

CPRAM™ circuit, gas exits through the sideholes and the reservoir bag always fills. Although the manufacturer claims that the corrugated design of the inner hose makes it less likely to fracture, the user cannot determine whether there is a problem. Thus, a potential hazard exists.

We learned that we could apply Pethick's maneuver to this new circuit by occluding the sideholes but not the endholes. We occluded the sideholes by placing a 1.5-cm segment of a 6.5-mm endotracheal tube over the patient end of the inner hose. We recommend that the manufacturer provide a similar device for all CPRAM™ circuits so that Pethick's test can be used to detect a possible fracture or disconnection in the inner hose.

Anesthesiology
59:489, 1983

In reply:—Drs. Robinson and Fisher indeed have pointed out a difference between the CPRAM™ and the Bain circuits. The Pethick test will not produce a collapse of the reservoir bag with the CPRAM™ circuit alone. To produce a positive Pethick test with the CPRAM™ circuit insert the mask elbow, supplied with each circuit and flush oxygen through the circuit. A positive Pethick test (collapse of reservoir bag) will occur. A standard 9 mm endotracheal tube connector, inserted in the patient end of the CPRAM™ circuit, in place of the mask elbow, also will produce a positive Pethick test.

A positive Pethick test cannot be produced if the inner tube of the CPRAM™ circuit is disconnected, punctured, or fractured, thus producing a leak. Because a mask elbow is supplied with each CPRAM™ Circuit, it is felt the method as outlined above is superior to supplying . . . "a 1.5-cm segment of a 6.5-mm endotracheal tube" as Robinson and Fisher suggest. It could be left inadvertently on the inner tube, or worse, could dislodge and be forced into the patient's airway.

The Pethick test generally is considered an important test for checking the integrity of the inner tube of co-axial circuits; it is our experience that it is not entirely

Anesthesiology
59:489-490, 1983

Use of Microcomputers for Teaching

To the Editor:—I would like to share one way to use microcomputers as a teaching tool. Electronic spread sheets, now widely used in the business world, can be adapted easily to clinical anesthesia teaching. A simple example is the use of the copper kettle vaporizer.¹ A commonly used electronic spread sheet, Visicalc® (Visi-corp, Cambridge, Massachusetts), has been set up to teach

the use of a copper kettle vaporizer (fig. 1). All the variables such as vapor pressure, atmospheric pressure, flow of gas through the vaporizer, and total gas flow are set up in the formula. The "Replicate Command" sets up the vertical columns, and "look up" sets the value in the appropriate positions. The program user then can type in a change in any selected variable, for example, flow

SCOTT ROBINSON, M.D.
Assistant Professor Anesthesia
DENNIS M. FISHER, M.D.
Assistant Professor of Anesthesia and Pediatrics
Department of Anesthesia
University of California
San Francisco, California 94143

REFERENCES

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2. Pethick SL: Letter to the editor. *Can Anaesth Soc J* 22:115, 1975

(Accepted for publication April 26, 1983.)

foolproof. Published correspondence indicates that, under certain circumstances, the test may not detect inner tube disruption.¹ In our opinion, the Pethick test does not eliminate the need for prudent inspection of any circuit prior to use.

We must point out, in the interest of accuracy, the KHI Inc. advertisement as published in the October 1982 issue of ANESTHESIOLOGY reads as follows: "Corrugated inner tubing decreases possibility of kinking." We do not claim, as Robinson and Fisher state, ". . . inner hose makes it less likely to fracture."

We thank Drs. Robinson and Fisher for their interest in our CPRAM™ Breathing System.

WILLIAM R. KNEPSHIELD
President KHI Inc.
2 Davis Avenue
Frazer, Pennsylvania 19355

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(Accepted for publication April 26, 1983.)