DISPENSING BOTTLE FOR PENTOTHAL *

Sodium pentothal has proved itself a valuable agent in present-day anesthesia. For short operative procedures not involving profound muscular relaxation, for supplementing incomplete regional anesthesia and as an induction agent, pentothal has much to recommend it. The drug is supplied in 0.5 Gm., 1 Gm. and 5 Gm. sterile ampules. Existing specifications require that a fresh 2.5 per cent solution be prepared inasmuch as the acid salt will be precipitated when the solution is exposed to the air for more than several hours, (probably because of a change in hydrogen ion concentration), the solution will become cloudy and lose its effectiveness as an ultra-short acting barbiturate for anesthesia. For this reason, the 5 Gm. ampules are not practical for use in smaller hospitals, and the 0.5 or 1 Gm. ampules usually are employed. The repeated preparation of fresh solution oftentimes becomes an annoyance, and since it is impossible in most instances to estimate accurately a particular patient's needs before operation, the anesthetist is often left with an unused quantity of the drug which he must discard if it is not used within several hours.

The present study was undertaken in an attempt to determine how stable and effective pentothal would be if prepared in bulk and maintained under sterile conditions, not allowing air to circulate freely over the solution. For this purpose from 5 to 6 Gm. of the drug was prepared at a time. It was believed that if pentothal could be prepared in bulk, kept sterile and remain effective, the two disadvantages cited could be obviated. It became necessary to construct some form of apparatus for this purpose.

The dispensing bottle shown in figure 1 was constructed from the ordinary 250 cc. bottle in which blood serum or plasma usually is supplied. A section of glass tubing (a) was substituted for the original air-inlet tube. This tubing should be slightly larger in diameter than the original tube and long enough to extend down to within about 2 cm. of the bottom of the bottle, the other end protruding from the rubber stopper (b) for about 2 cm. The stopper end of the tubing was sandpapered so that it fitted the hub of the hypodermic needle (c) snugly, preferably taken from a 15 gage needle. This needle hub was connected by about 4 cm. of rubber tubing (d) to a glass adapter which was thrust into the large hole in the rubber stopper. Thus, when the needle hub was connected to the protruding tip of the glass tubing, the rubber tube was kinked in such a manner as to prevent the free circulation of air over the solution of pentothal. The bottle and stopper with its connections were washed and rinsed thoroughly with distilled water and sterilized separately. The solution of pentothal in sterile, triple distilled water was prepared in the bottle and the stopper applied. The solution may be withdrawn from the bottle in any amount desired either by connecting a syringe to the needle hub and aspirating or by allowing the solution to run into a sterile medicine glass. In order to prevent contamination, no single syringe was connected to the needle hub more than once. If aspiration with a syringe was used to

TABLE

Amount withdrawn. cc.	Amount used. cc.	Amount wasted. cc.	Amount usually wasted.* cc.
12	7	5	13
30	23	7	17
12	12	0	8
12	6	6	14
40	38	2	2
10	5	5	15
15	12	3	8
5	5	0	15
40	40	0	0
37	30	7	10
17	16	1	4
Total 230	194	36	106

* This is the amount which would have been wasted if each administration were prepared to the next nearest half or full gram quantity, the usual practice.

* Released for publication by the Bureau of Public Relations, War Department, Washington, D. C., April 26, 1943.

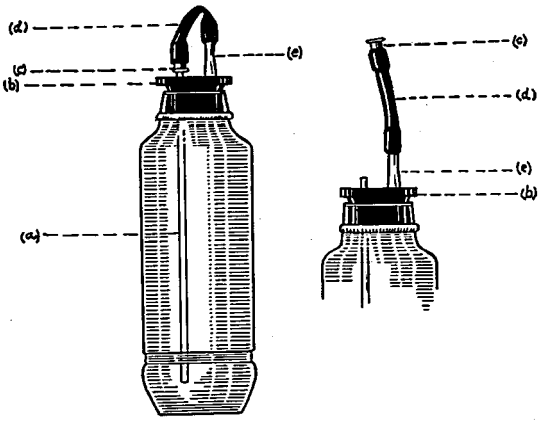
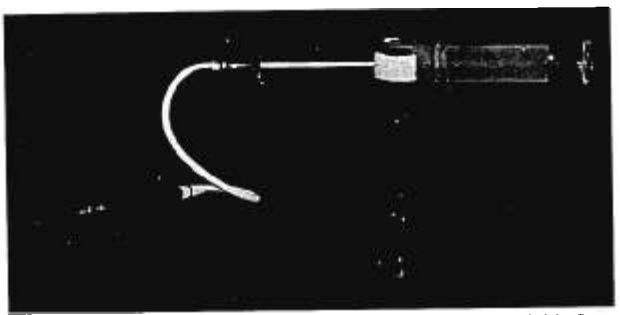


FIG. 1. Pentothal dispensing bottle.



Photograph by Army Air Force Southeast Training Center

FIG. 2. The ordinary laboratory buret clamp, fastened to an arm-board, makes a convenient and inexpensive holder for the syringe during pentothal administration. The anesthetist may administer the pentothal while standing at the head of the table and administer supplementary oxygen and gases as needed.

obtain a supply, that same syringe was not reapplied to aspirate more pentothal, subsequent amounts being taken, when needed, by pouring into a sterile medicine glass.

The data on several samples of pentothal made up in amounts varying from 5 to 6 Gm. revealed the following:

1. By chemical analysis, the pentothal seemed to lose about 20 per cent of its concentration in from seven to ten days.

2. Cultures of the solutions in tryptose

broth failed to reveal any contamination at the end of a week. Further, the solution was inoculated with staphylococci, streptococci, and Bacillus coli, but none of these organisms grew in the solution.

3. The solution remained perfectly clear at all times and did not change color.

4. More than 300 administrations were accomplished, using this dispensing bottle, without untoward reaction.

5. In spite of the loss in potency (at least from chemical analysis), an effective saving in pentothal was achieved because any desired amount could be withdrawn, and small amounts, using 0.5 or 1 Gm. of pentothal at a time, did not have to be made up, as would ordinarily be necessary (table). Of distinct advantage is the fact that the solution was prepared and on hand for immediate use, without loss of time in preparation.

The device is simple and inexpensive and can be constructed from apparatus that usually is present in every operating room (figs. 1 and 2).

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AN ARM-HOLDER FOR THE OPERATING TABLE

The arm-holder shown in the accompanying photograph and drawing has proved very satisfactory through years of use. It is fastened onto the side rail of the operating table by means of clamp E–F and wing-bolt G, and may be moved freely toward the head or foot of the table. By means of the supporting rod D and the clamping screw C, it may be moved up or down. The distance from D to H is 5½ inches, so that the arm trough may be raised to a position level with the upper surface of the thick mattress used for continuous spinal anesthesia. Since the rod D is circular in cross section, the arm-holder may be swung through a radius of nearly 180 degrees and may be fastened at any angle by the screw C. The trough J is 20 inches long, 4⅜ inches wide and 1 inch deep. The knurled-headed screws A and A permit it to be moved nearer to or farther away from the

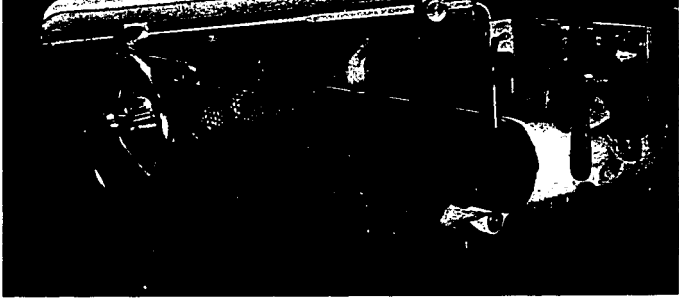

FIGURE 1.