"An important problem in replacement therapy is the amount of blood or plasma which is necessary for the individual patient. This depends primarily on two factors: (1) the amount of blood and/or plasma which was originally lost or which continues to be lost subsequent to the shock stimulus or as a result of additional shock stimuli, and (2) the extent to which the compensatory mechanisms of the body, such as vasoconstriction and hemodilution, can make up for the deficiency in blood volume. . . . The complete evaluation of the replacement requirements of any one patient requires: (1) measurement of the blood volume, (2) estimation of the efficiency of the vasoconstrictive mechanisms and (3) analysis of the composition of the blood. . . . No reliable test for the efficiency of the vasoconstrictive mechanism has been worked out as yet, although utilizing direct examination of the blood vessels of the conjunctiva by a technic worked out by Knisely may have possibilities. . . . In an attempt to furnish a simple guide to replacement therapy in shock due to loss of blood or loss of plasma . . . [a] chart was constructed. It is based primarily on the hematocrit value and the body weight, the two variables which can be most easily determined under emergency conditions. . . . This guide to replacement therapy is presented as a simple means of evaluating the minimum requirements of blood or plasma for a patient who has suffered loss of blood or loss of plasma. It should be of particular value during the earlier phase of deficiency in blood volume, when clinical symptoms of shock have not as yet appeared." 8 references.

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HILL, J. M., AND MUIRHEAD, E. E.: *Intravenous Human Plasma and Serum Therapy: the Cause of Reactions with Particular Reference to the Use of Concentrated Plasma and Serum.* Surg., Gynec. & Obst. 77: 113–125 (Aug.) 1943.

"The observations made and conclusions drawn deal only with concentrated plasma. . . . The salient features of . . . [the] methods [of preparation] are: (1) pyrogen free technique for preparation of all apparatus, tubing and solutions; (2) sterile techniques throughout, checked by bacteriologic control studies; (3) pooling of blood of all different types just prior to separation of plasma; (4) bulk desiccation of plasma from the frozen state by the adtevac process; (5) sterile transference of dry plasma to small final container. In this study the various causes of reactions are considered in relation to four major possibilities: (1) factors inherent in the plasma or serum before preparation (related to donor); (2) factors introduced into the plasma during the preparation (related to processing); (3) peculiarities or idiosyncrasies of the patient (related to the recipient); (4) faults in administration (related to indications, contraindications, and mode of administration). . . . Properly prepared concentrated plasma is safer than whole blood transfusions. Although plasma prepared by pooling after separation of erythrocytes carries very little risk greater safety can be obtained by pooling of blood of all different types prior to separation. . . . Preparation [of plasma] consists of (a) low temperature pooling of whole blood; (b) separation with two stage continuous separators; (c) vacuum desiccation from the frozen state; (d) adjustment of the hydrogen-ion concentration of final plasma solution to normal levels, and (e) pyrogen-free water and equipment for administration." 58 references.

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