins, staples or metal clips. The accompanying request forms must clearly indicate knowledge or suspicion of LAV/HTLV III infection and must be kept separate from the specimen containers to avoid contamination.

32. Specimens should not be sent to laboratories without an agreement between the clinician and senior laboratory staff and it is the clinician's duty to ensure that all those who need to know are warned of the risk.

33. If LAV/HTLV III specimens are to be sent by inland post, the inner wrapping, the specimen container and the request form must all be marked to indicate a danger of infection. They must be packed in accordance with the recognised regulations for the postal transmission of any pathological specimen. Details of the packing and outer labelling required for inland postage are given in the Post Office Guide. It is prudent to take note of any change in postal requirements by regular reference to the latest edition of the Guide. For international postage, the revised conditions required by the Infectious Perishable Biological Substance Service (jointly agreed by the International Air Transport Association (IATA) and by the Universal Postal Union) must be observed. Details may be obtained from Postal Headquarters, 33 Grosvenor Place, London SW1X.

LABORATORY CONTAINMENT

34. A written code of practice must be drawn up for all work with LAV/HTLV III including material from patients known to be infected and from those who can be identified as being in any of the risk groups.

35. This code must identify the person responsible for the safe conduct of the work and where the volume and frequency of work (see para 42, 43) does not warrant the use of a separate room, a statement justifying the adoption of the alternative (para 42) must be included. In these circumstances provision must be made for constant review of the volume of incoming work. This code must specify procedures for handling of materials including their transport to the laboratory, their reception, storage, all matters related to the safe disposal of waste and procedures to be followed in the event of an accident. Protocols for work with LAV/HTLV III materials must be produced with the full participation of the local safety committee, safety representatives and the staff concerned.

36. Work which may lead to the intentional or unintentional propagation or concentration of the virus must be conducted in a Containment Level 3 laboratory. Such work must be confined to a microbiological safety cabinet (BS5726: 1979) or unit with equivalent protection factor or performance (See ACDP Report 1984 Appendix A).

37. Work involving the inoculation of experimental animals must be undertaken only at ACDP's Animal Containment Level 3.

38. It is recommended that work described in paragraphs 36 and 37 should continue to be drawn to the attention of the Health and Safety Executive by informing the local Area Office the address of which is given in the telephone directory.

39. Clinical laboratory work not involving propagation or concentration of the virus must be conducted in a laboratory where the standard of containment is not less than Containment Level 2 supplemented by the rules specified below.

40. The handling of LAV/HTLV III risk specimens in the clinical laboratory for work which does not involve propagation or concentration of the virus need not be confined to a microbiological safety cabinet unless there is reason to believe that a specimen contains other pathogens which do require such containment.

41. However where processes are known to generate large numbers of droplets such as blending, mixing or sonication, a microbiological safety cabinet if appropriate or other equipment designed to prevent dispersal should be used. A small HEPA filter should be fitted to the air discharge line of equipment likely to disseminate air-borne droplets.

42. In departments where it is anticipated that there will not be a need for the frequent and routine examination of LAV/HTLV III specimens, a site within a working laboratory is acceptable but only if supplemented by the rules listed below.

43. Laboratories which can predict the need for the frequent and routine examination of LAV/HTLV III specimens should have a separate room for manual tests and the preparation of samples which have to be tested in equipment that can not be dedicated.
44. Wherever work on LAV/HTLV III specimens is conducted the following rules apply:

1. work must be conducted at a delineated and secluded work-station which is clearly identified.

2. access of unauthorised persons to the proximity of the work must be prevented so as to ensure that the person carrying out the work is free from the risk of disturbance or accidental contact with others.

3. the work-station should be cleared of any unnecessary equipment or apparatus before the work starts. The bench surface and any equipment remaining there must be disinfected immediately on completion of work.

4. work on specimens other than those which present a risk of LAV/HTLV III infection may be conducted simultaneously but only if these precautions are applied throughout (but see para 40).

5. the head of the laboratory must consult and seek agreement with a fully representative safety committee. If agreement is not reached the usual procedures should be followed. The outcome of the procedures should be a occasion on the arrangements for proceeding with the work.

In case of inadequacy of facilities, work on LAV/HTLV III specimens should be referred by prior arrangement to the nearest laboratory able to carry out the work in conformity with these guidelines.

45. Gowns, disposable plastic aprons and gloves must be worn for work with specimens and eye-protection will be required when splashing is a possibility.

46. Glass pipettes must not be used for dispensing LAV/HTLV III risk materials and the use of sharp instruments must be avoided.

47. As infection can occur by parenteral inoculation, it is of paramount importance that when handling infectious material, contamination of surfaces is controlled, that existing cuts and abrasions and other skin lesions are properly protected and accidental self-inoculation and splashing of mucous membranes be avoided. Any puncture wound must be treated immediately it occurs by encouraging bleeding and liberally washing with soap and water. Puncture wounds or contamination of mucous membranes or broken skin must be reported promptly to and recorded by the person responsible for the work (see para 21) and also Guidance on the recording of accidents and incidents in the health services. HSAC 1986 ISBN 0 11 883861 X).

48. From receipt, all specimens from patients in whom LAV/HTLV III infection is suspected or has been diagnosed or from those identified as being in a high risk group must be unpacked and handled in the defined area only by trained and experienced staff.

49. If a leaking specimen container is received the head of the laboratory or a designated deputy and the person responsible for its despatch should be informed. Leaking specimens should normally be sent for immediate safe disposal but when it is not possible or practicable to obtain a repeat it may be necessary to rescue the material. This must be attempted only on the authority of the head of the laboratory or a designated deputy.
50. During work full attention must be given to the control of splashing and contamination of the bench area and care must be taken to avoid the transfer of infected material to equipment controls and surfaces. These should, as a matter of course be disinfected as soon as possible after use and immediately if contamination is suspected.

51. When centrifugation is necessary, sealed buckets must be used, and if it is seen that a container has leaked or is broken then the complete unit should be autoclaved with the lid of the bucket removed or loosened (but see paragraph 49). Centrifuge buckets should, as a routine, be treated with a non-corrosive disinfectant at the end of every working day.

52. The batching of high risk specimens for analysis is now an accepted practice. Specimens known or suspected to contain LAV/HTLV III should be handled in this way.

53. Wherever possible only analytical equipment which operates on an enclosed system should be used. In each laboratory an assessment must be made of the ways in which equipment is liable to contaminate the immediate work area. Some machines for example have a reciprocating sample probe which may generate and disperse droplets. Measures must be taken to limit spread by the provision of shields as appropriate. Any surface which is subject to splashing and to which the operator has access must be disinfected immediately after samples have been processed. At the end of each day's work the equipment should be thoroughly disinfected or otherwise treated in accordance with the manufacturer's instructions.

54. Effluent from analytical equipment must either be trapped in bottles containing a suitable disinfectant or discharged directly into the waste water plumbing system. In the latter case a discharge tube should project at least 25cm into the pipe-work. Water must flow down the waste pipe while the machine is operating and at the end of each day the waste pipe must be flushed with disinfectant so that the trap retains an effective concentration overnight.

55. Arrangements should be made so that wherever possible tissues which are known or suspected to contain LAV/HTLV III arrive at the histopathology laboratory in fixative. Time must be allowed for adequate penetration particularly when the specimens are large.

56. Whole organs or large tissue masses which are commonly received unfixed must be identified when necessary as presenting a danger of infection (see para 31) and particular care must be taken during dissection so as to avoid cuts and puncture wounds.

57. Frozen sections should not normally be prepared from unfixed specimens from patients in whom LAV/HTLV III infection is known or suspected. However when the processing of fresh material is essential, the equipment should be brought up to room temperature and thoroughly disinfected before other specimens are processed.

58. All personnel engaged in handling LAV/HTLV III risk materials in the laboratory must, following completion of this work, immediately remove their gloves, change their protective clothing and wash their hands before moving on to other activities. Used protective clothing and gloves must be disposed of safely.
59. Full attention must be given to the safe disposal of waste materials and the arrangements for autoclaving or incineration must be clearly defined (see Safe Disposal of Clinical Waste - Health and Safety Commission - Health Services Advisory Committee 1982) and the Code of Practice for the Prevention of Infection in Clinical Laboratories and Post-mortem Rooms 1978).

INACTIVATION OF SPECIMENS

60. The application of 8-propiolactone (BPL) has been shown to inactivate LAV/HTLV III under controlled laboratory conditions and in the treatment of serum, plasma and other body fluids by this means, certain analytes remain stable. Because of the suspected carcinogenic properties of BPL, its routine use for the inactivation of LAV/HTLV III in clinical specimens is not recommended. However, suitably controlled, this treatment may be of particular use for larger scale non-urgent work. A protocol for the inactivation must be prepared and strictly followed before release of treated specimens for examination. If BPL is to be used, then the protocol must draw attention to the potential hazard presented by the treatment process itself. Attention must also be drawn to the possibility that other pathogens which may be present in the specimen may remain unaffected.

**B-propiolactone** - 0.25% (single double treatments - whole blood, plasma serum.

**Biochemistry, haematology and serology**

Freeman, Codd and Selkon. Lancet 8 May 1982 1048-1049.

**Biochemistry**


**Haematology**


**Immunology and serology**

Ball, Spriggs and Chapel - (reference to follow)

**Heat at 56°C**

61. Early reports suggested that heat at 56°C for 30 minutes was sufficient to reduce the infectivity of LAV/HTLV III in the presence of serum to undetectable levels. However, more recently published work indicates that in heating virus with an initial titre of 10^7 T.C.I.D. 50/ml, infectivity is still detectable after more than three hours. Although this concentration of the virus is substantially higher than would normally be expected in clinical specimens, further studies will be needed before it is possible to recommend a practical heat treatment procedure suitable for clinical laboratory work.
REAGENTS, CONTROLS AND CALIBRANTS BASED ON HUMAN BLOOD AND BODY FLUIDS

62. As some human blood and its derivatives used as reagents controls or calibrants for laboratory purposes may come from persons infected with LAV/HTLV III, untested materials or those not treated to inactivate virus may pose an unsuspected infection risk. This possibility was drawn to the attention of users in a Health Departments' Safety Information Bulletin (SIB(85)30).

63. Manufacturers of human blood-based reagent, control and calibrant products and the distributors of external quality assessment specimens have been actively encouraged to test their raw materials and discard or inactivate those found to be LAV/HTLV III antibody positive. In-house preparations should similarly be screened before release for use in the laboratory but this should not lead to any relaxation of good basic handling techniques. A Health Notice on this topic is in preparation by the DHSS.

POST-MORTEM EXAMINATIONS

64. The post-mortem examination of patients with AIDS or others with known LAV/HTLV III infection must be undertaken only by consultant pathologists with the assistance of experienced anatomical pathology technicians.

65. This and any limited investigation such as discrete tissue sampling must be conducted only under the conditions described in the Code of Practice for the Prevention of Infection in Clinical Laboratories and Post-mortem Rooms - DHSS 1978 (Sections 3a to iv - See Appendix 3) but for disinfection see paras 70-75 of these guidelines.

PRECAUTIONS FOR BODY HANDLING AND DISPOSAL

66. If a person known or suspected to be seropositive for LAV/HTLV III (see paras 13 to 16) dies either in hospital or elsewhere it is essential that funeral personnel and others involved in handling the body are informed that there is a risk of infection. The body handlers should be encouraged to take special care and use disposable gloves (see Appendix 3). In such a case embalming is not to be recommended.

POWERED IMPLANTS

67. Certain powered devices implanted in the body during life, the commonest being the cardiac pacemaker, may present a risk of injury to staff or damage to property if the body is cremated. The power source may explode on heating in the cremating oven and for this reason is normally removed after death (see HN(83)6). Unpowered implants unless known to be a hazard should be left in the body. Any invasive operation will carry some risk of infection and removal of an implant from an LAV/HTLV III infected body should be undertaken only under the controlled conditions referred to above (as for post-mortem investigation). A body known to contain a powered implant should be transported to a hospital or local authority mortuary where an agreement has been made to remove the device before cremation and the staff concerned must be warned of the potential risk. Removal of an implant should be carried out wherever possible using 'no touch' technique and the size of the incision kept to a minimum. To avoid subsequent leakage of blood or body fluid the incision should be closed by stitching and the wound sealed with water-proof adhesive tape. After local skin disinfection, the body should then be replaced in a plastic body bag.
before being enclosed for cremation. Instruments and working surfaces used in the operation and all associated gloves, clothing and waste materials must be disinfected, sterilised or incinerated as appropriate. The recovered implant must be immersed immediately in a suitable disinfectant before disposal.

DISPOSAL OF WASTE

68. Materials which have been in contact with LAV/HTLV III infected patients or their body fluids and which are destined for disposal in hospitals and clinics should be either autoclaved or incinerated as appropriate. Certain types of material are classified as clinical waste and reference to 'The Safe Disposal of Clinical Waste' (1982 ISBN 0 11 883641 2) will indicate categories, colour codes and packaging recommendations.

69. Guidance on the disposal of infected waste from AIDS patients and other LAV/HTLV III infected persons who are under care in the community is to be found in 'Infection Control Guidelines for the Community Care of AIDS Patients and Other LAV/HTLV III Positive Clients' DHSS July 1985.

DISINFECTION AND STERILISATION

70. It has been reported that the retrovirus LAV/HTLV III exhibits a considerable degree of stability at room temperature in both the wet and dry state. Under laboratory conditions infectivity in initially high titred dried material was still detectable even after 7 days exposure although it had declined substantially. Over the same period virus titres Liquid suspension of virus held at room temperature remained infectious for over 15 days. This apparent stability emphasises the need to establish and implement thorough disinfection and sterilisation practices whenever contamination is likely. Specific guidance on the disinfection of articles of equipment and linen from LAV/HTLV III and/or Hepatitis B patients is in preparation by the DHSS.

Chemical Disinfecting Agents

71. It has also been reported that LAV/HTLV III is susceptible to a wide range of chemical treatments. Results of in vitro tests have shown that a number of chemicals, including alcohols, hydrogen peroxide, formaldehyde, hypochlorite, lysol, glutaraldehyde, and some detergents are capable of inactivating the virus. In routine situations the most useful of these are ethyl or isopropyl alcohol, hypochlorite and glutaraldehyde.

72. In all disinfection procedures several important factors must be taken into account. These are:

1. choice of disinfectant (more than one infectious agent may be present)
2. concentration of the disinfectant (this may be influenced in some cases by storage and aging of the preparation)
3. duration of exposure
4. the presence of contaminating organic matter (protein, blood, faeces etc) and other chemicals
5. the concentration and susceptibility of any infectious agents present

6. in certain circumstances the temperature.

Guidance on chemical disinfection procedures is to be found in 'Chemical Disinfection in Hospitals' Public Health Laboratory Service 1984.

73. For spillage of LAV/HTLV III positive blood, body fluid and excreta onto surfaces or when heat-sensitive articles are grossly contaminated, use should be made of either freshly activated 2% glutaraldehyde or 2% phenolic disinfectant or hypochlorite solution containing 10,000 ppm available chlorine (a 1 in 5 dilution of household bleach). Hypochlorite is less effective in the presence of organic matter but if used must be freshly prepared and users should be aware that it may corrode metal and damage fabrics. Some proprietary brands of disinfectant preparations may contain a lower concentration of their active ingredients than those recommended above. These and any alternative disinfectants must not be used unless there is evidence to show that they are effective against LAV/HTLV III under the proposed conditions of use.

74. For the treatment of minor surface contamination and as part of general good hygiene practice a lower concentration of hypochlorite (1000 ppm available chlorine) is recommended. 70% ethyl or isopropyl alcohol, 2% glutaraldehyde or 1% phenolic disinfectant would be equally effective alternatives. The other compounds mentioned above may find a place according to special needs but with some, their flammable or toxic nature should be taken into account.

75. Formaldehyde fumigation is a specialised disinfection measure for particular application in the laboratory and should not be necessary in clinical and domestic situations where LAV/HTLV III infected patients have been housed.

Physical Treatments

76. In common with other retroviruses LAV/HTLV III shows a resistance to radiation. Ultraviolet light (doses lower than 5 x 10^3 J/m^2 and rays (less than 2 x 10^5 rads) did not eliminate all infectious virus.

77. Extended exposure of LAV/HTLV III at 56°C is required for the inactivation of infectivity. Virus in high fibre has remained viable for up to 5 hours at this temperature. No information is available on rates of inactivation at higher temperatures.

Sterilisation

78. LAV/HTLV III is destroyed by conventional sterilising regimes employing moist or dry heat treatments in which temperatures and times such as those used in autoclaves and sterilising ovens are maintained.

MAINTENANCE AND CLEANING

79. Written codes of practice must specify the procedures to be adopted for the protection of maintenance and service staff working in patient facilities and laboratories. It is the responsibility of the head of the department or a designated deputy to ensure that it is safe for maintenance or service staff to enter a unit and that the fabric, apparatus or equipment requiring attention is in a microbiologically safe condition. Equipment must be thoroughly disinfected before service or repair work is carried out whether or not it is to be removed from the area for these purposes. (See Health Departments' Safety Information Bulletin SIB(85)45 September 1985).
80. A 'permit to work' system should be instituted for service personnel who work on equipment used to process LAV/HTLV III risk materials. Permits should be issued by a senior member of staff who has the responsibility for its thorough disinfection.

81. Where it is not possible to certify that premises, apparatus or equipment for servicing or repair are free from the risk of infection work must be undertaken only by trained and experienced personnel. Before work begins risks must be assessed jointly by laboratory and maintenance staff and appropriate protective measures must be adopted.

82. The Head of the Department or a designated deputy must ensure that accommodation to be cleaned is always in a safe condition before cleaners start work and that they have specific instructions on what they should or should not do in each area.
Containment level 3

This definition of ACPD's Containment Level 3 first appeared in Categorisation of pathogens according to hazard and categories of containment. HMSO 1984 ISBN 0 11 883761 3.

1. Containment level 3 is suitable for work with pathogens in hazard group 3. Laboratory personnel must have had training in handling pathogenic and potentially lethal organisms, also in the use of safety equipment and controls. A high standard of supervision of the work must be maintained.

2. The laboratory must be easy to clean. Bench surfaces and the floor must be impervious to water and resistant to acids, alkalis, solvents and disinfectants.

3. The laboratory must be sealable to permit fumigation.

4. There must be adequate space (24m³) in the laboratory for each worker.

5. The laboratory should be sited in an area away from general circulation. Access to the laboratory must be limited to authorised personnel. The laboratory door must be locked when the room is unoccupied.

6. A specific biohazard sign must be posted at the entry to the laboratory and the door must contain a glass panel so that the occupants can be seen.

7. An extractor fan must be installed and working within the laboratory and adjusted to prevent positive pressure within the laboratory.

8. A continuous airflow into the laboratory must be maintained during work with pathogens by one of the following means:

   a. extracting the laboratory air through independent ducting to the outside air through a HEPA filter;

   b. extracting the laboratory air to the outside air with a fan and HEPA filter sited in a wall or window of the laboratory;

   c. ducting the exhaust air from a microbiological safety cabinet to the outside air through a HEPA filter;

   d. a safe variation of these provisions. Provisions should also be made for comfort factors e.g. fresh-air, temperature control.

In laboratories which have a mechanical air supply system, the supply and extract airflow must be interlocked to prevent positive pressurisation of the room in the event of failure of the extract fan. The ventilation system must also incorporate a means of preventing reverse airflows.

7. A wash hand basin must be provided near the exit of the laboratory. Taps must be of a type which can be operated without being touched by hand.

8. An autoclave for sterilisation of waste materials should be situated preferably within the laboratory, but one must be readily accessible in the laboratory suite.

9. Laboratory doors must be kept closed when work is in progress.

10. Side or back fastening gowns must be used in the laboratory and they must be autoclaved before removal for laundering. These gowns must not be used outside the laboratory suite.

11. Gloves must be worn for all work with infective materials and the hands must be washed before leaving the laboratory.
Containment level 3

This definition of ACDP's Containment Level 3 first appeared in Categorisation of pathogens according to hazard and categories of containment. HMSO 1984 ISBN 0 11 883761 3.

1. Containment level 3 is suitable for work with pathogens in hazard group 3. Laboratory personnel must have had training in handling pathogenic and potentially lethal organisms, also in the use of safety equipment and controls. A high standard of supervision of the work must be maintained.

2. The laboratory must be easy to clean. Bench surfaces and the floor must be impervious to water and resistant to acids, alkalis, solvents and disinfectants.

3. The laboratory must be sealable to permit fumigation.

4. There must be adequate space (24m³) in the laboratory for each worker.

5. The laboratory should be sited in an area away from general circulation. Access to the laboratory must be limited to authorised personnel. The laboratory door must be locked when the room is unoccupied.

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   a. extracting the laboratory air through independent ducting to the outside air through a HEPA filter;
   b. extracting the laboratory air to the outside air with a fan and HEPA filter set in a wall or window of the laboratory;
   c. ducting the exhaust air from a microbiological safety cabinet to the outside air through a HEPA filter;
   d. a safe variation of these provisions. Provisions should also be made for comfort factors e.g. fresh-air, temperature control.

In laboratories which have a mechanical air supply system, the supply and extract airflow must be interlocked to prevent positive pressurisation of the room in the event of failure of the extract fan. The ventilation system must also incorporate a means of preventing reverse airflows.

8. A wash hand basin must be provided near the exit of the laboratory. Taps must be of a type which can be operated without being touched by hand.

9. An autoclave for sterilisation of waste materials should be situated preferably within the laboratory, but one must be readily accessible in the laboratory suite.

10. Laboratory doors must be kept closed when work is in progress.

11. Side or back fastening gowns must be used in the laboratory and they must be autoclaved before removal for laundering. These gowns must not be used outside the laboratory suite.

12. Gloves must be worn for all work with infective materials and the hands must be washed before leaving the laboratory.
12 Eating, chewing, drinking, smoking, storing of food and applying cosmetics must not take place in the laboratory.

13 Mouth pipetting must not take place.

14 (a) All laboratory procedures with infective materials must be conducted in a microbiological safety cabinet (class I or class III BS 5726: 1979, or unit with equivalent protection factor or performance) except where the equipment to be used provides containment of the potential aerosol.

(b) The cabinet must exhaust through a HEPA filter to the outside air or to the laboratory air extraction system, and in other respects such as siting, performance, protection factor and air filtration, it must comply with the specifications detailed in BS 5726: 1979. When laboratories are faced with a major problem because of difficulties in arranging for the cabinet to exhaust to the open air, recirculation of exhaust air through two HEPA filters in series may in exceptional circumstances be considered as an alternative. In these cases the maintenance of a continuous airflow into the laboratory during work with pathogens (see 34(6) (a) and (b)) will be of particular importance and such an option must not be adopted without prior consultation with the HSE.

15 The laboratory should contain its own equipment e.g. centrifuge in which sealed buckets must be used, incubator, refrigerator, deep-freeze, vapour phase liquid nitrogen chest etc so that all infective group 3 pathogenic materials are held within the laboratory and nowhere else. Where this is not reasonably practicable (see para 27) material must be transported and stored without spillage in properly labelled robust containers which must be opened only in containment level 3 accommodation.

16 Effective disinfectants must be available for routine disinfection and immediate use in the event of spillage.

17 Materials for autoclaving must be transported in robust containers without spillage to the autoclave.

18 All waste materials must be made safe before disposal or removal to the incinerator.

19 All accidents, spills and exposures to infective materials must be immediately reported to and recorded by the person responsible for the work.
General information and advice on avoiding or controlling infection risks has now been prepared for a number of occupational groups and for the high risk groups and the general public. Reference to them here is for information and their inclusion does not necessarily imply endorsement by this Committee.

1. Guidance for surgeons, anaesthetists and dentists (in preparation by DHSS)

2. General information for doctors (CMO(85)7 DHSS May 1985)

3. Information for doctors concerning the introduction of the HTLV III antibody test (CMO(85)12 DHSS October 1985)

4. Infection control guidelines for community care of AIDS patients and other HTLV III positive clients (DHSS 1985)

5. Advice to fire officers and police (Home Office 1985)

6. Advice for blood donors (NBTS 1985 contact local Blood Transfusion Centre)

7. Some facts about AIDS. Health Education Council (78 New Oxford Street, London WC1A 1HH)

8. Advice issued by the Haemophilia Society (Facts Sheets, PO Box 9, 16 Trinity Street, London SE1 1DE)

9. Advice issued by Health Authorities

10. Advice issued by Trades Unions - COHSE, EETPU, GMBATU, IPCS, NCU, NUPE, SCPS, TGWU and professional associations - Royal College of Nursing, British Medical Association, the Hospital Infection Society, British Society for Haematology

11. The Terrence Higgins Trust has published a number of pamphlets (Terrence Higgins Trust Ltd, BM AIDS London WC1N 3XX)

12. Body Positive - contact through the Terrence Higgins Trust

13. AIDS Unit - DHSS - 01-403-1893

14. Healthline Telephone Service - DHSS - 01-981-2717, 01-980-7222 or 0345 581151.

DHSS publications referred to here may be obtained from: DHSS Store, Health Publications Unit, No 2 Site, Manchester Road, Heywood, Lancs OL10 1PZ.
NOTE: The information in this appendix is taken from the Code of Practice for the Prevention of Infection in Clinical Laboratories and Post-mortem Rooms (DHSS 1978 ISBN 0 11 320464 7). The final section (Advice to Undertakers and Relatives) is Appendix 12 of that Code.

At points in the text, reference is made to other sections of the Code. These are not necessarily of any direct relevance to the containment of LAV/HTLV III, but the major part represents the currently recommended procedure for the safe conduct of post-mortem examinations.

The sub-sections on disinfection in this appendix (see 30d. and 30h.iv.), call for the use of 10% formalin. A new occupational exposure limit for formaldehyde vapour in air (2ppm. or 3mg/m² - see Occupational Exposure Limits 1985. HSE Guidance Note EH 40/85) would preclude its use as a disinfectant in the way described. Disinfection of LAV/HTLV III may be accomplished satisfactorily with other compounds which are dealt with in paras. 71-75 of the preceding guidelines.

30 INFECTIOUS HAZARDS IN POST-MORTEM ROOMS

The Head of the Department of Histopathology must take overall responsibility for safety precautions in the post-mortem room and in this he will have the assistance of the post-mortem room technician and the departmental Safety Officer.

(a) POST-MORTEM ROOM STAFF AND OBSERVERS

i. At post-mortem examinations staff who do not possess the qualification specified in the appropriate Whitley Council agreement must work only under the direct supervision of a pathologist or qualified member of the post-mortem room staff. Every encouragement and facility must be given to staff to obtain the qualification laid down by the Whitley Council.

ii. On commencing employment staff must be instructed about the risks to their health and that of others if strict attention is not given to cleanliness and hygiene at all times. Staff must have an initial skin test for tuberculosis and chest X-ray, and ensure that their tetanus immunisation is up-to-date. Thereafter these must be repeated at the recommended intervals (paragraph 6(a)(b)(c)).

iii. Clean gowns, waterproof aprons, rubber gloves and waterproof boots must be worn by pathologists and attendants when performing a post-mortem examination.

iv. Observers entering the post-mortem room must wear a gown and over-shoes, unless a railed-off spectators' gallery, whose floor is raised well above the level of the post-mortem floor, is provided for students and other visitors.

v. Boots and overshoes must be removed before leaving the post-mortem room.

vi. Cuts or wounds and needle pricks suffered by the staff must be washed well in running water, encouraged to bleed freely and treated with a fresh solution of an appropriate germicide. More serious injuries may require attention at the accident department and a booster dose of tetanus toxoid. All injuries must be reported and recorded in the accident book. Any infection, however minor, following a cut or abrasion must be reported to a doctor.

vii. No smoking, drinking or eating is allowed in the work area. Snacks and smoking must be confined to the rest room, canteen or office; and hands must be washed before leaving the post-mortem room.

(b) TECHNIQUE

When an organ is roughly handled, squeezed or sprayed with water an invisible spray (aerosol) is created which may contain an infective agent.

i. High pressure water sprays must not be used.

ii. Organs must be removed as gently as possible and sectioned with care.

iii. All saws produce aerosols and must be used with care. Band saws must have an extract hood attachment. Staff using mechanical saws should wear visors.

iv. Ragged bone edges must be looked for and covered, for example with a towel.
v If eyes, or skin are splashed they must be washed immediately in running water.
vi All spillages must be cleaned up immediately.
vii All swabs, disposable items and material from dissection or cleaned from sink gulleys must be placed in a plastic bag and incinerated daily.

c ACCOMMODATION
i The post-mortem room and body-storage facilities must be adequate for the workload, both for the hospital and for any additional coroners’ work.
ii A clean changing/office area with adequate lavatory and washing facilities must be available outside the post-mortem room.
iii Post-mortem tables, dissecting surfaces, floors, gulleys and walls must be constructed of easily cleanable material.
iv Lighting and ventilation, especially air extraction, must be adequate and air changes must be of the order of 10 air changes per hour. The air flow must never be directly upwards towards the operator’s face.

d DISINFECTANTS
The following disinfectants must be provided (paragraph 181 and Appendix 8).

i A clear soluble phenolic, used at 1–5 per cent.
ii Hypochlorite (e.g. Chloros) used at 1 per cent (1,000 ppm available chlorine) or 10 per cent (10,000 ppm available chlorine).  
   Must not be used on metals.
iii Formalin solution BP (40 per cent formaldehyde) used at 10 per cent (4 per cent formaldehyde).
iv Glutaraldehyde (e.g. Cidex) used at 2 per cent.
All disinfectants must be freshly prepared for use at the appropriate use-dilution. Diluted disinfectants must not be stored.

e EQUIPMENT

i Knives and instruments. These must be washed clean with abundant running water and then decontaminated, e.g. with phenolic disinfectant.
ii Suction apparatus (with trap). If used to remove fluid these must be washed and disinfected as above. Small glass or metal vessels are easiest to keep clean. Disposable syringes and needles must be used for aspirating small volumes of fluid. After use these must be placed in an Infectious Waste container for incineration.
iii Post-mortem tables, dissection surfaces, scales, etc. These must be washed with water to remove visible stains and then rinsed with a freshly diluted phenolic disinfectant (Chloros may be used on non-metallic surfaces).
iv Sponges and Swabs. If these are re-usable items they must be washed with water and soaked in disinfectant after use.
v Clothing. Clean gowns must be used for each post-mortem session. They must be placed in a ‘Foul/Infected Material’ laundry bag after use.
vi Gloves. Disposable gloves (BS 4005) must fit well and be changed immediately if torn or punctured. Heavy duty gloves must be washed thoroughly in soap or detergent and warm water and rinsed in running water then taken off the hands and immersed for 2 hours in a freshly prepared phenolic disinfectant.

vii Waterproof boots and aprons. These must be worn. The boots must be long enough to reach above the hems of the aprons. Boots and aprons must be rinsed in running water and then in phenolic disinfectant at the end of each dissection session.
viii Visitors. These must be worn for the post-mortem examinations on certain special risk cases. See paragraph 30(h) (iv) and (v).

ix Telephones, recording equipment, case notes, etc. In post-mortem rooms telephones must either be of the type that can be used without handling or gloves must be removed and hands must be washed before they are used. Gloves must also be removed and hands washed before handling such objects as case notes, door handles, and specimen containers. Photographic equipment must be decontaminated if necessary by whatever method is appropriate to the particular apparatus used.

f ANTICIPATION OF INFECTIOUS HAZARDS
Every post-mortem examination should be done on the assumption that there may be a dangerous infection. Nevertheless if mortuary staff and pathologists are forewarned of an infection in a particular case they will take extra care.

i When the cause of death is a suspected dangerous infection (i.e. caused by a micro-organism or virus in Categories B1 or B2) a warning must be given to protect those who may be handling the body. (See paragraph 30(j) for Category A infections). This applies whether or not a post-mortem examination is requested.

ii Responsibility for issuing a warning must rest with the consultant in charge of the case. In practice nursing staff will be closely involved and so must be aware of the diagnosis or suspected infection.

The mortuary staff must ensure that arrangements exist for them to be notified before the body is brought in. When the mortuary is not staffed a large notice saying 'Danger of Infection' (Appendix 6) must be hung on the appropriate door of the body store.

The body must be labelled clearly with the name of the infection. A label must be attached to the shroud across the chest and an indestructible tag wrapped around the wrist or ankle next to the identification bracelet.

If a post-mortem examination has been requested, the name of the infection should be written clearly on the request form.

iii Post-mortem request forms must be used in all hospitals. These must include a simple means of indicating suspicion of tuberculosis, hepatitis or other dangerous infections e.g. the 'Danger of Infection' label (paragraph 3(a) and Appendix 6). The request form must be read by the pathologist and mortuary staff before the post-mortem examination is started.

g DEATHS OUTSIDE HOSPITALS
Post-mortem examinations on patients who die outside hospital are undertaken in most hospital mortuaries. The person requesting the examination must be asked to provide the pathologist with any information regarding dangerous infection.

h POST-MORTEM IN CASES OF DANGEROUS INFECTIONS

i Undertakers must be informed about all these cases, and these post-mortems must be done at the end of the list.

ii Salmonella Infections. Where death is known or suspected to have been due to salmonella infection care must be taken in washing out and opening the bowel and in washing down and treating with phenolic disinfectant all surfaces, gulleys, drains, soiled linen, aprons, gloves, boots, and instruments. Care must be taken when sewing up after the return of the gut and viscera and when washing the body.
iii Tuberculosis. In all known suspected cases of tuberculosis, the following precautions must be observed:
A change into operating gown and trousers must be made before the post-mortem examination.
Ten per cent formalin may be introduced into the lungs after collecting specimens for bacteriology and before beginning the examination.
Handling of these cases must be minimised and splashing and aerosol formation avoided.
As few instruments as possible must be used; and all must be autoclaved at the end of the session.
The post-mortem examination must be performed by as few staff as possible and wherever possible demonstrations must be on fixed specimens.
Infected organs must be left to the final stage to reduce the time of exposure to infection.
Lungs to be retained for further examination by independent medical panels for compensation cases must be immersed in 10 per cent formalin solution, then transferred to a sealable plastic container to await collection.
In addition to the routine practice recommended for cleaning equipment and surfaces, gowns must be soaked in phenolic disinfectant overnight, then wrung out with gloved hands and sent for laundering.
iv Viral Hepatitis. Post-mortem examinations should not be undertaken unless absolutely necessary in cases of viral hepatitis, hepatitis B antigen (HBsAg-positive) cases and all haemodialysis cases unless known to be HBsAg negative. More detailed guidance is given in Appendix 12.
Needle biopsy of the liver, performed after death through skin covered with glutaraldehyde may be of value in deciding whether it is safe to perform an autopsy and may be all that is required.
If a post-mortem examination is imperative:
A complete change into operating-theatre clothing, preferably of the disposable type, must be made before the post-mortem examination.
Full face protection (visor) must be worn.
Instruments, tables and gulleys must be disinfected with 10 per cent formalin solution immediately after the post-mortem.

APPENDIX 12

ADVICE TO BE GIVEN TO UNDERTAKERS AND RELATIVES*

These patients have died of an infectious disease and the tissues and body fluids are still capable of transmitting infection. The body must be enclosed in a plastic bag.
Although the relatives may have risked infection from contact with the patient in life, it is reasonable to keep as small as possible any further risk of infection to relatives and to attendants dealing with the body.
The following recommendations are made:
1 The body should not normally be removed from the plastic bag except when a post-mortem examination is to be carried out.
2 After post-mortem examination the body should be put back in the plastic bag.
3 Viewing of the face, without physical contact, should be permitted and the body resealed in the plastic bag.
4 Further exposure of the body elsewhere will involve the further risk of releasing infectious material and should be avoided.
5 The embalming process reduces but cannot be guaranteed to eliminate the risk of infection from the body; it involves extraction of infected material from the body as well as further exposure of infected tissues. Embalming is therefore undesirable except in unusual circumstances.

6 If relatives ask to see the body they should be told that there is a risk of infection and that in their own interests it is better for them not to do so.

7 If the relatives insist on seeing the body they will be allowed to see the face but must be strongly discouraged from touching or kissing it.

8 If relatives ask if the patient died from an infectious disease they should be told that he did. Some relatives may also need to be told that reasonable precautions will be taken to ensure that further risks of spreading the disease are reduced to a minimum. Relatives who are worried about having already been exposed to infection may be referred to the Consultant Physician.
The revised case definition for AIDS appears here with the permission of the Centers for Disease Control, US Department of Health and Human Services, Atlanta, Georgia, USA.

Revision of the Case Definition of Acquired Immunodeficiency Syndrome for National Reporting—United States

Patients with illnesses that, in retrospect, were manifestations of acquired immunodeficiency syndrome (AIDS) were first described in the summer of 1981 (1,2). A case definition of AIDS for national reporting was first published in the MMWR in September 1982 (3,4). Since then, the definition has undergone minor revisions in the list of diseases used as indicators of underlying cellular immunodeficiency (5-8).

Since the 1982 definition was published, human T-cell lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV) has been recognized as the cause of AIDS. The clinical manifestations of HTLV-III/LAV infection may be directly attributable to infection with this virus or the result of secondary conditions occurring as a consequence of immune dysfunction caused by the underlying infection with HTLV-III/LAV. The range of manifestations may include none, nonspecific signs and symptoms of illness, autoimmune and neurologic disorders, a variety of opportunistic infections, and several types of malignancy. AIDS was defined for national reporting before its etiology was known and has encompassed only certain secondary conditions that reliably reflected the presence of a severe immune dysfunction. Current laboratory tests to detect HTLV-III/LAV antibody make it possible to include additional serious conditions in the syndrome, as well as to further improve the specificity of the definition used for reporting cases.

The current case definition of AIDS has provided useful data on disease trends, because it is precise, consistently interpreted, and highly specific. Other manifestations of HTLV-III/LAV infections than those currently proposed to be reported are less specific and less likely to be consistently reported nationally. Milder disease associated with HTLV-III/LAV infections and asymptomatic infections may be reportable in some states and cities but will not be nationally reportable. Because persons with less specific or milder manifestations of HTLV-III/LAV infection may be important in transmitting the virus, estimates of the number of such persons are of value. These estimates can be obtained through epidemiologic studies or special surveys in specific populations.

Issues related to the case definition of AIDS were discussed by the Conference of State and Territorial Epidemiologists (CSTE) at its annual meeting in Madison, Wisconsin, June 2-5, 1985. The CSTE approved the following resolutions:

1. that the case definition of AIDS used for national reporting continue to include only the more severe manifestations of HTLV-III/LAV infection; and

2. that CDC develop more inclusive definitions and classifications of HTLV-III/LAV infection for diagnosis, treatment, and prevention, as well as for epidemiologic studies and special surveys; and

3. that the following refinements be adopted in the case definition of AIDS used for national reporting:

   a. In the absence of the opportunistic diseases required by the current case definition, any of the following diseases will be considered indicative of AIDS if the patient has a positive serologic or virologic test for HTLV-III/LAV:

   1) disseminated histoplasmosis (not confined to lungs or lymph nodes), diagnosed by culture, histology, or antigen detection;

   2) isosporiasis, causing chronic diarrhea (over 1 month), diagnosed by histology or stool microscopy;

   3) bronchial or pulmonary candidiasis, diagnosed by microscopy or by presence of characteristic white plaques grossly on the bronchial mucosa (not by culture alone);

   4) non-Hodgkin's lymphoma of high-grade pathologic type (diffuse, undifferentiated) and of B-cell or unknown immunologic phenotype, diagnosed by biopsy;

   5) histologically confirmed Kaposi's sarcoma in patients who are 60 years old or older when diagnosed.
b. In the absence of the opportunistic diseases required by the current case definition, a histologically confirmed diagnosis of chronic lymphoid interstitial pneumonitis in a child (under 13 years of age) will be considered indicative of AIDS unless testing for HTLV-III/LAV are negative.

c. Patients who have a lymphoreticular malignancy diagnosed more than 3 months after the diagnosis of an opportunistic disease used as a marker for AIDS will no longer be excluded as AIDS cases.

d. To increase the specificity of the case definition, patients will be excluded as AIDS cases if they have a negative result on testing for serum antibody to HTLV-III/LAV, have no other type of HTLV-III/LAV test with a positive result, and do not have a low number of T-helper lymphocytes or a low ratio of T-helper to T-suppressor lymphocytes. In the absence of test results, patients satisfying all other criteria in the definition will continue to be included.

CDC will immediately adopt the above amendments to the case definition of AIDS for national reporting. This revision in the case definition will result in the reclassification of less than 1% of cases previously reported to CDC. The number of additional new cases reportable as a result of the revision is expected to be small. Cases included under the revised definition will be distinguishable from cases included under the old definition so as to provide a consistent basis for interpretation of trends. CDC will also develop draft classifications for disease manifestations of HTLV-III/LAV infections other than AIDS, distribute these widely for comment, and publish the results.

Reported by Conference of State and Territorial Epidemiologists; AIDS Br, Div of Viral Diseases, Center for Infectious Diseases, CDC.

References
HEALTH CIRCULAR
LOCAL AUTHORITY CIRCULAR

DEPARTMENT OF HEALTH AND SOCIAL SECURITY

To: Regional Health Authorities
District Health Authorities
Special Health Authorities for the London
Postgraduate Teaching Hospitals
Port Health Authorities
Family Practitioner Committees
Community Health Councils
Metropolitan and Non-Metropolitan County
Councils
Metropolitan and Non-Metropolitan District
Councils
London Borough Councils
Greater London Council
Common Council of the City of London
Council of the Isles of Scilly

March 1985

HEALTH SERVICES MANAGEMENT

THE PUBLIC HEALTH (INFECTIOUS DISEASES) REGULATIONS 1985

SUMMARY

This Circular draws attention to the Public Health (Infectious Diseases) Regulations 1985 which make available certain provisions to safeguard public health where a person is suffering from Acquired Immune Deficiency Syndrome (AIDS).

COMMENCEMENT

1. The Regulations come into operation on 22 March 1985.

BACKGROUND

2. These regulations give effect to the decision that a number of provisions of the Public Health (Control of Disease) Act 1984 should be made available to provide for certain exceptional circumstances which might arise where a person suffering from AIDS could cause the spread of the disease. A summary of these provisions, which already operate in respect of a number of other infectious diseases, is shown overleaf as an appendix to this circular.

3. Authorities are asked to bring this circular to the attention of all appropriate staff.

From:

DHSS
PHC2
Room B1211A
Alexander Fleming House
Elephant and Castle
LONDON SE1 8BY
Tel. 01-407 5622 Ext 5699

VIA 3

Further copies of this Circular may be obtained from DHSS Store, Health Publications Unit, No 2 Site, Manchester Road, Heywood, Lancs OL10 2PZ quoting code and serial number appearing at top right-hand corner.
ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS)
PROVISIONS OF THE PUBLIC HEALTH (CONTROL OF DISEASE) ACT 1984 APPLIED BY THE
PUBLIC HEALTH (INFECTIONOUS DISEASES) REGULATIONS 1985.

1. To allow a local authority, with the consent of the appropriate health authority, to make an application to a Justice of the Peace for an order to remove a person suffering from AIDS to hospital where there is a risk to other persons (Section 37 of the 1984 Act).

2. To allow a local authority to make an application to a Justice of the Peace to have an AIDS patient detained in hospital where no other suitable precautions will be taken to prevent the spread of the disease (Section 38 of the 1984 Act).

3. To allow a Justice of the Peace to make an order for a person believed to be suffering from AIDS to be medically examined by a registered medical practitioner (Section 39 of the 1984 Act).

4. To place restrictions on the removal of a body of an AIDS sufferer from hospital (Section 43 of the 1984 Act).

5. To require all reasonably practicable steps to be taken to prevent persons unnecessarily coming into contact with, or proximity to, the body of an AIDS sufferer (Section 44 of the 1984 Act).