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What Went Wrong and What Can We Learn?

The AAPD and the dental community closely followed the aftermath of a five-year-old child's sedation death in Illinois last fall, which was in a pediatric dental office. A few months later, the new joint sedation guidelines of the AAPD and the American Academy of Pediatrics were released, after a three-year collaborative project between the two organizations: www.aapd.org/media/pressreleases.asp?NEWS_ID=649.

Child safety is in the utmost concern of these guidelines.

What can we learn from this tragic outcome in Illinois?

On May 24, 2007, the Illinois Department of Financial and Professional Regulation (IDFPR) issued its final order on this case, resulting in the following disciplinary actions against the dentist:

- Suspension of general dentistry license for a minimum of 18 months.
- Suspension of pediatric dentistry specialty license for at least three years.
- Suspension of controlled substance license for at least five years.
- Revocation of sedation permit.
- Fine of \$10,000 (maximum allowed under the Dental Practice Act).

These actions are effective from the date of the summary suspension issued on Sept. 29, 2006. The Board of Dentistry had recommended a six-month suspension of the general dentistry license. The Director of IDFPR instead accepted the arguments of the Administrative Law Judge (ALJ) for a longer suspension, because of the dentist's "failure to ensure his staff was appropriately trained, his inaccurate record keeping, and his willingness to exceed the scope of his sedation permit."

Conversely, the Board of Dentistry recommended revocation of the sedation permit as compared to the ALJ's recommendation of a three year suspension; the Board stated that: "Respondent demonstrated a complete lack of understanding of conscious sedation after nine years of practice in the area of conscious sedation, and after performing some 32,000 procedures involving conscious sedation."

Please note that the length of the suspensions is currently under legal challenge by the dentist, who alleges that the DFPR "was influenced by the media" in its handling of the case. The AAPD is not commenting on the legal merits of the IDFPR findings or the dentist's challenge. I am summarizing these materials in this column so that our membership has a better understanding of what can go wrong and why the joint AAPD-AAP guidelines are so important.

The Illinois Dental Practice Act requires Permit A to for a dentist to administer conscious sedation and Permit B to administer deep sedation and anesthesia: <http://www.ilga.gov/commission/jcar/admincode/068/06801220ZZ9996dR.html>.

The AAPD-AAP guidelines use the more contemporary classification of minimal sedation (formerly anxiolysis), moderate sedation (formerly conscious sedation or sedation/analgesia), deep sedation and general anesthesia. Under Permit A the required personnel are:

"3 (treating dentist with Permit A; trained person to monitor patient or nurse anesthetist; trained assistant)

OR

"3 (treating dentist w/o Permit A/B; physician or dentist with Permit A/B; trained assistant)"

and the required monitoring is:

"Preoperative, intraoperative and pre-discharge monitoring of BP, pulse, respiration and oxygen saturation."

One of the findings related to sedation practices as summarized in the Order of the IDFPR Director is as follows:

"The record demonstrates that Respondent failed to ensure that his staff was adequately trained to provide preoperative, intra operative, and post-operative care to the patient, and Respondent, knowing these assistants were inadequately trained, chose [to] utilize these assistants to perform these duties."

The ALJ's report to the Board of Dentistry includes the following Findings of Fact related to sedation practices:

- The patient weighed 35 pounds and was given 7.5 milligrams of Diazepam as oral pre-medication. She then received nitrous oxide in the dental chair, and an intravenous (IV) administration of 1.3 milligrams of Midazolam, 0.1 milligrams of Atropine, 7.5 milligrams of Talwin, and 6.5 milligrams of Diazepam, in addition to Lidocaine with epinephrine.
- A second dose of six milligrams of Diazepam was administered five minutes into the procedure.
- A pulse oximeter was used, and then removed at the conclusion of treatment.
- No blood pressure reading was taken.
- After the procedure was complete in 30 minutes the dentist left the room, and an assistant "was expected to watch the

patient's breathing, but she was not checking or charting vital signs such as pulse, blood pressure or respiration counts per minute."

- Ten minutes later, 911 was called and CPR initiated when the patient was not responsive and had a heart rate reading in the 60s when the pulse oximeter was re-attached.
- The cause of the patient's death was anoxic encephalopathy (lack of oxygen) due to anesthesia during the dental procedure.
- One dental assistant was taught how to read the pulse oximeter, but not how to take blood pressure. This assistant was not monitoring patient signs such as pulse, blood oxygen saturation level, respiration or blood pressure. After the procedure, with the pulse oximeter disconnected, this assistant was alone in the room with the patient for 10 minutes.
- A second assistant's role was to watch the heart rate and blood oxygen saturation readings on the pulse oximeter. This assistant started working in the clinic three days before the incident; she had nine months of previous dental office experience, but was not involved in IV sedation. While in the examination room, she did not check the patient's blood pressure or monitor respiration by counting, but did check to see if the patient was breathing.
- The state's expert witness (an oral surgeon) testified that the dosages for a patient of this size and height would have placed the patient in a state of deep sedation. This expert also testified that there was no record of blood pressure, pulse, respiration or electrocardiogram monitoring.
- The respondent's expert witness (a pediatric dentist) disagreed with the state's expert. The ALJ noted that this expert, however, was not aware of the Illinois Dental Practice Act and Rules concerning sedation and did not have a permit to perform deep sedation or general anesthesia in his own state.

Overall, the ALJ concluded the patient was in a state of deep sedation due to the drugs administered, that blood pressure monitoring was not done as required under the state rules for both conscious and deep sedation, that removal of the pulse oximeter after the procedure was contrary to pre-discharge monitoring required under both conscious and deep sedation, and there was nothing in the record to indicate that the patient's respiration was being monitored.

Complete materials on this case are available at: <http://www.idfpr.com/newsrsls/052407RibaFinalDisc.asp>.

Clearly, adherence to the joint AAPD-American Academy of Pediatrics sedation guidelines is important for both child safety and risk management.

The guidelines are available in the 2006-07 Reference Manual and on the AAPD Web site at: www.aapd.org/media/Policies_Guidelines/G_Sedation.pdf.

Based on the findings in this case, the most obvious portions of the AAPD-AAP joint sedation guidelines that were not followed included:

- Adequate intra- and post-operative monitoring of vital signs, especially for a deeply sedated patient, including documentation. For example:
 - o During the procedure (for deep sedation): "Vital signs, including oxygen saturation and heart rate, must be documented at least every five minutes in a timed-based record."
 - o After the procedure (for moderate and deep sedation): "If the patient is not fully alert, oxygen saturation and heart rate monitoring shall be used continuously until appropriate discharge criteria are met."

- Equipment needed to handle deep sedation: "In addition to the equipment previously cited for moderate sedation, an electrocardiographic monitor and a defibrillator for use in pediatric patients should be readily available."

- Personnel that are trained in monitoring intra- and post-operatively for moderate sedation:

- o "The use of moderate sedation shall include provision of a person, in addition to the practitioner, whose responsibility is to monitor appropriate physiologic parameters and to assist in any supportive or resuscitation measure, if required."

and deep sedation:

- o "There must be 1 person available whose only responsibility is to constantly observe the patient's vital signs, airway patency, and adequacy of ventilation and to either administer drugs or direct their administration."

- Understanding the impact of multiple medications and repeated dosing, i.e. "... the potential for an adverse outcome may be increased when 3 or more sedating medications are administered . . . one must know whether the previous dose has taken effect before administering additional drug."

Special thanks to Drs. Paul Casamassimo, Indru Punwani and Stephen Wilson for their valuable insights on this topic and editorial assistance.

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