



## STANFORD UNIVERSITY MEDICAL CENTER

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STANFORD UNIVERSITY SCHOOL OF MEDICINE  
J. Garrott Allen, M.D.  
Professor of Surgery  
583 Salvatierra  
Stanford, California 94305  
(415) 326-4206

Anne G. Welch  
Scottish National Blood Transfusion Service  
Protein Fractionation Centre  
Edinburgh EH177QT, Scotland

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PROTEIN FRACTIONATION CENTRE	
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Refer to	Action taken
144 ✓	
172 ✓	

Dear Dr. Welch:

I read your interesting article on non-A non-B hepatitis from intravenous immunoglobulin in the November 19th issue of The Lancet. I wish to inquire about the effectiveness of Factor VIII concentrate once it has been pasteurized at 60C for 10 hours.

Forty years ago I studied the effects on the activity of the clotting factors known at that time, including Factor VIII, by incubating plasma through a range of temperatures from 10C to 70C. I checked my samples each day and found that Factor VIII had disappeared within two or three days from all the samples, the length of time depending on the degree of heat. The higher the temperature, the shorter the life of Factor VIII. Prothrombin activity was more resistant, lasting up to a month. Fibrinogen, of course, was heat-coagulated within a matter of a few days at temperatures above 50C. I wrote on these findings in SG&O in 1948 and in the JAMA in 1954.

You may have seen the article by Nilsson et al. from the University of Lund on this same subject in the 1983 September/October issue of Transfusion, Vol.23,p.377. They too found the most labile component to be Factor VIII, which decreased to about 50 percent of its original value in the first 24 hours when stored at 4C. In plasma they found that 50 percent was lost between 7 and 14 days of storage at 4C compared to the 24 hours when stored in whole blood.

The method I developed which eradicated the activity of the hepatitis viruses B and non-B in plasma, but also inactivated the labile clotting factors, especially Factor VIII, was to incubate it at 32C for 6 months. My question is, how can Factors II, V and VIII be sufficiently preserved at 60C to be clinically useful, and yet be free of the hepatitis viruses B and non-B? Do you have any information that you can send me regarding the preserved activity of the clotting factors, at the same time inactivating the hepatitis viruses? I hope you will share it with me.

With best wishes,

Sincerely yours,

*J. Garrott Allen*  
J. Garrott Allen, M.D.

Professor of Surgery Emeritus

Mailing address: J. Garrott Allen, M.D.  
583 Salvatierra  
Stanford, CA 94305