

BLOOD BOTTLES AND ADMINISTRATION ('GIVING') SETS

England: Circa 1960's

A version of this document, written by Phil Learoyd, was originally provided as a hand-out at the British Blood Transfusion Society Annual Meeting of 2010

For many people currently working in transfusion it may be a surprise to learn that until as recently as the early 1970's in England donor blood was collected into glass bottles containing 120 mL of a liquid 'Acid-Citrate-Dextrose' (ACD) anticoagulant. Hospitals returned the used blood bottles to their 'Regional Transfusion Centre' (RTC) where they were washed, sterilized and re-used (together with a new rubber bung!). The ACD anticoagulant was made and sterilized 'in-house' by laboratory staff. The bottles had a 'bijou' bottle attached that also contained ACD anticoagulant that was filled with donor blood, a sample of which was used for crossmatching purposes.



Sterile 550 mL glass MRC blood bottle + sample (Bijou) bottle

Label (number N.B.T.S. 19) states: National Blood Transfusion Service; Sterile; Acid-Citrate-Dextrose 120 c. cm.
Regional Blood Transfusion Centre, Bridle Path, Leeds LS15 7TW. Date: 17 JUN 1960. Batch number: J567.
(Photo credit: Phil Learoyd)

In addition the RTC also issued 'Blood Administration Sets'. These were made from rubber tubing comprising metal needles, a filter and a 7 inch long 'airway', which was inserted into the blood bottle so as to prevent a vacuum being created during the transfusion process. After use, the administration sets were, like the blood bottles, returned to the RTC where the rubber tubing and needles were washed, sterilized and re-used (the needles were re-sharpened on a grinding

machine). New administration sets were assembled, wrapped in paper and placed into metal 'gold' tins prior to being heat sterilized and issued to hospitals.

The following is an example of an instruction leaflet dated 6th October 1961, issued by the Regional Transfusion Laboratory Leeds, which was placed into the metal tin with the administration set.

Tel. No. Leeds 64-5091 (3 lines) Regional Transfusion Laboratory,
The Bridle Path, York Road,
Seacroft, LEEDS.

INSTRUCTIONS FOR CLEANING TRANSFUSION APPARATUS

1.—The actual bottle or bottles used for the transfusion should NOT be washed out immediately, but should be placed in the refrigerator for 36 hours, in case remains of the contents are needed for investigation. If the contents are not required for investigation the bottles should be thoroughly washed out before returning.

2.—The SET should be rinsed through with cold tap water immediately after use. The set should not be dismantled into its component parts.

3.—It will be greatly appreciated if this set could be returned with all component parts intact.

4.—In case of complaint, please return this slip together with the apparatus and container to :—

The Regional Transfusion Laboratory
The Bridle Path, York Road,
Seacroft, LEEDS.

Checked by 200 Packed by JP Date 6 OCT 1961

This label identifies that the recommended storage time (in a refrigerator) for bottles that have been used for transfusion was 36 hours 'in case remains of the contents are needed for investigation' (i.e. in case of a transfusion reaction).



RUBBER TUBING BLOOD TRANSFUSION GIVING SET

Cellophane wrapped rubber tubing giving set with integral needles (in glass tubes) and gauze filter together with nine inch airway needle and instruction leaflet
(Photo credit: Phil Learoyd)

The following extract, taken from 'Fifty Years of Blood Transfusion' by H.H. Gunson and H. Dodsworth (*Transfusion Medicine*, 1996, Vol.6, Supp.1), describes the development of the first 'waisted' blood bottle – later modified to the one described above.

THE MRC BLOOD TRANSFUSION KIT

In 1939 the London depot directors, in conjunction with the Medical Research Council (MRC) decided to standardize transfusion equipment (Vaughan 1939). It was argued that, if all blood depots used similar equipment, bottles of blood distributed by any depot could be used with equal facility by hospital staff. The MRC standard transfusion kit included a modified milk bottle, slightly waisted and therefore easy to hold. The bottle was fitted with an aluminium screw cap which was lined with a rubber diaphragm and there was a metal band and a loop at the bottom of the bottle with which to hang it up. There were marks at 180 ml and 540 ml for measuring volumes of anticoagulant and blood, respectively.

The taking and giving sets were made of rubber tubing fitted with metal needles. Filters of either glass wool, glass beads or knitted cotton (a modified gas mantle) were incorporated into the giving set of the neck of the bottle. The gas mantle filter, naturally without its customary impregnation with thorium nitrate and collodion, was particularly successful (Maizels, 1939) and was used until plastic administration sets were introduced. The whole assembly was sterilized and the needles sharpened after each use. The same equipment remained in use, with only minor modifications, for almost three decades and the MRC bottle was adopted for use in other countries.

Vaughan, J.M. (1939) The Medical Research Council Blood Transfusion Outfit. *British Medical Journal*, ii, 1084-1085.
Maizels, M. (1939) A new filter for blood transfusion. *Lancet*, ii, 598-599



540cc ORIGINAL STYLE GLASS BLOOD BOTTLE

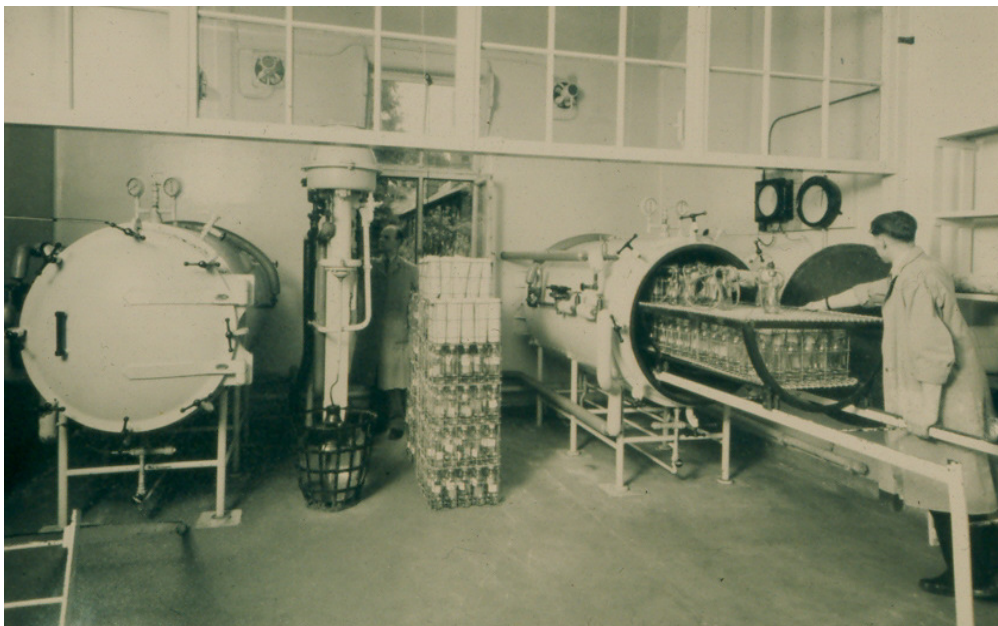
There are two marks on the bottle, i.e. 180 cc. that defined the volume of anticoagulant and 540 cc. that defined the total volume of blood + anticoagulant
(Photo credit: Phil Learoyd)



A rubber tubing transfusion pack being prepared
(Circa 1960)



Metal needles being sharpened by hand
(Circa 1960)



Sterilising blood bottles (Circa 1960)