V. P. S. NARANG, F.F.A.R.C.S.
Instructor
Section of Pediatric Anesthesiology
University of Michigan
Ann Arbor, Michigan 48109

REFERENCE

1. Yelderman M, New W Jr: Evaluation of pulse oximetry. ANESTHESIOLOGY 59:349–352, 1983

(Accepted for publication April 25, 1986.)

Anesthesiology
65:240, 1986

Aerosol Delivery Devices for the Anesthesia Circuit

To the Editor:—Recent letters from Diamond[1] and from Duckett and Zebrowski[2] have suggested homemade devices to allow the use of pressurized aerosol canisters during anesthesia. The construction of these improvisations has the risk of introducing broken needles and glued plastic pieces into the airway. Also, as Diamond discovered, improvised devices do not accept all canister designs. Finally, these devices must be placed in the circuit for each use, then removed, to avoid leakage of anesthetic gases.

Three years ago I suggested a design that replaces the standard endotracheal-tube elbow and allows aerosol therapy. This Bronchodilator Tee® (Model #9056, formerly named Metered Dose Manifold; Boehringer Laboratories, Wynnewood, PA) has been commercially available for 2 yr (fig. 1). The one-piece metal elbow eliminates foreign body concerns and allows injection of the aerosol directly down the endotracheal tube. It accepts all available aerosol drug canisters and can remain in place throughout the anesthetic with the attached sealing cap preventing anesthetic gas leakage. Since the solution exists, why improvise?

GEORGE L. BUSH, M.D.
Associate Professor
Department of Anesthesiology
University of Wisconsin
Madison, Wisconsin 53792

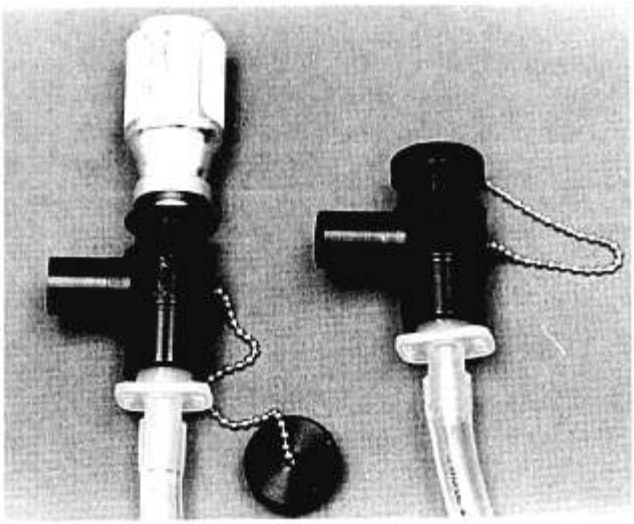

FIG. 1. The Bronchodilator Tee® with the drug canister and with the sealing cap in place.

REFERENCES

1. Diamond MB: Delivering bronchodilators into the anesthesia circuit (letter). ANESTHESIOLOGY 64:531, 1986
2. Duckett JE, Zebrowski M: A simple device for delivering bronchodilators into the anesthetic circuit (letter). ANESTHESIOLOGY 62:699–700, 1985

(Accepted for publication April 28, 1986.)

Anesthesiology
65:240–241, 1986

Malignant Hyperthermia: Removal of Volatile Anesthetic Agents from the Breathing Circuit Using Activated Charcoal

To the Editor:—The depth of anesthesia in patients anesthetized with potent volatile agents can be rapidly decreased by placing a small canister of activated charcoal in the inspiratory limb of the breathing circuit.[1] The avid propensity of charcoal physically to adsorb organic vapors immediately drops the inspired concentration to a low level.

This device is also useful should an episode of malignant hyperthermia arise intraoperatively. In this situation the rapid removal of all traces of potent volatile anesthetic is essential. When the vaporizer is turned off, the patient should be hyperventilated with 100% oxygen to remove both the agent and the excessive metabolic carbon dioxide being produced. The soda lime canister, rebreathing

hoses, and mask should then be changed to help get rid of the offending anesthetic.[2] Switching anesthesia machines, removing vaporizers, and changing to a nonrebreathing circuit have also been recommended.[3]

Whereas an anesthetist can quickly change the mask and hoses, discontinue the agent, and hyperventilate the patient without assistance, carrying out the other recommended changes is more time-consuming and may require help from others.

As soon as the simple actions mentioned earlier have been made, I suggest that the anesthetist place a charcoal canister in the inspiratory limb of the new circuit. This can be done very quickly and will nearly eliminate transfer of residual agent from a vapor-contaminated machine to the patient. Further changes of equipment can be carried out at a more leisurely pace as additional help becomes available.

One of these charcoal adsorption units is a worthwhile addition to the store of emergency supplies reserved for malignant hyperthermia.

ERNEST R. GREENE, JR., M.D., PH.D.
Department of Anesthesiology
University of Alabama at Birmingham
Veterans Administration Medical Center
Birmingham, Alabama 35294

REFERENCES

1. Ernst EA: Use of charcoal to rapidly decrease depth of anesthesia while maintaining a closed circuit. ANESTHESIOLOGY 57:343, 1982
2. Katz J, Benumof J, Kadis LB: Anesthesia and Uncommon Diseases, 2nd edition. Philadelphia, WB Saunders, 1981, p 548
3. Malhotra V: Malignant hyperthermia, Anesthesiology. Edited by Yao FSF, Artusio JF. Philadelphia, JB Lippincott, 1983, p 365

(Accepted for publication May 6, 1986.)

Anesthesiology
65:241, 1986

Wrapping Hoses and Wires in the Operating Room

To the Editor:—With the increased amount of wheeled equipment in the typical operating room and the changes in design of the typical anesthesia machine within the past 5 yr, the number of hoses and electrical wires connected to utilities at the ceiling or wall has become more of a problem in logistics and safety. In those settings where extra lengths and hoses have been provided to accommodate different equipment configurations in the room, the excess lengths are often found randomly coiled around the attachments at the rear of the anesthesia machine, draped over adjacent monitors, or twisting across the floor.

We have found a partial solution to this problem. Electronics industry catalogues have for some years included a helical nylon wrap for grouping any number of wires or cables (Panduit Corporation #T-50, Tinley Park, IL). We have used this wrap to combine the nitrous oxide, oxygen, and vacuum hoses from each machine into a single bundle, making it far more manageable and enabling personnel to secure the excess lengths out of harm's way—either below wheeled equipment or above it (fig. 1). The added weight of the bundled utilities tends to discourage the placement of hoses around free-standing monitors or attachments, thereby reducing the risk of damaging equipment.

DENNIS MCMAHON, C.B.E.T.
Chief Anesthesia Technician
Department of Anesthesiology
The Mason Clinic
1100 Ninth Avenue
P.O. Box 900
Seattle, Washington 98111-0900

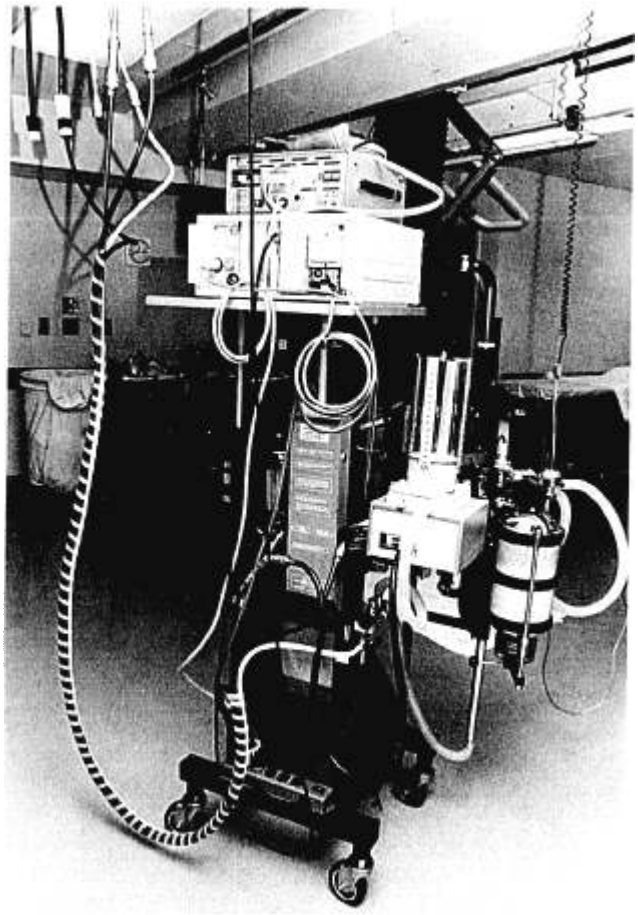

FIG. 1. Illustration of gas, vacuum, and electrical supply to an anesthesia machine.

(Accepted for publication May 6, 1986.)