

59. Characterization of Waste Anesthetic Gas Exposures to Veterinary Workers in the Tampa Bay Area

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Objectives: 1. Determine if veterinary workers are being exposed to isoflurane levels above the recommended exposure limit of 2 ppm; 2. Determine the cause of any disparity that exists between exposures at high-volume and low-volume clinics.

Methods: The lead veterinarians were interviewed at four different veterinary facilities to determine background information on clinics, including frequency of surgical operations, type of anesthetic gas used, and control methods used to collect waste gases. Area sampling was conducted during multiple operations with a portable infrared ambient air analyzer (Miran SappHRe XL, Thermo Fisher Scientific, Waltham, Mass) in order to estimate isoflurane exposures to workers. OSHA Method 103 was then used on a second day of sampling to obtain more accurate readings in the breathing zone of workers believed to have the highest exposures. A comparison of isoflurane concentrations will be made between two high-volume clinics and two low-volume clinics.

Results: Area sampling during surgery showed that isoflurane concentrations exceeded the 2 ppm exposure limit recommended by NIOSH at each of the facilities that were sampled. Exposures were greater in the high-volume clinics, with the veterinarian likely exposed to a higher concentration of waste isoflurane gas. The veterinarian and veterinary technician received equal exposures to the gas at the low-volume clinic.

Conclusions: The maximum area concentration and average area concentrations were greater for high volume clinics in part due to the fact that they used masks, which were not as effective in controlling accidental gas release, instead of tracheal tubes to administer anesthetic gas. Isoflurane concentrations usually peaked when the delivery system was removed from an animal.



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