Letters

A simple technique for oxygen analysis during provision of supplemental oxygen during regional or local "MAC" cases

To the Editor:

The use of oxygen analyzers on anesthesia machines is nearly universal. In the United States, its usage is mandated by the American Society for Testing and Materials (ASTM) F1161-88 standard, as well as by the American Society of Anesthesiologists. Anesthesia machines routinely serve as the gas source for patients receiving supplementary oxygen during regional or monitored anesthesia care (MAC) cases. Oxygen is supplied through a nasal cannula or face mask from the fresh gas flow port to which is attached an endotracheal tube adaptor. (Figure 1). Unfortunately, this system bypasses the oxygen analyzer on the anesthesia machine. It is at this point that the potential for tragedy may occur.

There have been numerous reports of morbidity and mortality due to incorrect labeling of hospital pipelines, the redrilling of nonstandardized holes into gas cylinder fittings, the incorrect filling of an oxygen cylinder with another gas, such as carbon dioxide and even the interruption of gas flows secondary to hospital construction workers occluding in-wall pipeline systems. In the face of data revealing previously unappreciated hypoxemia during local, regional, and spinal anesthesia, the verification of oxygen concentration becomes even more timely. These often physically compromised patients cannot tolerate decreased oxygen concentrations, or, worse still, nonphysiologic agents such as carbon dioxide.

Figure 2 shows a different technique for monitoring oxygen concentrations. A universal adaptor with a carbon dioxide sampling port is used. By placing this adaptor in the fresh gas flow port and then attaching the oxygen tubing to the sampling port, one can place the oxygen sampling probe in the remaining port. This allows the oxygen percentage that is delivered from the fresh gas flow port to be continually monitored.

This technique is quick, simple, and inexpensive. It provides the clinician with an early warning should cylinder or pipeline gas flows become adulterated in any way.

REFERENCES


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Reduce, reuse and recycle in the anesthesia workplace

To the Editor:

I am writing in connection with the April 1992 Guest Editorial titled “Reduce, reuse and recycle in the anesthesia workplace,” by Terrie E. Kole, CRNA, BA (page 209).

Parts of the editorial are very good, such as discouraging the use of styrofoam cups for coffee; however, I disagree with information concerning chlorofluorocarbons, greenhouse gas effect, and global warming.

According to two articles, the above claims are not true. These articles are “Trash the Enviro-Planetees,” (published in The New American, January 27, 1992), by Dr. Dixy Lee Ray, former governor of Washington, former chairman of the Atomic Energy Commission, and professor of zoology; and “Environmental Fallacies,” (published in The New American, December 3, 1991), by Dr. H. Read McGrath, a meteorologist and aeronautical/aerospace engineer.

I am not happy about the spontaneous abortions of operating room workers, but I do not think trace gases are to blame. Everybody that leaves the operating room and goes to the parking lot breathes fumes that are far worse. There can be a lot of stress in the operating room, and stress causes hypertension.

ELAINE STUBER, CRNA
Kanab, Utah

Response:

In Ms. Stuber’s Letter to the Editor, she raised questions concerning the greenhouse gas effect and global warming. I appreciate the controversy which exists regarding that and other environmental issues; however, I would like to pass along comments issued by a panel of distinguished scientists from the National Academy of Science in their long-awaited report on global warming which appeared in Time magazine, April 1991.

In the article, the panel concluded that there is a reasonable chance that by the middle of the next century global temperatures will rise 2 to 9°F and that threat to the habitability of the planet is sufficient to justify action now. The panel acknowledged that predictions of global warming are uncertain, but it would be unwise to use that as an excuse to delay action.

I agree with Ms. Stuber that operating room stress plays a factor in the health of operating room workers. One study from Australia by Plummer et al. (Anesthesia and Intensive Care, Vol. 15, No. 4, November 1987) surveyed 319 operating room nurses and 81 anesthetists and found 21% of nurses and 14% of anesthetists were quite concerned about the health effects of trace anesthetic gases, while 34% of both groups expressed a higher concern about work-related stress.

In the fall of 1991, the AANA Practice Committee surveyed members of committees and directors of Schools of Anesthesia to assess the level of concern regarding exposure to trace anesthetic gas. The results of the survey supported the need for increased surveillance of exposure levels, education, and training to promote proper use of waste gas scavenging systems and application of routine work practices that minimize unnecessary exposure to trace gases.

Our knowledge of the health hazard of trace gases is far from complete, but many studies have demonstrated that exposure of animals to trace levels of anesthetic at critical times during gestation has significant reproductive effects. Numerous human epidemiologic surveys have consistently noted an association between working in areas where trace anesthetic gases are present and reproductive and general health problems.

Why risk potential health and reproductive problems while waiting for direct proof of cause which is not likely to be forthcoming? Prudence would dictate achieving the lowest possible levels by careful use of control measures which include regular preventive maintenance of anesthesia equipment, frequent leakage testing procedures, proper scavenging of waste gases, and exposure monitoring of operating room personnel.

TERRIE E. KOLE, CRNA, BA
Member, AANA Practice Committee

To the Editor:

Thank you for publishing the Earth Day article by Terrie Kole, CRNA, BA, in the April 1992 issue of the AANA Journal.

It may seem far afield for such an issue to be the subject of a Guest Editorial directed at anesthesia providers; however, it had an almost immediate impact on this practitioner.

Shortly after reading the article, I had to participate in a mandatory in-service on the new OSHA regulations regarding the use of personal protective devices, the care and disposal of “contaminated medical waste,” and new personnel practices. Armed with the information from Ms. Kole’s article, I was able to raise the following questions intelligently:

How was our small hospital to handle the immense increase in disposable materials, which by their nature are considered contaminated medical waste? I was able to point out the number of landfills already full and the dangers imposed by increasing the use of our own small incinerator much more frequently.

What about the increased costs, especially to small hospitals, for the purchase and issue of these mandated items? What effect on an already limited budget would these purchases make on our ability to acquire needed, updated equipment or to maintain an effective workforce?

The change to “paper drapes” in nice plastic packages was not far from my memory.

As a result of this article I was able to incite our administration to seriously look at the cost factors based on the cost of markedly increased purchases of disposable items versus nondisposable items, the increased contamination caused by more frequent use of our small incinerator, and the effect on the morale of staff and patients imposed by the wearing of all this new paraphernalia. It may seem like regressing to some, but for small hospitals it may be time to return to real linen and doing laundry. I personally see nothing wrong with staff wearing laboratory coats as they move about the hospital instead of disposable operating room gowns worn backward.

The work practice ideas mentioned in the article were also of note if for no other reason than they too represent a return to the “common sense,” hands-on approach to administering an anesthetic that too many have drifted away from with the increased emphasis we have placed on technology.

If indeed we are to undo the harm we have all done to our earthly home, perhaps it is a time to seriously look at a return to methods and practices used before the damage was done. Ms. Kole has made some very valid points on how we can incorporate some of these actions into our modern practices and for that she should be commended.

JOHN J. BENSON, CRNA
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To the Editor:

I would like to commend the AANA and Terrie Kole, CRNA, BA, for the article, "Reduce, reuse, and recycle in the anesthesia workplace."

Environmental issues are major concerns of the world, and I am pleased to see AANA as one of the forerunners in this field. The AANA Journal is an excellent vehicle in which to inform the membership of these important issues.

We as healthcare providers need to be aware and concerned not only with the safety and well-being of our patients but also with the effects of disposables and waste gas on our environment.

JUDY CARTER, CRNA
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To the Editor:

I am writing in reference to the article in the April 1992 issue of the AANA Journal by Terrie Kole, CRNA, BA, entitled "Reduce, reuse, and recycle in the anesthesia workplace." I commend the AANA for presenting the article and encouraging CRNAs to be socially responsible at work and promoting awareness of the waste we generate in the operating room. Awareness will promote action and solutions will follow.

It is never to our advantage to assume that waste anesthetic gases are being scavenged out of the operating room, and I appreciate the reminder that I can have control over the levels of these gases with good work practices. It is helpful to know that each patient must have a readjustment of the scavenging system for effective removal of anesthetic gases.

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