wishes to remain during the administration of the epidural anesthesia, he can generally be of much help in the administration of the anesthetic. He is never forced to stay, and we have generally found that those husbands who are squeamish about needles will choose to leave the room when the epidural is administered. The case in question is the only complication that we have seen in our experience, and that was why we reported it. We believe that we have passed the point where we can arbitrarily exclude the father from any part of labor and delivery unless it can be shown that it is of detriment to patient care.

We are just beginning our experience with fathers being present during cesarean sections. We, too, experienced some discomfort with this idea, but feel that this is an important part of the delivery of obstetric care. It is rather surprising, however, that Dr. Abouleish finds it perfectly acceptable for a father to be present during a cesarean section but not for administration of epidural anesthesia. It is the attempt by modern hospital-based physicians to exclude fathers from the experience of labor and delivery that has led to the alarming recent trend towards home deliveries, with their inherently high complication rate. We would hope that all of us in the perinatal field would take every opportunity to make the childbirth experience as rewarding as possible for all parties concerned, so that patients will accept necessary constraints of hospital delivery to maximize patient safety.

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Prevention of Hypoxic Gas Concentrations

To the Editor:—In a recent letter to the editor (ANESTHESIOLOGY 48:152–153, 1978), Levin and Balasaraswathi stated only one model of anesthesia machine contains an actual fail-safe mechanism. The machine referred to, Foregger Model 710, does not prevent the delivery of a hypoxic gas mixture. There are several methods available to help prevent the delivery of hypoxic anesthetic gas mixtures. One is the so-called low-pressure "fail-safe" system, which employs a master pressure valve in the oxygen supply line. When the oxygen supply pressure falls below 40 psi the master valve closes, causing the slave pressure valve on the other anesthetic gas supply lines to close also. Thus, when the source of oxygen pressure falls below 40 psi no anesthetic gas can be delivered. The authors correctly state this system does not prevent the delivery of hypoxic gas mixtures, so long as a source of oxygen is available, because it does not guarantee an adequate oxygen concentration.

The Model 710 attempts to correct this deficiency by requiring a fixed minimum oxygen flow (preset at the factory to the customer's specification) before other anesthetic gases will flow. When this fixed minimum oxygen flow is set low (*e.g.*, between 0.250 and 1.0 l/min), a hypoxic gas mixture can be delivered with only modest anesthetic gas flows (*i.e.*, greater than 0.95 and 3.8 l/min, respectively). When the fixed minimum oxygen flow is set high, *e.g.*, 21 per cent of the anesthesia machine's maximum total gas flow, high gas flows are required routinely. The solution to this dilemma is a device that provides a variable minimum oxygen flow in proportion to the total gas flow; the ratiometer is such a device.

The ratiometer,* preset to deliver 21 per cent or more oxygen, is the only method currently available for preventing the delivery of a hypoxic gas mixture. This device ordinarily is preset to deliver 30 to 100 per cent oxygen with the balance inert gas (*e.g.*, nitrous oxide) at total flows of 1 to 20 l/min. The ratiometer is not dependent on flow rates and, when combined with a low-pressure "fail-safe" system, precludes delivery of a hypoxic anesthetic gas mixture.

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* M.D.M. Flowmeter (Cyprane North American, Inc.); 30/70 Proportioner (Ohio Medical Products).

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