AMERICAN SOCIETY
OF ANESTHESIOLOGISTS

March 29, 2006

The Director,
NIOSH Docket Office,
M/S C-34
Robert A. Taft Laboratories,
4676 Columbia Parkway,
Cincinnati,
Ohio 45226,

Reference docket number NIOSH-064.

Dear Sir,

On behalf of the American Society of Anesthesiologists (ASA), the Task Force on Waste Anesthetic Gases of the ASA Occupational Health Committee would like to contribute to the request for information on waste halogenated anesthetic agents.

The ASA has always worked closely with NIOSH and OSHA on this matter from the original NIOSH work in 1977 when Criteria for a Recommended Standard: Occupational Exposure to Waste Anesthetic Gases and Vapors was published by NIOSH, and exposure levels for trace concentrations of waste anesthetic gases were established, to 1998 when the president of the ASA, Dr John Neeld, and ASA members, Drs. Diana McGregor and Arnold Berry met with Ira Wainless, the Senior Industrial Hygienist at OSHA to update the OSHA guidelines including many technical details and diagrams prior to their posting on the OSHA web site at http://www.osha.gov/dts/osta/anestheticgases/index.html.

With regard to your request for information on health risks associated with occupational exposure to isoflurane, desflurane and sevoflurane, I have enclosed the ASA booklet on "Waste Anesthetic Gases; Information for Management in Anesthetizing Areas and the Post Anesthesia Care Unit published in 1999. This is also available on line at http://www.asahq.org/publicationsAndServices/wasteanes.pdf. I have also enclosed an educational DVD made by the ASA Task Force on Waste Anesthetic Gases which gives similar information and may be of help in providing a précis of the scientific literature to date. The ASA also keeps a database of the published literature. I also enclose this, but since there are over 400 publications many of which are unhelpful, I have marked the most relevant ones should you care to read them.

Basically the early reports of health risks proved to be unsubstantiated, and the only positive reports are in the dental surgical suites where hygienists were giving nitrous oxide with unscavenged delivery systems in rooms without air exchanges.[1, 2] All operating rooms in the United States are scavenged and have been so for approximately the last 20 years.

As you know, in 1977 the RELs (recommended exposure limits) for the early halogenated agents were established by NIOSH arbitrarily based on levels that could be achieved rather than on exposure that produced an adverse effect as is done with other inhalants. I enclose the document from the British Government which addressed this in 1995. Their RELs are 50ppm for enflurane and isoflurane over a time weighted average period and 10 ppm for halothane.

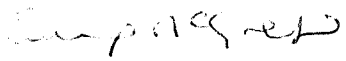
In your supplementary information, it states that there are no epidemiologic studies on adverse health effects of halogenated agents. There are many such studies which have been the subject of meta-analyses by both Buring and also Tannenbaum and Goldberg and the British study by Maran et al showed no adverse health problems. In this study of female physicians, anesthesiologists had no greater incidence of infertility than other physicians. The incidence of spontaneous abortion and congenital abnormality in offspring was unrelated to occupation of the mother, hours of exposure to OR environment or use of scavenging. Also, the incidence of cancer was unrelated to occupation.

The ASA also sponsored a study examining mortality comparing anesthesiologists with internists.(Alexander. Anesthesiology 93(4):922-30, 2000) There was no difference in death rates due to cancer. There was an increase in drug related deaths, suicide and non accidental trauma, cerebrovascular disease, and HIV related deaths which were probably related to lifestyle.

To our knowledge, there are no reports that demonstrate adverse health effects in workers exposed to the older volatile agents for which RELs (recommended exposure limits) exist and to the newer ones, isoflurane, desflurane and sevoflurane, for which there are no RELs. The ASA through its Task Force on Waste Anesthetic Gases has been monitoring the world literature on this subject for the last 30 years and we would be aware of adverse effects associated with the newer agents it there were any.

The ASA would be happy to help in any way with this project. Please contact Diana McGregor at the Mayo Clinic College of Medicine, Rochester MN 55902. Telephone 507 255 3298. email mcgregor.diana@mayo.edu

Yours Sincerely,



Diana McGregor, M.B.B.S., F.R.C.A, on behalf of The ASA Task Force on Waste Anesthetic Gases:

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References

1. Rowland, A.S., et al., *Nitrous oxide and spontaneous abortion in female dental assistants.* Am. J. Epidemiol., 1995. **141**: p. 531-538.
2. Rowland, A.S., et al., *Reduced fertility among women employed as dental assistants exposed to high levels of nitrous oxide.* N. Engl. J. Med., 1992. **327**: p. 993-997.
3. Buring, J.E., et al., *Health experiences of operating room personnel.* Anesthesiology, 1985. **62**: p. 325-330.
4. Tannenbaum, T.N. and R.J. Goldberg, *Exposure to anesthetic gases and reproductive outcome. A review of the epidemiologic literature.* J. Occup. Med., 1985. **27**: p. 659-668.
5. Maran, N.J., R.P. Knill-Jones, and A.A. Spence, *Infertility among female hospital doctors in the UK.* Br. J. Anaesth., 1996. **76**: p. 581P.