

- There is no doubt at all that Prof Zuckerman's work on plasma derived vaccine has been overtaken by events - (i) development of yeast derived vaccines (ii) occurrence of AIDS in blood derived products. His micelling technique will be of value in developing other vaccines.*

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HEPATITIS B VACCINE

1. A submission to MS(H) of 26 May 1982 on the availability in this country of the American vaccine against Hepatitis B referred to research in this country and elsewhere into producing other Hepatitis B vaccines and to the financial support being given by the Department, totalling £130,000 to date, to developmental work on a new British vaccine, pioneered by Professor Arie Zuckerman, at the Public Health Laboratory Service Centre at Porton Down.
2. In commenting on the stance to be adopted in regard to the American vaccine, MS(H) said "The positive policy must be to press on to produce a British product at a more realistic price.". Ministers will wish to be aware of the present situation concerning the development of a vaccine against Hepatitis B with British sponsorship.
3. For some years the Department has been supporting research at the London School of Hygiene and Tropical Medicine, under the direction of Professor Zuckerman, on the development of a plasma-derived hepatitis vaccine. This work has given rise to a technique of presenting a vaccine to the body's immune system known as "micelling". Development of the micelle technology has been money well spent, and the technique is likely to have a valuable and widespread application to a number of vaccine products in the future.
4. The Department had, however, become concerned about the wisdom of continuing to encourage work directed towards the production of a British plasma-derived micelled hepatitis B vaccine and sought the views of an expert group of advisers. The advice given by this group reflected the view that the work so far on the Zuckerman project in relation to hepatitis plasma-derived vaccine had been overtaken by events. In particular, mention was made of (i) the unwillingness of British manufacturers to be involved with a plasma-derived product (especially due to the emergence of the Acquired Immune Deficiency Syndrome) and (ii) that, simultaneously, developments have occurred in recombinant DNA technology enabling the Hepatitis B surface antigen to be expressed in yeast and other cells. On a realistic forecast of the time necessary to complete the remaining research, development and safety testing of a plasma-derived micelled vaccine (4-5 years), it was clear that in the same period a clinically acceptable and more desirable yeast-derived recombinant DNA vaccine could well become available. There are already British links with companies overseas in developing a synthetic Hepatitis B vaccine and it is now for the British Pharmaceutical Industry to take the initiative. The British Technology Group are funding a collaborative venture between the London School of Hygiene and a Research Institute in Sweden.

5. Officials have concluded that the Department should no longer support the development of a plasma-derived Hepatitis B vaccine for routine use and that no further encouragement or finances should be directed to this end. Professor Zuckerman's basic research in hepatitis generally and in micelling will continue to be encouraged and considered for further research funding. While no guarantee can be given that there will be a British Hepatitis B vaccine in the foreseeable future, it is a distinct possibility. But the pace of such a development will be governed by the interest of the British Pharmaceutical Industry.

6. If Ministers agree, Professor Zuckerman will be informed of the intention to withdraw funding.

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(Signed on behalf of)

MISS M R EDWARDS

CHD

B1201A AFH

Ext GRO-C

2 December 1983

cc
Mr Nodder
Mrs Firth
Dr Oliver MEDIMCD
Dr Graveney OCS
Dr Sibellas MEDIMCD
Miss Purvis ←

should supplement specialist and subspecialist training. There can probably never be a pure clinical nutrition specialty, since the requirements to interact with age and organ-based disciplines are too onerous. However, clinical nutrition may be the dominant pursuit for many specialists. Extensive postgraduate courses in clinical nutrition are thus required. So far, outside the USA only a few medical units can be expected to provide necessary teaching expertise and training facilities. These units must be encouraged to organise international clinical nutrition fellowship programmes. The training should include both bedside and laboratory work as well as exposure to related research. The medical authorities in these and other countries must be persuaded to support appropriate candidates for clinical nutrition training—ie, those having one of certain specialties as outlined in the figure. For those who will have such an extensive supplementary training in clinical nutrition, acknowledgement of a combined specialty interest may be useful—eg, gastroenterologist/clinical nutritionist.

Correspondence should be addressed to B. L., Department of Clinical Nutrition, Sahlgren's Hospital, S-413 45 Gothenburg, Sweden.

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Public Health

WHO MEETING ON AIDS

AFTER a WHO meeting on acquired immune deficiency syndrome, held in Geneva on Nov 22-25 under the chairmanship of Dr W. Dowdle (CDC, Atlanta), the following statement was prepared:

Cases of AIDS, first identified in 1981 in the USA, have now been recognised in several other parts of the world. In some countries, the pattern of transmission does not seem to correspond with that found among patients from the USA and Western Europe, where the high-risk groups have been homosexual men with many partners and intravenous drug abusers. In cases from the Caribbean and Equatorial Africa, the ratio of female patients to males is much higher than that in the USA and Western Europe; the mode of transmission appears to be different.

AIDS is a public health problem in a number of countries and has international implications. More than 3000 cases have so far been identified according to the definition established by the US Centers for Disease Control in Atlanta, Georgia, and adopted by European investigators at a recent meeting in Aarhus, Denmark. According to this definition, AIDS is characterised by a severe cellular immune deficiency, which leaves the body defenceless against unusual opportunistic infections such as *Pneumocystis pneumonia* and rare malignant diseases such as Kaposi's sarcoma.

Of 2753 patients so far identified in the USA alone, 1126 have died—a 41% fatality rate. Most of the known cases have occurred in North America and Western Europe, but cases are now appearing in a number of developing countries and elsewhere.

The epidemiological pattern is consistent with transmission by an agent which is most probably a virus. The cause remains unknown, but intensive efforts to identify it are being undertaken by many laboratories around the world. The consensus among the scientists was that the agent persists in the blood and other body fluids.

The predominant mode of transmission in industrialised countries is by sexual contact, mainly among homosexual men. Transmission has also been reported via certain blood coagulation factors and contaminated needles used by drug abusers, accounting for 20% of cases. (The blood coagulation factors include factor VIII and factor IX, which are used for the treatment of patients with haemophilia A.) In a few cases, AIDS appears to have been trans-

mitted to newborn babies, probably at the time of birth, and also to patients receiving blood transfusions.

So far there have been no documented cases of AIDS among health care or laboratory workers with no other risk factors who have had known exposure to patients with AIDS. However, well-established precautions which have been recommended by WHO for treating patients with viral infections such as hepatitis B, and handling specimens from such patients in the laboratory, should be rigorously enforced in AIDS cases.

Further specific laboratory tests are needed to define precisely the mode and extent of spread of this newly described syndrome. Ways of reducing transmission of AIDS include: information directed at high-risk groups; self-exclusion from blood donation of those who belong to these groups; strict discipline in the use of needles and syringes; and strict adherence to the WHO standards for the production and control of biologicals and blood products.

There is no evidence for transmission of AIDS by the currently available plasma-derived hepatitis-B vaccines, nor by immunoglobulins which meet WHO requirements.

WHO is requested to support and coordinate research in different epidemiological settings. This will make an important contribution to the understanding and ultimate control of the disease.

NATIONAL RUBELLA CAMPAIGN

In the last rubella epidemic of 1978-79 120 babies were born damaged and 1400 rubella-associated pregnancies were terminated. In interepidemic years about 25-35 children are born damaged. In 1982 83% of schoolgirls aged 10-14 accepted rubella vaccination under the schools immunisation programme. A national rubella campaign was launched this week to eliminate congenital rubella by bringing uptake of vaccination by schoolgirls to as near 100% as possible and to encourage women of childbearing age to be tested for immunity to rubella and to be vaccinated if found to be unprotected. The three-year campaign is organised by the National Rubella Council, made up of representatives from the Department of Health and Social Security, the Health Education Council, and eleven voluntary organisations concerned with physical and mental handicap. All local authorities have been asked to participate in the campaign. They have been requested to consider arranging serological testing facilities and supplying vaccine free to employers willing to use their own occupational health facilities to promote immunisation.

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