

D1024/8

File No:

MEDICAL RESEARCH COUNCIL
HEADQUARTERS FILE

File No:

D1024/8

SERIES SUBJECT

The Parliamentary And Scientific Committee.

FILE TITLE

Meeting 10 December 1985 on AIDS.

RELATED TO:

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Initials

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DISPOSAL
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MRC

Medical Research Council

World Health Organisation
Collaborating Centre for
Virus Reference and Research

MRC Common Cold Unit
Harvard Hospital
Coombe Road
Salisbury, Wilts
SP2 8BW

telegrams Harvard, Salisbury
telephone Salisbury (0722) 22485

Your reference

Our reference

CONFIDENTIAL

Assistant Secretary
The Parliamentary and Scientific Committee
22 Red Lion Street
London WC1R 4PX

6 January 1986

Dear [REDACTED]

Thank you for sending me your transcription of my talk. It seems to me to be a pretty accurate record of what I said; unfortunately, a lot of it does not read very well so I have revised it and I am
* enclosing herewith a retyped version.

I have no resources down here for drawing Figures to a professional
* standard so I am returning the three Figures which I think are needed to illustrate the text. I imagine they will be reproduced in black and white, so the artist should use some convention to indicate by texture the differences I have shown by colour.

If you wanted you could include at the end of the talk I actually gave a few lines to summarize what I would have said about the research programme of the Medical Research Council.

"At the beginning we planned to look for the causative virus of AIDS but, of course, that was done abroad so we are now studying the possible importance of other viruses in contributing to the type and severity of illness.

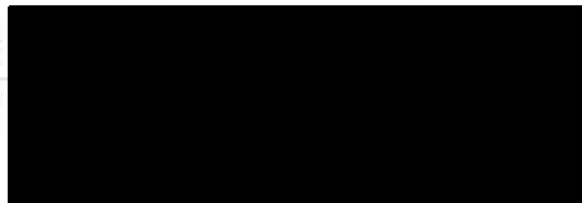
We are also studying the natural history of the infection as it occurs in the UK, by following groups of subjects such as haemophiliacs and male homosexuals who are known to be infected.

Thirdly, some groups are working out in greater detail the exact immunological defects which the virus produces.

Recently the Council has set up two Subcommittees, one on the epidemiology of AIDS, which will be studying particularly how the infection is transmitted and, in particular, whether heterosexual transmission represents a real risk. The other Subcommittee will coordinate and facilitate trials of therapy and management and, particularly, of treatment for the underlying virus infection. These projects will provide information which will be of great importance in understanding, predicting and controlling the epidemic.

It might be helpful if I had a look at the proofs if you are going to actually publish my offering.

Yours sincerely



D A J Tyrrell
Chairman
MRC Working Party
on AIDS

Address by Dr David Tyrrell, Head of the MRC Working Party on AIDS, to the Parliamentary and Scientific Committee on Tuesday December 10 1985 in the Grand Committee Room, House of Commons

It is a difficult task to explain AIDS in a way that links the biology and the disease process as we understand it. But I shall not deal with it historically, I shall try and present a simplified view of the biology of this disease as it is understood at the moment, as a result of an incredibly rapid research programme on an international scale.

I can start by talking about Fig. 1. DNA and the double helix were discovered in Cambridge and that group produced what they call the central dogma of molecular biology, which is illustrated here. DNA in the nucleus makes RNA which takes the message out into the rest of the cell and programmes the cell to make protein. Like all dogma this was disputed and virologists showed that it was not always true. There are many RNA viruses in which the gene is not DNA but RNA, and this RNA reproduces itself in one way or another and then makes protein. But in the USA it was shown that certain viruses, which were known to be RNA viruses, and which produce tumours in animals, do something different. They make DNA from RNA using an enzyme called Reverse Transcriptase. In other words, this reverses the usual sequence of events. Of course the RNA can also make protein and the DNA can make more RNA. But it is because of the backwards transcription from RNA to DNA that these viruses are called Retroviruses. Such viruses were not known to occur in man until the 1980s. The virus that causes AIDS and infects the human T cell is the third in a series of Human T cell Lymphotropic Viruses, hence HTLV III described in

the USA and is the same as the virus which was originally described as Lymphadenopathy Associated Virus (LAV) in France. It belongs to a sub group of the retroviruses, called lentiviruses because they grow slowly and cause "slow" diseases. They are unlike the original retrovirus in that they do not themselves cause tumours.

We must now consider what happens when this virus gets into cells. Let us imagine a virus particle which gets into a cell and makes DNA which goes into the nucleus. Now the message comes out, the virus makes more RNA, it makes protein and things like that and it also damages the cell. The antibodies outside the cell do not seem to be able to stop the infection going on inside. There are proteins inside the cell which leak out and stimulate the host to produce antibodies which do not seem able to cure the infection. In the laboratory we harvest these proteins to make the test materials for a serological test for these antibodies. Please note also that the DNA is in the nucleus and stays there. Thus we know of no way by which the body can get rid of the virus once it has entered, even though some infected cells are damaged, the virus infection persists.

This virus is a remarkable one because it is very selective. This is a survey of the main components of our immune system. We have polymorphonuclear cells which can be seen in pus because they attack bacteria when they get in; macrophages, the "large eater" cells, also attack bacteria and do other good things as well, such as helping in an immune response. Then there are the lymphocytes, little cells. One group of them - the B cells - make antibodies, but the others cooperate in other sorts of immune reactions like transplant rejection and resistance to certain viruses. There are

7

two sorts, and the most important from our point of view are called T-helper (T_h) cells. They have a little receptor to which the HTLV virus sticks. It only infects cells to which it can stick, and therefore it only infects the T_h cells and a few other cells in the body which carry the same receptor - brain cells for instance.

With that in mind, we can see what is likely to happen. The virus gets into the body, it gets in by the circulation or by sexual contact and then there is a long quiet period when the virus is entering and damaging cells. If you see a patient at that time you may - by examining the blood cells - find that T_h cells are depleted, but the patient is still well. You may get very vague symptoms, a bit of fever, sweat, weight loss, but nothing specific. Then there may be an enlargement of the lymph nodes, the glands that contain lymphocytes and which are found above the collar bone and in the armpits - at an early stage of the infection all these may be generally enlarged.

As a consequence of all this infections begin to appear. The first one is often a virus infection, herpes or cold sores, though very often in these patients it is genital herpes rather than labial herpes. The lymphocytes are also important in defence against fungi and the patients can get thrush, a white membrane, an infection of the mouth and gullet. But these do not make the diagnosis. More severe problems may then arise which are characteristic of the disease. One is infection with a parasite, which normally gives no trouble, but when the immune system is seriously hampered and then shortness of breath and shadows in the Xray gradually develop and you find in the lung the organisms Pneumocystis carinii.

7

This is one of the serious conditions of which many patients die. It is very difficult to treat and even if you are able to treat an attack successfully it recurs very quickly. Then there are tumours, in particular one called Kaposi's sarcoma. It starts as a little purple blob on the leg or the arm which may enlarge and then other ones appear on the body; there may be bowel symptoms, diarrhoea, or bleeding from the bowel, because the tumour also appears in other parts of the body such as the gut. These tumours of infections actually kill the patient. I should mention also that there is a whole galaxy of other infections which are less characteristic but which can also be lethal. One example is the salmonella organisms - some are food poisoning bacteria, and others cause diseases like typhoid fever.

Finally, what happens to the patient in the end? The ones we have seen as healthy people, sometimes go on to get the enlarged glands and AIDS syndrome, perhaps a year or two later, perhaps even six or seven years after they were infected. We do not know yet what the final score will be, how many will finally be affected. Some say it is only a few percent, but there are already groups of homosexuals in California where the infection has been around a relatively long time and the frequency of AIDS is rising over 20%. The mild illnesses do sometimes recover, it is very important that we understand more about this. But once someone gets as far as having AIDS no-one recovers. Death may occur in a matter of weeks or months, but may sometimes be deferred for five years. Some patients with Kaposi's sarcoma respond temporarily and partially to treatment, but even they eventually die.

MRC

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Your reference

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CONFIDENTIAL

Assistant Secretary
The Parliamentary and Scientific Committee
22 Red Lion Street
London WC1R 4PX

6 January 1986

Dear [REDACTED]

I have now seen the first draft of the Science and Technology Group note on AIDS. I have a number of comments.

Para 2. The minor forms of disease are also called PGL.

Para 3. I believe the WHO uses LAV/HTLV III as the designation to reflect the isolation of the strains in France. "Thought to be" suggests some doubt, but there is really none.

Para 4. In the UK and USA doubling time is about 8 months.

Para 6 and 7. This is a mixture of interpretation and results of epidemiology study. There is no direct evidence about virus "entering the blood after sexual intercourse". The use of blood products, such as Factor XIII, has produced far more cases than blood transfusion.

Para 8. The figures chosen are reasonable estimates, but the CMO uses the figure that 10% of infections will result in AIDS and 30% in illness.

Page 2. Para 1. There is no doubt that there are many unrecognized subjects; the figure is estimated at one million in the USA.

Para 2. I think it's right to always use the expression "drug abuser" since it avoids unnecessary anxiety in those who have to use regular medication or give regular injections, for example for diabetes. I note from recent correspondence in the Lancet that there is some dispute about whether the subjects listed are in fact more likely to develop AIDS than others. For the moment the drug abusers in this country are not badly affected but it's clear that the virus has got into some circles of drug users in Scotland, and many more cases are likely to be seen in the coming years.

It is worth mentioning that being homosexual in itself is no risk; it is the practising male homosexuals who are being infected.

It looks as though in the USA the risk to babies of infected mothers are particularly high, perhaps two-thirds are affected either before or after birth.

of
61000
p2000

Para 4. One should give prominence to PCP, Pneumocystis carinii pneumonia, as a particularly unusual and grave infection. Kaposi's sarcoma is really far more important than others and although the lesions are often seen early in the skin, it is basically a tumour of connective tissues and can affect internal organs, such as the gut. Leukemia and other tumours are less characteristic.

Para 5. There is a test for detecting the virus. Gallo's group have reported 100 isolations and a number have been made in the UK. However, it is slow and cumbersome, and as it depends on culturing cells it does not distinguish between the presence of live and infectious virus and the presence of the virus genome in the cells cultured. Quicker and more direct tests for viral antigens and nucleic acid are being developed but will probably not be so sensitive and are not yet established for routine use. Antibody assays are, however, well established as a result of remarkably successful research and development work. This is the point at which perhaps to mention that although the test only detects antibody and not virus, work from Gallo's laboratory indicates that virus can be recovered from almost all individuals who are seropositive.

Para 6. The prognosis is ultimately 100% only for those who reach the category of AIDS. A number with minor degrees of illness have apparently recovered, though whether that recovery will remain permanent has yet to be seen.

Para 7. In reference to the vaccine it's perhaps worth mentioning that part of the problem is that we do not know the immune or other mechanisms by which some individuals seem to contain the infection whereas some receive lethal damage. If we understood immunity better we could logically choose which bits of the virus to immunize with and decide how to present it to the body in order to get an effective immune response.

Para 8. It should be mentioned that even if an effective antiviral drug is found, it is unlikely to eliminate the virus genome resident in the nucleus of infected cells.

Page 4. I think the description of the biology of the virus is inadequate. I notice that a good alternative paragraph has been suggested by MRC Head Office.

Para 1). I think it's important to refer to T-helper (Th) cells, since work by Professor Weiss and his group shows quite clearly that these have receptors for the virus and it is damage to these, rather than Ts or other lymphocytes, which gives the disease its particularly immunological character. Some of the effects referred to under 2) and 3) may be secondary to the damage to Th cells.

Para 2). This lumps together polymorphonuclear cells and macrophages, which are very different, though both are affected in ways as yet ill understood.

CONFIDENTIAL

Para 3). The exact role of natural killer cells in virus infections is not certain and even the suggestion that they control tumours is disputed. It is known that there are increased concentrations of an unusual interferon in the blood of patients with AIDS, but I am not sure how this relates to the second half of the sentence.

The immunological tests used look for antibodies against several virus coded peptides, particularly the immunofluorescence and Western Blot tests, which are used for confirmation of the diagnosis.

I hope these points will assist you in preparing the revised draft.
If I can help in any other way please do not hesitate to contact me.

Yours sincerely

D A J Tyrrell
Chairman
MRC Working Party
on AIDS

Copy to:

Dr Malcolm Godfrey
Second Secretary
Medical Research Council
20 Park Crescent
W1N 4AL

Dr Jane E Cope
Medical Research Council
20 Park Crescent
W1N 4AL

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Parliamentary and Scientific Committee

SCIENCE AND TECHNOLOGY GROUP

FIRST DRAFT ONLY:

BRIEF NOTE FOR MEMBERS OF PARLIAMENT ON A.I.D.S.

"AIDS is the most important infectious public health problem this century" [Michael Adler, Professor of Ginito-urinary medicine at the Middlesex, The Times, 6/9/85]

AIDS is a virus disease. The initials stand for Acquired Immune Deficiency Syndrome. The body's defences against infection are damaged by the virus, leaving the patient vulnerable to secondary infections.

ARC - AIDS Related Complex - is an associated illness, less severe than AIDS. Some sufferers later develop AIDS.

Causative Organism: A group of similar viruses are being investigated under the collective name of HTLV III, which are thought to be responsible for AIDS and ARC. LAV

Incidence: There have been 241 cases diagnosed in the UK (at 31 October 1985) but because AIDS has a long incubation period there may be many more afflicted. The numbers are doubling every six months.

Countries most affected: US - more than 14000 cases; Brazil - around 500; France and Haiti - around 400 each. Some areas of the world have no reported cases so far, for example, India, China and the USSR, but most countries have some cases of AIDS.

Epidemiology: For AIDS to develop the virus must enter the bloodstream. AIDS is therefore most likely to be caught from hypodermic needles, anal intercourse, and contaminated blood transfusion.

While the virus may be present in the saliva, tears, or semen, the disease is passed to another person only by direct entry into the blood system: for example by semen-to-blood, blood-to-blood, saliva-to-blood contact. *no direct evidence of "entering blood"*

or blood products
There is no epidemiological evidence that the virus is spread by coughing and sneezing; shared washing, eating, drinking, and lavatory facilities; everyday contact at work.

Between 10% and 20% of those who have the virus will then develop AIDS, although some more will develop ARC, (which may be a precursor to AIDS). All those infected by the virus are carriers.

The incubation period: an average of 28 months, but it may last six or eight years. Therefore there may be a high number of latent sufferers, not as yet diagnosed. *eg 10% in USA*

disputed
Most likely to acquire the virus: homosexual men, drug users and haemophiliacs. Those individuals whose immune systems are already depressed - for example drug addicts, or sufferers from sexually transmitted diseases - are more likely to develop AIDS than others who have acquired the virus. Over 70% of sufferers are homosexuals; about 15% are drug abusers; and about 3% haemophiliacs or recipients of blood by transfusion. *precise male*

Others may have acquired AIDS by heterosexual contact, or in the womb as foetuses. *70% of babies affected*

Symptoms: Since AIDS involves a depletion in the body's natural defence system, many symptoms are simply those of infection. Common symptoms include: profound weariness, drastic weight loss, night sweats, fevers, coughs, purple blotches on the skin, fungal invasions, diarrhoea, tuberculosis and pneumonia. *neither PCP*

Cancers such as Kaposi's sarcoma (a "skin" cancer), or leukaemia can also be associated with AIDS, as well as other immune disorders such as a deficiency of blood platelets. *it's really*

Diagnosis: It is not possible to detect the virus directly. It is, however, possible to recognise the presence of antibody to the HTLV III virus. An HTLV III antibody positive result signifies the presence only of the virus HTLV III, not necessarily of AIDS or of ARC.

Prognosis: 40% of cases are fatal within two years, and 90% within five years.

Treatment: There is no cure for AIDS at present. Claims to a cure which have been announced in the popular media have been premature.

There is no vaccine against AIDS at present. In France and the USA several research programmes to develop a vaccine are being conducted, but so far they have been without success.

Research is being conducted into a way of inhibiting the spread of the virus by the use of drugs; and into a way of providing an artificial replacement for those parts of the immune system which the virus attacks. Conclusions are, as yet, too tentative to be relied upon.

APPENDIX A

Economics

1) Direct costs of medical treatment: The Terrence Higgins Trust estimates costs of twenty thousand pounds per patient for two years' treatment, a total of over ten million pounds estimated by mid 1986 (The Terrence Higgins Trust is a charity named after the first known AIDS fatality in the UK).

2) Educational and counselling costs: 6.3 million pounds has been allocated for AIDS treatment and counselling for 1986 by central Government, of which about three million pounds is to be spent directly on counselling services.

3) The contingent costs of damages awarded to haemophiliacs who have received Factor VIII blood products contaminated with HTLV III, as well as the possible increase in medical premiums for private health care. [The Daily Telegraph reported cost estimates for caring for the AIDS sufferers, including their loss of "productivity" as exceeding \$6 billion in the United States - Daily Telegraph 23/9/85.]

4) The costs of research and of monitoring the disease including the costs of screening blood donors and blood products.

Six projects funded by the Medical Research Council amount to about four hundred and thirty thousand pounds.

1.8 million pounds have been allocated in 1985 for the development of a test for the virus, in addition to resources already committed by the Health Authorities. Of the 6.3 million package announced for 1986, 0.75 million is to go towards the development of a test for screening blood.

APPENDIX B

Confusion in the discussion about AIDS is compounded by the use of technical phrases by the media, sometimes in context, sometimes out of context, without explanation as to what the phrases mean.

HTLV III

HTLV III is a retrovirus: namely, a virus which "hijacks" the cell, by incorporating its genes into the human genes within the nucleus of the human cell. From here the retroviral genes can instruct the cell to make many more viruses.

Some viruses may harm and eventually destroy the cell. Normally the body's immune system fights back. But AIDS retrovirus damages the immune system itself. This makes the body vulnerable to invasions of other viruses, fungi and bacteria.

WHAT IS DAMAGED BY HTLV III ?

1) AIDS sufferers have a very low number of T lymphocyte cells. In experiments T cells have been destroyed by the HTLV III virus. The T lymphocyte cells are white blood cells which attack foreign invaders and also stimulate other parts of the immune system - 2) and 3).

Thus HTLV III also has an effect on:

2) "Phagocytes" (white cells which "digest" foreign invaders);

3) "Natural killer cells" which destroy cells invaded by viruses, and interferon which isolates, and helps to destroy, infected areas of cells.

WHAT CAN BE DONE TO FIGHT HTLV III?

The opportunistic diseases, which result from the body's shortage of T cells, can be treated.

There is a possibility of: restoring those parts of the immune system damaged by HTLV III (Points 1,2, and 3 above) using drugs, for example interleukin-2 is under investigation; and of attacking the HTLV III virus directly with drugs, for example, ribavirin. Research is now being conducted with these objectives but so far only a temporary cessation in viral replication has been achieved.

The possibility of a vaccine against AIDS is also being investigated. A vaccine may be possible because B cell lymphocytes are not damaged by HTLV III. It is this part of the immune system which produces the antibodies able to recognise the virus by its protein coat. (The test for HTLV III relies on the detection of these antibodies).

Not just coat.

Desk.....

File No.

(Please give series or file number where you can find it)

2 January 1986

(1) Please file and return

(2) Please file and pass to

(3) Please file away

transcript of my remarks to the

Signed :-

[Redacted signature]

suggest and these have been made in red
could of course be willing for it to

Date :

20/1

opportunity to talk to your members on

this subject.

Yours sincerely,

[Redacted signature]

The Parliamentary and Scientific Committee
22 Red Lion Street
London WC1R 4PX

2 January 1986

Dear [REDACTED]

Thank you for your letter and the transcript of my remarks to the Parliamentary and Scientific Committee.

I have only minor amendments to suggest and these have been made in red on your note which I am returning. I would of course be willing for it to be published in Science in Parliament.

Thank you for giving us this opportunity to talk to your members on this subject.

Yours sincerely,

[REDACTED]
The Parliamentary and Scientific Committee
22 Red Lion Street
London WC1R 4PX

THE PARLIAMENTARY AND SCIENTIFIC COMM
Short address given to the Parliamentary and Scientific Comm
by Sir James Gowans, Deputy Chairman and Secretary of the Medical
Research Council on Tuesday December 10 1985 at the House of Commons

My role this evening is to introduce the topic of AIDS. This was first described in the USA in 1981 when cases of an unusual cancer and a rare pneumonia - that means a pneumonia caused by a rare organism - were noted in young homosexual men and intravenous drug users. In these patients blood cells called lymphocytes, which normally fight infection were found to be deficient, hence the name of the disease, the Acquired Immune Deficiency Syndrome. It then became clear that the disease could be transmitted by blood (by blood transfusions) and by blood products - that is by (in the treatment of haemophiliacs for example) as well as by homosexual practises. The mode of transmission of AIDS quickly suggested that a transmissible agent was responsible and in 1984 a virus was isolated and identified as the cause simultaneously in France and the USA. The isolation of the causative virus now means that antibodies in patients can be detected.

Before the virus was identified it was not possible to detect the antibodies. So that is a rapid advance, a great deal of work has been done, mainly on the experimental side in the USA where of course the disease is much more prevalent than elsewhere. The causative agent is a very unusual one and which has now been identified and a great deal has been learned about this very strange disease.

At the end of October this year there were 241 cases of AIDS notified in the UK. Of these 134 had already died. In comparison ~~about the same time~~ ^{by the end of August} there had been 13,000 cases notified in the USA. It is estimated that the number of cases of AIDS will double every six to twelve months. In addition to cases of AIDS and AIDS related diseases it is also estimated that about 20,000 individuals in the UK with no signs of illness have antibodies to the AIDS virus in their blood and that these individuals are potentially infectious.

For example, haemophiliacs with antibodies in their blood can infect their wives, who in turn develop the disease. Thus the reservoir of infectious patients is very much larger than the number of cases of the disease and these individuals have obviously got to be the subject of very careful surveillance. We do not know yet what is going to happen to them.

So AIDS is an infectious disease with a very high rate of mortality and the scale of the problem is such that it must be regarded as a very serious public health problem in the UK. There is one aspect of the research on AIDS which must be undertaken in the UK and cannot be left to people abroad and that is the epidemiology of the disease in the UK itself. That means the pattern of spread of the disease including the spread from males to females, in addition to the usual homosexual spread, the identification of risk groups and the careful long term surveillance of risk groups. In 1983 the Medical Research Council (MRC) set up a Working Party to supervise research on AIDS in the UK and to establish strong links with the USA so we know what is going on there on a regular basis. At the request of the Department of Health and Social Security work on the epidemiology of AIDS is going to be scaled up by the MRC to establish a national co-ordinating centre of epidemiological studies on AIDS for which extra money has generously been provided by the Department. The MRC is going to contribute about half the cost of this exercise from its own grant-in-aid.

THE PARLIAMENTARY AND SCIENTIFIC COMMITTEE

An unofficial group of members of both Houses of Parliament and British members of the European Parliament, representatives of certain scientific and technical institutions, some science-based companies and universities and polytechnics

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22 RED LION STREET
LONDON, WC1R 4PX

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01-831 7444 X 316

December 17 1985

18/12
PM

Sir James Gowans CBE FRS
Deputy Chairman and Secretary
Medical Research Council
20 Park Crescent
London W1N 4AL


Dear Sir,

I write on behalf of all those present at the meeting last week to thank you very much indeed for organising the speakers for the meeting and for making your own introduction to the meeting.

My assistant has prepared a transcript of your remarks which I enclose herewith and I would appreciate it if you would check it for accuracy and return it to us. We would like your permission to publish it in our journal, Science in Parliament, please.

Many thanks again for your help with the meeting last week which I know all those present found of great interest.

Yours faithfully,


Administrative Secretary

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My role this evening is briefly to introduce the topic of AIDS to you and then to leave it to Dr. Tyrrell (the Chairman of the MRC working party on AIDS) to talk to you about what type of disease it is and what the MRC is doing in the field - he will do this in two parts. Between the two sections of Dr. Tyrrell's talk Dr. Acheson (the CMO of the DHSS) will talk about the public health problems posed by AIDS, its impact on the health services and on society.

AIDS was first described in the USA in 1981 when cases of an unusual cancer and a rare pneumonia were noted in young homosexual men and intravenous drug users. In these patients blood cells (lymphocytes) which normally fight infection were found to be deficient - hence the name of the disease - acquired immune deficiency syndrome. It then became clear that the disease could be transmitted in blood (by transfusions) and by blood products (in the treatment of haemophiliacs) as well as by homosexual practices. The mode of transmission of AIDS quickly suggested that a transmissible agent was responsible and in 1984 a virus was isolated and identified as the cause simultaneously in France and the USA. The isolation of a causative virus now enables antibody to the virus to be detected in the blood. (Not possible to do this before virus develops).

At the end of October 1985 241 cases of AIDS had been notified in the UK; of these 134 had already died (by end August 1985 13,000 cases reported in USA). It is estimated that the number of cases will double every 6 - 12 months. In addition to cases of AIDS and AIDS-related diseases it is estimated that about 20,000 individuals in the UK with no signs of illness have antibodies to the AIDS virus in their blood and that these individuals are potentially infectious. For example, haemophiliacs with antibodies to the virus in their blood can infect their wives who in turn develop antibodies, although neither necessarily show signs of the disease. Thus the reservoir of infectious patients is very much larger than the numbers of cases of the disease and these individuals must be the subject of careful surveillance.

AIDS is an infectious disease with a very high mortality. The scale of the problem is such that it must be regarded as a very serious public health problem in the UK. I will finish my introduction by saying that there is one aspect of research on AIDS that must be undertaken in the UK and where we cannot depend on research carried out abroad. That is the epidemiology of the disease in the UK - the pattern of spread including the spread from males to females, the identification of risk groups and the careful long-term surveillance of those at risk.

In 1983 the MRC set up a working party to supervise research in AIDS and it established close links with the USA. At the request of the Health Departments work on the epidemiology of AIDS is to be scaled up by the MRC with the establishment of a National Co-ordinating Centre for Epidemiological Studies on AIDS for which extra money has generously been provided by the Health Departments. The MRC will contribute about half the costs from its own grant-in-aid. Dr. Tyrrell and Dr. Acheson will no doubt refer to the importance of the work of this Centre.

13 December 1985

Dear [REDACTED]

As requested, I am enclosing some comments which one of my colleagues has made on your first draft statement on AIDS. You may like to consider these suggestions together with the other comments that you will be receiving from some of the experts in the field.

Yours sincerely,

Malcolm Godfrey

[REDACTED]
Laboratory Animal Science Unit
Royal Veterinary College
Royal College Street
Camden Town
London NW1 0TU

enc

11/12/85

File No.

Dr. Godfrey

On the whole I think this is quite balanced although I have suggested a few amendments.

I saw Dr Tyrnell today. He also agreed at the P+SC to look over the draft note, a copy of which is being sent to him. He feels duty-bound to do this separately rather than just looking over my suggested amendments, but we agreed that I would send him a copy of my amended version so that he can comment (assuming at least make consistent). This I have done. The mine are correct!

D. G. G.

Countries most affected: US - more than 14000 cases; Brazil - around 500; France and Haiti - around 400 each. Some areas of the world have no reported cases so far, for example, India, China and the USSR, but most countries have some cases of AIDS.

Epidemiology: For AIDS to develop the virus must enter the bloodstream. AIDS is therefore most likely to be caught from hypodermic needles, anal intercourse, and contaminated blood transfusion. While the virus may be present in the saliva, tears, or semen, the disease is passed to another person only by direct entry into the blood system: for example by semen-to-blood, blood-to-blood, saliva-to-blood contact.

There is no epidemiological evidence that the virus is spread by coughing and sneezing; shared washing, eating, drinking, and lavatory facilities; everyday contact at work.

Between 10% and 20% of those who have the virus will then develop AIDS, although some more will develop ARC, (which may be a precursor to AIDS). All those infected by the virus are carriers. (See other)

MEMO FROM THE SECOND SECRETARY


Date... 10-12-85...

To... *D. Cope JKC 11/12*

Reply to Second Secretary by:

ASAP please

The PASC plan to issue a briefing note on AIDS to NP's. They want a statement for the 'unintelligent layman' & have asked if we have any amendments to suggest to the attached 1st draft. Please would you let us know if you (all changes or necessary) make the draft & we'll send a photocopy.



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Epidemiology: For AIDS to develop the virus must enter the bloodstream. AIDS is therefore most likely to be caught from hypodermic needles, anal intercourse, and contaminated blood transfusion. While the virus may be present in the saliva, tears, or semen, the disease is passed to another person only by direct entry into the blood system: for example by semen-to-blood, blood-to-blood, saliva-to-blood contact.

There is no epidemiological evidence that the virus is spread by coughing and sneezing; shared washing, eating, drinking, and lavatory facilities; everyday contact at work.

Between 10% and 20% of those who have the virus will then develop AIDS, although some more will develop ARC, (which may be a precursor to AIDS). All those infected by the virus are carriers. (see other)

Parliamentary and Scientific Committee

SCIENCE AND TECHNOLOGY GROUP

FIRST DRAFT ONLY:

BRIEF NOTE FOR MEMBERS OF PARLIAMENT ON A.I.D.S.

"AIDS is the most important infectious public health problem this century" [Michael Adler, Professor of Genito-urinary medicine at the Middlesex, The Times, 6/9/85]

AIDS is a virus disease. The initials stand for Acquired Immune Deficiency Syndrome. The body's defences against infection are damaged by the virus, leaving the patient vulnerable to secondary infections.

ARC - AIDS Related Complex - is an associated illness, less severe than AIDS. Some sufferers later develop AIDS.

Causative Organism: A group of similar viruses are being investigated under the collective name of HTLV III, which are thought to be responsible for AIDS and ARC.

Incidence: There have been 241 cases diagnosed in the UK (at 31 October 1985) but because AIDS has a long incubation period there may be many more afflicted. The numbers are doubling every ~~six~~ ^{eight} months.

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Incubation period: an average of 28 months, but it may last
ix or eight years. Therefore there may be a high number of
latent sufferers, not as yet diagnosed.

Most likely to acquire the virus: homosexual men, drug users and
haemophiliacs. Those individuals whose immune systems are
already depressed - for example drug addicts, or sufferers from
sexually transmitted diseases - are more likely to develop AIDS
than others who have acquired the virus. Over 70% of sufferers in the USA
are homosexuals; about 15% are drug abusers; and about 3%
haemophiliacs or recipients of blood by transfusion. In the UK, the
proportion of who are drug abusers has so far been much lower.
Others may have acquired AIDS by heterosexual contact, or in the
womb as foetuses, or through breast milk.

Symptoms: Since AIDS involves a depletion in the body's natural
defence system, many symptoms are simply those of infection.
Common symptoms include: profound weariness, drastic weight
loss, night sweats, fevers, coughs, purple blotches on the skin,
fungal invasions, diarrhoea, tuberculosis and pneumonia.

Cancers such as Kaposi's sarcoma (a skin cancer), or leukaemia
can also be associated with AIDS, as well as other immune
disorders such as a deficiency of blood platelets.

Diagnosis: ^{There is no reliable test for} ~~It is not possible to detect~~ the virus directly. It
is, however, possible to recognise the presence of antibody to
the HTLV III virus. ^{that the patient has been exposed to} An HTLV III antibody positive result
signifies the presence only of the virus HTLV III, not
necessarily of AIDS or of ARC.

Prognosis: ^{of the full AIDS syndrome} 40% of cases are fatal within two years, and 90%
within five years.

Treatment: There is no cure for AIDS at present. Claims to a
cure which have been announced in the popular media have been
premature.

There is no vaccine against AIDS at present. In France and the
USA several research programmes to develop a vaccine are being
conducted, but so far ~~they have been without success~~
^{there have been no major developments.}

Research is being conducted into a way of inhibiting the spread
of the virus by the use of drugs; and into a way of providing an
artificial replacement for those parts of the immune system which
the virus attacks. Conclusions are, as yet, too tentative to be
relied upon.

* Because of the long incubation period it is difficult to estimate
what proportion of people infected with the virus will eventually
develop AIDS. It may be in the region of 10-20% with a
further proportion developing ARC but not AIDS.

APPENDIX A

Economics

- 1) Direct costs of medical treatment: The Terrence Higgins Trust estimates costs of twenty thousand pounds per patient for two years' treatment, a total of over ten million pounds estimated by mid 1986 (The Terrence Higgins Trust is a charity named after the first known AIDS fatality in the UK).
- 2) Educational and counselling costs: 6.3 million pounds has been allocated for AIDS treatment and counselling for 1986 by central Government, of which about three million pounds is to be spent directly on counselling services.
- 3) The contingent costs of damages awarded to haemophiliacs who have received Factor VIII blood products contaminated with HTLV III, as well as the possible increase in medical premiums for private health care. [The Daily Telegraph reported cost estimates for caring for the AIDS sufferers, including their loss of "productivity" as exceeding \$6 billion in the United States - Daily Telegraph 23/9/85.]
- 4) The costs of research and of monitoring the disease including the costs of screening blood donors and blood products.
Six projects funded by the Medical Research Council amount to about four hundred and thirty thousand pounds.
1.8 million pounds have been allocated in 1985 for the development of a test for the virus, in addition to resources already committed by the Health Authorities. Of the 6.3 million package announced for 1986, 0.75 million is to go towards the development of a test for screening blood.

APPENDIX B

Confusion in the discussion about AIDS is compounded by the use of technical phrases by the media, sometimes in context, sometimes out of context, without explanation as to what the phrases mean.

HTLV III

HTLV III is a retrovirus: namely, a virus which "hijacks" the cell by incorporating its genes into the human genes within the nucleus of the human cell. From here the retroviral genes can instruct the cell to make many more viruses.

Some viruses may harm and eventually destroy the cell. Normally the body's immune system fights back. But AIDS retrovirus damages the immune system itself. This makes the body vulnerable to invasions of other viruses, fungi and bacteria.

WHAT IS DAMAGED BY HTLV III ?

1) AIDS sufferers have a very low number of T lymphocyte cells. In experiments T cells have been destroyed by the HTLV III virus. The T lymphocyte cells are white blood cells which attack foreign invaders and also stimulate other parts of the immune system - 2) and 3).

Thus HTLV III also has an effect on:

- 2) "Phagocytes" (white cells which "digest" foreign invaders);
- 3) "Natural killer cells" which destroy cells invaded by viruses, and "interferon" which isolates, and helps to destroy, infected areas of cells.

WHAT CAN BE DONE TO FIGHT HTLV III?

any of
The opportunistic diseases, which result from the body's shortage of T cells, can be treated.

There is a possibility of: restoring those parts of the immune system damaged by HTLV III (Points 1,2, and 3 above) using drugs, for example "interleukin-2" is under investigation; and of attacking the HTLV III virus directly with drugs, for example, "ribavirin". Research is now being conducted with these objectives but so far only a temporary cessation in viral replication has been achieved.

The possibility of a vaccine against AIDS is also being investigated. A vaccine may be possible because B cell lymphocytes are not damaged by HTLV III. It is this part of the immune system which produces the antibodies able to recognise the virus by its protein coat. (The test for HTLV III relies on the detection of these antibodies). In natural infection only very low levels of virus-neutralising (i.e. killing) antibodies are produced; a vaccine might stimulate production of a more effective level.

As with many viruses, genes from HTLV III become integrated into the chromosomes of an infected cell and can then instruct the cell to make more viruses. The genes in HTLV III are made of ribonucleic acid (RNA) and must be converted to deoxyribonucleic acid (DNA) before integration can occur. This requires an enzyme "reverse transcriptase" which is unique to retroviruses. Both terms reflect the fact that the process is the reverse of what happens in normal cells.