NOT FOR PUBLICATION
NATIONAL HEALTH SERVICE

REPORT OF THE WORKING GROUP ON TRENDS IN THE DEMAND FOR BLOOD PRODUCTS

1. The Working Group was appointed in January 1977 by the Department of Health and Social Security who, in consultation with the Scottish Home and Health Department and the Welsh Office, decided that it would help in planning the future development of blood transfusion services if the likely trends in the demands for blood and blood products were known. Membership and terms of reference were as follows:-

Chairman: Mr P Benner, Department of Health and Social Security.

Members:

1. Dr J D Cash, Director, Edinburgh and SE Scotland Blood Transfusion Service.
2. Dr J Darnborough, Director, Regional Blood Transfusion Service, East Anglia RHA.
3. Dr Helen Dodsworth, Senior Lecturer in Haematology, St Mary's Hospital Medical School, London.
4. Dr I Gillies, Consultant Anaesthetist, Royal Postgraduate Medical School, London.
5. Dr W d'A Maycock, Director, Blood Products Laboratory.
6. Dr A D McIntyre*, Scottish Home and Health Department.
7. Dr Sheila L Waiter, Department of Health and Social Security.

Secretary: Mr T E Dutton, Department of Health and Social Security.

* replaced by Dr A E Bell in July 1977

Terms of Reference:
"To consider the likely trends in the demand for blood products over the next 5 to 10 years, taking into account the practicalities of supply".

At our first meeting it was explained that the Department was not seeking a series of precise forecasts of future requirements; what was needed were broad estimates of likely requirements of each of the major blood components which would enable the Health Departments, in conjunction with Health Authorities, to plan the development of blood transfusion services and to consider the financial and other resource implications.

The broad aim of the Health Departments, in conformity with World Health Organisation resolutions, is to achieve NHS self-sufficiency in therapeutic blood products, and to discontinue the present practice whereby the commercial manufacturers of blood products supply part of the needs of the Service, particularly factor VIII concentrate, albumin solutions and certain immunoglobulins. The demand for blood products does not necessarily reflect the need for them; there may be some wastage due to a lack of appreciation of the properties of certain blood products, and to some extent fashion in treatment may inflate the demand for a particular product to an extent which does not solely reflect clinical requirements. Our estimate of albumin requirements is based on the assumption that as experience in the use of this and other plasma fractions grows wastage of this kind will diminish and the extent of use of protein solutions will stabilise.

3. We started from the assumption which has gained widespread acceptance in Europe and North America that a blood transfusion service which collected enough blood to provide for its needs of albumin and factor VIII could also produce enough of the other major components to meet future needs as far as they could be judged on the basis of present practices and discernible trends. We believe this to be correct; but we nevertheless decided to consider the requirements of all the major components.

4. Our consideration of the need for albumin was greatly assisted by the fact that the results of a study* undertaken under the aegis of the Council of Europe into the use of albumin and related products became available, one of our members, Dr J Darnborough, having taken part in its preparation.

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* Council of Europe Coordinated Blood Transfusion Research (1976) programme. Study by a Sub-Committee of Specialists on Blood Problems.

The albumin requirements had been very carefully reviewed and we felt that it was unlikely that further enquiries of experts would add significantly to the basic information available in the Report. We accordingly accepted the broad conclusions of the Study Group on the trend in demand for albumin in the foreseeable future. We estimate that within the next 5 to 10 years the annual amount of albumin required can be expected to grow from a basic minimum of about 100gm per 1000 population to some 200 gm per 1000 population. Current annual production in England and Wales is about 50 gm per 1000 population.

5. We therefore recommend that the Health Departments should plan for an annual albumin production figure of 200 gm per 1000 population. We suggest that this can only be achieved by instituting the following developments:

a. Raising the basic annual rate of blood collection to a figure of 50 donations/1000 population. Forward planning for this should include the possibility that the figure may rise to 60 in the next 10 years, but it should be borne in mind that too high a rate of normal blood collection will lead to an embarrassing excess of red cells, such as has occurred in one or two European countries.

b. A substantial increase in the clinical use of red cell concentrates. It is recommended that efforts be directed towards obtaining a transfusion rate of 60% red cell concentrates. This, combined with an annual donation collection rate of 50/1000 population, will lead to an approximate processing rate (fresh and outdated) of 80%, which in turn will yield approximately 8 litres of plasma/1000 population per annum - the amount needed to meet a demand of 200 gm per 1000 population per year.

6. We accept the estimate that to meet the needs of haemophiliacs in the foreseeable future the amount of Factor VIII produced will have to be about 1000 iu per 1000 population per annum. On the basis of the best estimates presently available we believe that if sufficient blood were to be collected to provide 200 gm of albumin per 1000 population approximately 1300 iu of Factor VIII would also be available per 1000 population, an amount sufficient for all likely needs, especially if it is possible to improve yields of Factor VIII. These calculations and recommendations are based upon achieving an annual donor collection rate of 50/1000 population, an annual plasma yield of 8 litres/1000 population and that half of the plasma (4 litres per 1000 population) is processed (fresh) for Factor VIII.

Approximately 70% of the available factor VIII is at present lost in collection storage and processing of the plasma. We recommend that the Health Departments encourage research which will lead to a reduction of this loss. We believe that the long term aim should be the complete transfer of cryoprecipitate to a fractionated freeze dried concentrate. However, guidance will be needed on a continuing basis from Regional Transfusion Centres on the time scale of such a development.

7. We believe that if the blood transfusion services are successful in meeting the requirement for albumin which we have outlined, there could also be sufficient Factor IX to meet anticipated requirements of this component but additional fractionation capacity may be needed. The use of platelets is growing rapidly, a trend which we believe will continue, and the demand for white cells is also likely to grow. It should however be within the capacity of the Blood Transfusion Services to meet requirements given adequate resources. We have thus not found grounds for modifying the broad judgement referred to in paragraph 3 of this report.

It would be advisable to retain some capacity for the preparation of dried plasma.

8. In general, we believe that on the basis outlined above there would be sufficient raw material for most other major components to meet the probable needs of clinicians but we recognise that new developments in medicine may affect current trends in demand; and we are aware that research is going on in fields which could affect clinical practice, particularly in supportive therapy and the development of human diagnostic reagents, and hence affect our assessment of the situation. We therefore recommend that the Health Departments should keep a careful watch on these developments so that any implications for blood component production can be identified and assessed at as early a stage as possible.

Considerable further investment in collecting, testing, processing and premises will be required to achieve these targets. It will be a major undertaking for most Regional Transfusion Centres to increase further both blood collection and output of red cell concentrates. It is not expected that, given adequate publicity, difficulty will be encountered in recruiting the additional donors needed to provide 200 grams albumin per 1000 population per annum, but increased

blood-collecting resources, accommodation and equipment will be needed in the Regional Centres.

Additional fractionation capacity is also needed, even allowing for some possible expansion of the Liberton plant's output. The present UK capability is less than half that we regard as essential. Additional major investment is, therefore, also needed for this.

Close attention also needs to be given to the possible future organisation of the Transfusion Services, particularly in relation to better national co-ordination, forecasting and planning.

December 1977