

MEMORANDUMMr Watt 0010
File FVIII

From:

C. Prowse

To:

Dr. McClelland
Dr. Cash
Dr. Boulton
Dr. Foster

Our Ref: CP/MR

DATE: 1 May 1980

FREEZE-DRIED THAW-SIPHON CRYOPRECIPITATE

A pilot study was undertaken to assess the feasibility of freeze-drying thaw-siphon cryoprecipitate from thaw-siphon cryoprecipitate. 20 units of fresh frozen plasma (mean 225 gms.) were processed to cryoprecipitate by the thaw-siphon method. Assay of frozen samples of this material revealed an average content of 174 i.u. factor VIII per donation. This material was completely thawed transferred to 100 ml. glass MRC bottles, refrozen at -40°C and freeze-dried at PFC. After reconstitution with the original volume of distilled water (mean 30 mls.) this material, surprisingly, redissolved readily in an average of 4 minutes and contained a mean 124 i.u. factor VIII, 179 mg of fibrinogen and 1.69 gm protein and was 240mOsm on average. In an earlier study the loss of factor VIII during freeze-drying was negligible but in this case the initial yield of VIII was lower, probably due to over-siphoning. Thus it is apparent that freeze-dried thaw-siphon cryoprecipitate can provide a feasible clinical product at a yield of about 550 i.u. factor VIII per Kg. plasma, although improvements in the freeze-drying step may increase this. In this pilot study no attempt was made to maintain sterility.

I would make the following comments:

- a). For clinical use a unit dose of 200-400 i.u. would be more appropriate. This would necessitate some form of small pool method and the use of larger bottles (as the 100 ml vials will not allow freeze-drying of samples of more than 40 ml.s) but would allow the production of a more standardised product.
- b). The provision of a sterile product is not feasible by filtering the product due to its high fibrinogen content. Thus the process would have to be carried out in a contained area using a sterile handling technique.
- c). Edinburgh B.T.S. does not at present have adequate freeze-drying facilities to allow production of this material.

The experience of Law B.T.S. in this area may provide useful information on all these points and a visit to look at their current procedure would be well worthwhile if we are going to proceed any further.

I look forward to your comments.