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THE HANDLING OF THE TRENDS WORKING PARTY REPORT

an office meeting chaired by Mr Draper on 13 February it was agreed

1. that SMAC should consider the report but this would be the extent of formal consultation with medical bodies. It is understood that SMAC members had no comments to offer,

2. Dr Raison would send copies for information to RMOs.

3. Regional Transfusion Directors should receive copies.

4. formal consultation with Health Authorities should not commence until SMACs views were known,

5. I should prepare 2 papers which examined,

   i the means of ensuring with Health Authorities that Regional Transfusion Centres were able to maintain a supply of source material (blood, plasma etc) sufficient to meet the trends forecast over the next 5-10 years. All options would be examined,

   ii the implications of such an expansion for the Central Laboratories and the options open to the Department in developing these laboratories, including among the interim solutions, the current BPL "stopgap" plan and the possible closer association of BGRL with BPL.

The papers would be prepared initially for RCP and would first be circulated at Principal level. On the basis of these papers RCP would be invited to consider how the rate in the growth of production of blood products which the Trends Working Party thought would be necessary, could be achieved if the permitted annual rate of NHS growth was less than was necessary to sustain this level of expansion. One of the propositions to be examined was whether there should be some central funding.

The accompanying papers have been agreed with Dr Waiter. While their primary purpose is to enable RCP to consider how the development of blood products manufacture can best be fitted into the wider aspects of NHS development, comments from all recipients of this minute (by 30 April please) are invited especially on methods of financing future developments and the most suitable way of approaching field authorities.

The Regional Transfusion Directors did not offer any comments on the Trends Working Party Report at their last meeting but they are due to meet again on 3 May by which time they should have formed some views. These might provide a valuable pointer to the best way to approach Regional Health Authorities.

26 April 1978

Copies with enclosures to:-

Mr D R Harris (RCP)
Miss P Petrie (RCP)
Mr M A Harris
Dr Maycock
Mr R N Roberts (SHHD)
Mr R C Simpson (Welsh Office)
Mr Draper )
Mr Parrott ) for information
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RMA

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H/B15/40
Vol 7

MEETING THE DEMAND FOR BLOOD AND BLOOD PRODUCTS OVER THE NEXT 5-10 YEARS

PART A

A Departmental Working Party has recommended that the Department should:

a. plan for a situation in which Regional Transfusion Centres will be required, if the demands of clinicians are to be met, to double the amount of blood collected within 10 years.

b. plan the development of the central laboratories to enable them to process the blood plasma in such a way as to increase fourfold the amount of albumin currently produced and to double the amount of Factor VIII prepared.

Part A of this paper examines the options for increasing the contribution which the Regional Transfusion Centres must make and Part B considers what corresponding developments are needed at the Central Blood Products Laboratories.

GEARING UP THE REGIONAL TRANSFUSION CENTRES

It might be argued that no special arrangements need to be introduced on the grounds that a doubling of the amount of blood collected over 10 years would amount to little more than the continuation of the rate of increase which has been achieved during the most favourable years of the previous decade. Against this must be set (i) most centres appear to be approaching maximum capacity with present resources (ii) the rate of increase of blood collection is levelling off. If present trends are to continue without some bolstering, shortages of blood components and still heavier dependence on commercial blood supplies are inevitable. The NBTS still has a long way to go before it can claim to be even approximately self sufficient in blood products.

It might be argued that in attempting to persuade Regions to collect more blood, the Department is influencing Health Authorities in the exercise of their judgement between competing priorities. This is undoubtedly so, but given the present open-ended nature of the blood products bill, the Department is bound to encourage NHS production if this is cheaper. The Department is already heavily committed to the central processing of the main components for which the Regions provide the raw material, usually plasma.

The idea of leaving Regions to decide, on the basis of the recommendations of the Trends Working Party Report, what contribution of plasma each should make to BPL has something to commend it since it would impress upon them that this is a Regional responsibility which they must expect to finance from their normal allocations. Such an arrangement would however lead to a number of practical problems for BPL, or whoever else was required to fractionate the plasma. The "by products" of the Regional Transfusion Centres are the "raw material" of the Blood Products Laboratory and they can take a variety of forms, fresh plasma, plasma from time expired blood and cryo-precipitate supernatant. Each has a different "potential" as a source of blood products and to some extent the processing arrangements differ. BPL must therefore be able to influence the balance of its source materials, their quality and the time of delivery.

An alternative approach, while still leaving the Regions as the arbiters of what they are required to do, would be to include the NBTS amongst the growth areas when deciding Regional allocations, pointing this out to Regions and explaining that

thin these constraints they should develop their part of the NBTS as best they can. Any concomitant development of BPL would, in these circumstances, have to be planned to allow the greatest possible flexibility of operation since their raw materials would probably arrive somewhat haphazardly and be of different ages and composition and need differing treatment; efficiency would be at a correspondingly low level and supplies of finished products would be difficult to guarantee. It is difficult to see that NHS self sufficiency in Factor VIII would ever be attained in this way and there would be appreciable extra expenditure on commercial blood products. There might also be difficulty, since BPL may not have adequate control over the source material, in meeting the requirements of the Medicines Act.

A further alternative, since knowledge of fractionation is not confined to BPL, would be to accept the offer of industry to fractionate on behalf of the NBTS. It is believed, however, that certain firms are interested in by-products of human plasma fractionation and it might be difficult to satisfy critics of such an arrangement that the NBTS received back all it supplied. While this criticism could probably be satisfactorily dealt with if necessary, there would still remain the problem of gearing up Regional Transfusion Centres to meet the fractionators requirements for regular supplies of raw materials in the required form and to stipulated standards of quality.

The importance of dovetailing the activities of the Regional Transfusion Centres and the Departments' Blood Products Fractionating Centres (where blood plasma is fractionated by the ton on the industrial scale) limits the number of options open to the Department in practice. If the Fractionating Centres are to operate at the level of efficiency which will be necessary if the considerable additional requirement of blood products is to be obtained without an unacceptably high rate of wastage of red cells, intermittent production will not suffice. Production must be based on regular supplies of source material conforming to requirements agreed between BPL and Regional Directors and packed in such a way as to enable mechanical handling of blood packs to be introduced. Closer control of the source material will also be necessary if more of the 70% Factor VIII activity which is not at present recovered is to be secured.

As the Service is at present organised it must inevitably fall to the Department to ensure an adequate supply of source material to its processing laboratories. The Department recognised this responsibility when it was decided to introduce a central programme for the production of Factor VIII and for some time the Department tried by exhortation to persuade authorities to step up plasma production. Progress was very slow and it was not until £½ million was specifically earmarked for this purpose and production targets set for each Region that the plasma production began in earnest. With 2 exceptions where there are extenuating circumstances, the targets have been attained (and in some instances well exceeded) within the time limit. The investment has been handsomely repaid; BPL is now producing Factor VIII worth £1.5 million per annum at a cost which is thought to be approximately half the commercial cost. The key to the effective operation of a blood products production programme appears, therefore, to be the 'commissioning' of requirements of BPL's 'raw materials' from all regions and this could be arranged without a too radical departure from the existing system of financial allocations if the following distinction was to be recognised.

Regional Transfusion Centres have 2 separate but inter-related functions:

1. to meet the local needs for blood products which

   i do not require processing, or

   ii are so labile that the blood must be processed on the spot or

   iii are susceptible to processing on an economic scale by relatively simple methods

2. the production of source materials (raw materials) for the Department's Plasma Fractionation Centres.

Finance for (i) could be provided, as at present, from the normal regional allocation and for (ii) by grants expressly provided to cover the cost of providing specific quantities of source materials at stipulated intervals. The production programmes would be worked out between the Department, BPL and RTDs. Such an arrangement ought to be combined with a system of notional charges for products made by the Central Laboratories.

CONCLUSION

Past experience suggests that the most satisfactory way of approaching field authorities about meeting the Trends Working Party requirements would be on the basis of a partnership which recognised that neither was independent of the other if the NHS is to provide the blood products which clinicians require. Under such an arrangement Regional Transfusion Centres would have an obligation to provide necessary source materials for the Department's central processing laboratories in agreed quantities, when required by prior arrangement, to the requisite standard and in the form required for processing. The details of this arrangement might be worked out between RTDs, the Director BPL and the Department guided by the Central Lab Sub-Committee.

The extra cost to Regions might be met by specific allocations calculated so as to be proportional to the amount of source material to be supplied.

The value of BPL products (in terms of what they would cost to buy from commercial sources) has recently been put at about £8 million pa - estimate made by the Director Designate, BPL. This suggests that the commercial value of the blood products which the Trends Working Party considered would be needed in the next 5-10 years may be of the order of £20 million pa.

This paper suggests ways of ensuring that the Central Blood Products Laboratories have the steady supply of source materials necessary to sustain a programme on this scale.

T E Dutton

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Vol 5

SECOND DRAFT

MEETING THE DEMAND FOR BLOOD AND BLOOD PRODUCTS OVER THE NEXT 5-10 YEARS

PART B

1. Part A of this paper looked at the means of "gearing up" the Regional activity to ensure that adequate supplies of source material (plasma both 'fresh' and from time-expired blood) of the right quality were available. This paper considers the options available to the Department for providing adequate facilities for processing the plasma collected.

2. There are essentially 3 options open to the Department as to the way in which blood plasma might be fractionated. They are:-

a. for the Blood Transfusion Service, to increase its processing capacity in order to fractionate sufficient plasma to meet the total requirements of the NHS for coagulation factors (mainly factor VIII) and protein solutions

b. to hand the whole fractionation process to industry

c. a combination of a and b.

Relevant considerations in making a choice are:-

i There is at present in the UK no commercial plant for the fractionation of plasma

ii Offers by industry to fractionate plasma on behalf of the NHS have been based on shipping the plasma to the USA, although it is known that the industry is examining the possibility of building fractionating plant in Europe. A typical offer comprised fractionation of plasma collected in the UK, possibly by plasmapheresis, return of factor VIII free or 'at cost' to the NHS with industry retaining the supernatant from which valuable protein solutions and other components could be prepared and presumably sold to the NHS and possibly abroad. The overall cost of such an arrangement to the NHS could be considerable.

iii Commercial fractionation offers no solution to present shortages of key fractions in the NHS.

iv The NHS has in BPL (Elstree and Oxford) and PFC, Liberton, a capital investment worth probably £10,000,000.

v Advice recently given to the Central Laboratories sub-Committee by an independent expert suggests that commercial fractionators are, if anything, behind NHS fractionators in the development of fractionation methods and that their success in producing certain high potency preparations is achieved at the expense of considerable wastage of source material.

It would seem from the above that in the existing stage of the relative development of BPL and commercial fractionation in this country, there are few advantages in a switch to commercial fractionation. The remainder of this paper is accordingly devoted to options for developing BPL. In order of amount of investment involved these are:-

A Scheme for Limited Upgrading of the Fractionation Capacity at Elstree Mainly Within the Existing Curtilage - The 'Stopgap' Scheme

BPL have put forward proposals on these lines at the request of the Department on the understanding that they implied no commitment by the Department or BPL at this stage. Assessments suggest that the proposals are essentially sound and that this option represents a means of achieving a considerable increase in BPL output at a relatively modest cost. In very broad terms it is estimated that for about £70,000 capital and an annual revenue expenditure of about the same amount, the "value" of BPLs products in terms of what they would cost to buy from industry could be increased in the first year from about £7½ million to about £9½ million per annum. The extra products would be mainly factor VIII, (the NHS is still purchasing approximately 1 million units at a cost of £800,000 to £1 million per annum) and protein solution (albumin).

"Stopgap" envisages a doubling over 4 years ~~of the amount of plasma processed and the more economical processing of that plasma~~ in production of Factor VIII and an increase of about 60% in albumin production.

2. The Phased Redevelopment of BPL

Phase 1 - concentrates on increasing factor VIII production together with the processing of the supernatant to produce albumin solutions.

Phase II - increased production of Plasma Protein Fraction - the NHS purchases large quantities at up to £30 a bottle.

Phase III - reworking the existing shell to provide full quality control, research and administrative backing for ~~the~~ new manufacturing ~~laboratories~~ process area to be built alongside the existing laboratories.

This development might take almost as long to complete as a completely new laboratory and would probably cost £5-7 million.

~~It appears to be the solution of choice only if the site on which to develop a new~~ a new laboratory ~~were not available. The need to keep working facilities going while changes were taking place to the rest of the fabric would add to the overall cost and there is a real possibility that it would not be feasible to maintain the manufacturing standards required by the Medicines Inspectorate.~~ on body

3. The Development of a totally new Laboratory - development and building time 5-7 years, cost £10 million to £12 million

Such a development would enable attention to be given to the economical preparation of blood products to an extent which would not be possible in the kind of phased redevelopment referred to above. It would enable Medicines Inspectorate requirements to be met in full and enable all necessary safeguards for safe operation to be built in.

The Department has been advised that for some years to come, plasma fractionation will be essentially based on the existing Cohn cold ethanol method but that there is a need to examine the underlying science and technology of this method if it is to be used most effectively. At the same time there is a need to evaluate the newer methods of fractionation based on chromatographic and electrophoretic separation. If these studies were embarked upon in sufficient time the results should be available in time to be of benefit in the planning of a new laboratory. The phased redevelopment of the existing laboratory referred to above would probably not provide sufficient flexibility for the alternative planning approaches which might have to be adopted.

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ING THE DEMAND FOR BLOOD AND BLOOD PRODUCTS OVER THE NEXT 5-10 YEARS

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