Adverse Events Following Use of Nitrous Oxide

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Objective:

The purpose of this study is to identify adverse events that result from the use of nitrous oxide in a dental school setting.

Methods:

Data were collected from 9,484 nitrous oxide forms from all departments at the University of Iowa College of Dentistry from August 2, 2017 – July 6, 2022. Any forms missing data were excluded from the study and 7,554 patient nitrous forms were included in the analysis. Information obtained from each patient record/form included; age, sex, nitrous oxide concentration and duration, department where the patient was treated, and presence of an adverse event. Adverse events were accessed via the electronic health record for further information. A logistic regression was used to predict the binary outcome of the presence of an adverse event as it relates to age, gender and duration of nitrous oxide use.

Results:

Ninety-seven percent of forms reviewed were in pediatric dentistry and 117 patients (0.7%) experienced an adverse event. The adverse event group spent an average of 41.8 minutes on nitrous oxide, while the non-adverse event group spent an average of 34.2 minutes on nitrous oxide ($p < 0.001$) and 65 percent were male. The most common event was “Nausea/Vomiting”.

Conclusion:

Based on the data and results of the study, it appears that males may have a higher probability of experiencing an adverse event. In addition, more time spent on nitrous oxide appears to increase the odds of an adverse event.