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A Nasal Catheter for Monitoring Tidal Carbon Dioxide in Spontaneously Breathing Patients

To the Editor:—Goldman has described a simple method of monitoring end-tidal carbon dioxide (ET_{CO_2}) in spontaneously breathing patients using one limb of the nasal prongs cannula designed to administer oxygen to patients.¹ We describe another simple, inexpensive, and reliable method that functions independently of an oxygen delivery system. The device is easy to construct and apply, and is well-tolerated by patients.

Disposable sampling catheters are made by cutting 10–12 cm lengths of a FG10 plastic feeding tube (internal diameter 2 mm). One end is inserted into a cylindrical or cubed piece of soft plastic foam about 1-cm thick so that 1–2 mm of the tube projects at one end. The foam-padded end is plugged into the anterior nares of the clearer of the two nostrils, and the distal end is attached to the capnograph tubing. The nasal end is adjusted to obtain maximum deflection and free-swinging of the capnograph needle with normal breathing (fig. 1). The tubing is taped to the cheek and the system is unaffected by subsequent movements.

Unlike the Goldman technique, our sampling catheter does not share the same port with administered oxygen, and our readings are unaffected by simultaneous administration of oxygen by an overlying face mask: oxygen administration at 6–8 l/min via a loosely fitting plastic face mask did not affect tidal carbon dioxide readings in our series.

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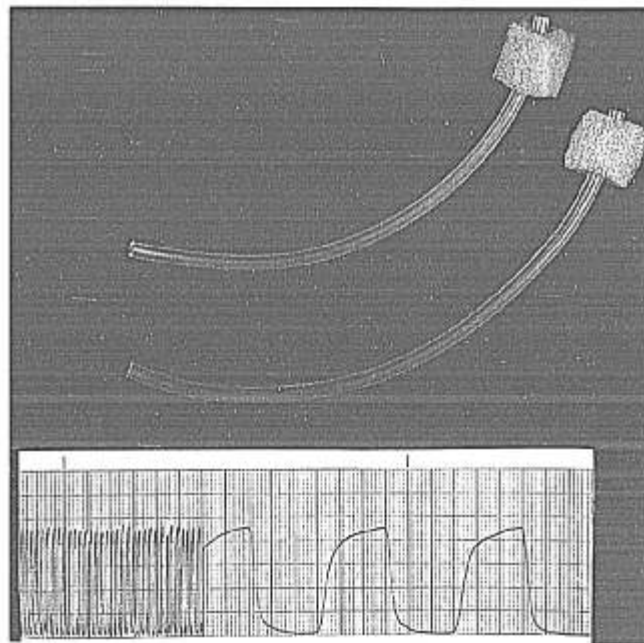


FIG. 1. *Above:* the cubed and cylindrical varieties of the nasal catheter support. *Below:* Waveform obtained from a quietly breathing patient (Datex Capnograph).

REFERENCE

1. Goldman JM: A Simple, easy and inexpensive method for monitoring ET_{CO_2} through nasal cannulae. *ANESTHESIOLOGY* 67: 606, 1987

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Bypassing the Diameter-Indexed Safety System

To the Editor:—Recently, we were called to the Radiology Department to provide anesthesia for a patient undergoing insertion of a Greenfield filter. The radiology suite used was equipped with one wall panel connected to the hospital's medical gas pipeline system with three outlets, each clearly marked for oxygen, air, or vacuum. On our arrival in the radiology suite with a portable anesthesia machine, the patient was breathing through an oxygen face mask connected to an oxygen flowmeter attached to the only wall oxygen outlet. As we checked our equipment, we opened the oxygen tank on the anesthesia machine with the intention of later connecting our machine's oxygen hose to the wall oxygen outlet. Just before we removed the patient's oxygen mask to apply the oxygen mask connected to the anesthesia circuit, we noticed that the oxygen analyzer connected to the inspiratory limb of the anesthesia circuit was reading between 40–50% oxygen. We then

noticed that someone had connected the anesthesia machine oxygen hose to a flowmeter (Model IMFA 2001, Precision Med Inc., Bath, PA) attached to the wall compressed air outlet. The air flowmeter is yellow and is clearly marked AIR. However, the green oxygen hose with an oxygen Diameter-Indexed Safety System (DISS) fitting attaches quite easily (fig. 1).

The DISS is intended to prevent accidental delivery of the wrong medical gas through the use of gas-specific fittings that are not interchangeable between different gas lines.^{1*} As we have since learned,

* Pamphlet V-5. Compressed Gass Association, Inc., 1235 Jefferson Davis Highway, Arlington, Virginia 22202