THE LATEST ASA MANDATE: CO₂ MONITORING FOR MODERATE AND DEEP SEDATION

The 2010 House of Delegates of the American Society of Anesthesiologists (ASA) amended its Standards for Basic Anesthetic Monitoring to include mandatory exhaled end-tidal carbon dioxide (E_tCO₂) monitoring during both moderate and deep sedation to its existing requirement for endotracheal and laryngeal mask airway general anesthesia. It became effective as of July 2011 and now reads:

"During regional anesthesia (with no sedation) or local anesthesia (with no sedation), the adequacy of ventilation shall be evaluated by continual observation of qualitative clinical signs. During moderate or deep sedation, the adequacy of ventilation shall be evaluated by continual observation of qualitative clinical signs and monitoring for the presence of exhaled carbon dioxide unless precluded or invalidated by the nature of the patient, procedure, or equipment."

Rather than supported by the highest level of evidence-based Class A, Level 1 scientific data, this amendment was a consensus document initiated by the ASA Committee on Standards and Practice Parameters, approved by the ASA Board of Directors, and passed by the October 2010 ASA House of Delegates with supposedly little debate. This new standard makes perfect sense for medical anesthesiologists, particularly those who are based in hospitals, because it costs them essentially nothing to obtain this sometimes very valuable information. Because in most instances ASA physician anesthesiologist members provide moderate and deep sedation in the same operating rooms as they do general anesthesia, they already have the equipment to monitor E_tCO₂, and they already routinely use nasal cannula O₂ for their sedations. All that is really needed for them to meet this mandate is to either exchange their O₂ cannulas for those with a CO₂ sampling port for connecting to their E_tCO₂ monitor or to insert an intravenous catheter into a standard O₂ cannula and connect it to monitor. Because modern, "high-tech" physician anesthesiologists rarely use a precordial or pretracheal stethoscope in the operating room and their heads are almost never only a few inches away from the moderately sedated patient's open mouth and nose to monitor breathing like the operating dentist does from his or her usual position, monitoring E_tCO₂ for the anesthesiologist is far superior to the pulse oximeter for immediately

detecting an obstructed airway, opiate-induced apnea, or other airway problems that only much later may be detected by the pulse oximeter. Monitoring E_tCO₂ is particularly important when anesthesiologists provide moderate sedation for patients who are too medically compromised to safely undergo general anesthesia and who would almost never be sedated in a dental office, such as an ASA IV patient with severe chronic obstructive pulmonary disease who may retain high levels of CO₂ during sedation or a morbidly obese, insulin-dependent diabetic patient with severe obstructive sleep apnea. Additionally, when the anesthesiologist is also not the person giving the local anesthetic (as in a breast biopsy) or in the case of a colonoscopy (during which the moderate sedation is not accompanied by any local anesthesia), the anesthesiologist's only option for managing severe discomfort in the moderately sedated patient is to deepen the level of sedation by supplementing with more fentanyl, ketamine, or propofol until the patient becomes unconsciousness, when monitoring E_tCO₂ may be deemed much more important, particularly if insertion of a laryngeal mask airway device or tracheal intubation then becomes necessary if the airway becomes compromised. However, an endodontist who may be licensed for only moderate sedation does not legally have the option of deepening the level from moderate sedation to light general anesthesia in the dental office but rather must either reinforce the local anesthesia with periodontal ligament, intraosseous, or intrapulpal local anesthetic techniques or reschedule the endodontic treatment when a dentist anesthesiologist can be brought into the office to manage the discomfort associated with the endodontic procedure.

To complicate this far-reaching ASA requirement, the Centers for Medicare and Medicaid Services (CMS) in 2009 and 2010 rewrote their CMS Hospital Conditions of Participation and Interpretive Guidelines that govern anesthesia services. The CMS mandated that all anesthesia services in a hospital be organized by a qualified physician and consistently implemented in every hospital department and area where "anesthesia services" are rendered. However, as opposed to the ASA standards, the CMS definition of "anesthesia services" excludes topical and local anesthesia, minimal sedation, moderate sedation/analgesia (conscious sedation), and labor epidural analgesia. Thus, even though the CMS does not require standardization of any monitoring, including E_tCO₂, throughout the hospital for moderate sedation, because the ASA standards require anesthesiologists to monitor E_tCO₂ for all of their moderate sedations, the

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ASA believes that other less qualified, nonanesthesiologist sedation practitioners need it even more than their members to enhance their margin of safety. Therefore, if an ASA member is the hospital's "physician in charge of anesthesia services," he or she may have little choice but to require the monitoring of $E_t\text{CO}_2$ in all hospital areas where moderate sedation is administered if it is required in the hospital's operating rooms.

The CMS will not permit a double standard for monitoring $E_t\text{CO}_2$ by anesthesia specialists providing deep sedation in the operating room but not by dentists in the hospital's oral surgery clinic. If monitoring $E_t\text{CO}_2$ is the standard for deep sedation in a hospital's dental clinic, what are the medical-legal implications for deep sedation across the street in the private oral surgery office, where only healthy patients receive deep sedation by oral surgeons who follow the American Dental Association (ADA) guidelines for monitoring that do not mandate monitoring $E_t\text{CO}_2$ for deep sedation? Because the majority of ADA delegates do not administer moderate or deep sedation and because all dentists, including those with extensive anesthesia training, are regarded by the ASA as nonanesthesiologists, will the monitoring guidelines passed by the ADA House of Delegates measure up against those passed by the ASA House of Delegates that is composed entirely of the best-trained physician anesthesiologists in the world?

From your editor's extensive experience in the operating room administering intravenous moderate sedation to morbidly obese ASA IV pre-heart transplant multiple extraction dental patients with left ventricular ejection fractions of less than 10%, there is no question that monitoring $E_t\text{CO}_2$ can be a very valuable tool for monitoring airway patency and ventilation in that venue. One can argue that a pregnant patient in an obstetrical laboring suite who is being continuously infused with narcotic-containing local anesthetic from a labor epidural pump should have $E_t\text{CO}_2$ monitoring. The same argument can be made for every barely conscious patient entering the postanesthesia care unit (PACU) who is then left by the anesthesiologist with skilled nurses to watch them while they fully recover from their general anesthetic. Surprisingly, $E_t\text{CO}_2$ monitoring is not required in the PACU, even though many of these patients are initially considerably more deeply sedated than most moderately sedated patients in the operating room, in a dental office, or in a cardiac catheterization lab. More surprisingly, after complex surgery, even severely medically compromised unconscious patients who remain intubated in the PACU who are spontaneously breathing supplemental O_2 on a "T-piece" are not required by ASA standards to have $E_t\text{CO}_2$ monitored by the PACU nurses. Until the ASA mandates $E_t\text{CO}_2$ monitoring in these critical care

areas, it seems unreasonable for them to expect that it be required in dental offices for moderate sedation, as defined in the ADA Guidelines, wherein "the drugs and/or techniques used should carry a margin of safety wide enough to render unintended loss of consciousness unlikely." Perhaps the ASA Delegates oppose mandating $E_t\text{CO}_2$ monitoring in these critical areas because of the huge expense in purchasing the necessary additional equipment to accomplish it.

Yes, the CMS requirement that mandates standardization throughout the hospital can reduce confusion and improve patient safety in some instances. However, this one-size-fits-all mentality does not always make sense. For instance, the standard of care after endotracheal intubation of a critically ill patient by a nonanesthesiologist emergency room physician is to obtain a chest radiograph to determine if the tube is in the correct position. If that were to become the "postintubation standard" throughout the hospital, every patient in an operating room who is intubated by an "expert intubation specialist" (anesthesiologist) would need an unnecessary radiograph, exposing them to radiation for no benefit and foolishly raising the cost of health care when resources are so limited in today's economy. The ASA and CMS standards are fine for hospitals and anesthesiologists who treat many critically ill patients, but they do not necessarily pertain to the type of patients and the level of moderate sedation taking place in the dental office.

Even more important than this $E_t\text{CO}_2$ monitoring issue is the overriding point that it is our profession that should be setting the anesthesia standards for dentistry; clearly, the ASA wants to do that for us. The organization must believe that we do not have the expertise to do it ourselves. Because the ASA regards dentists as nonanesthesiologists in their standards, the ADA is apparently perceived as not having enough expertise in anesthesiology to self-regulate all aspects of dental anesthesiology. Thus, by default, the ASA standards may appear to some to also apply to all levels of sedation and anesthesia in dentistry. Dentists must have a recognized level of expertise in anesthesiology to be able to accept ASA standards, modify them, or reject them and make our own. It is hoped that organized dentistry will realize that dentistry must regain control of its own destiny if this integral part of dental practice is to survive under our control. If monitoring $E_t\text{CO}_2$ is deemed a necessity for moderate and deep sedation, dentistry must make that decision for itself, and it is hoped that dentistry will have the clout for its standards to be accepted when they conflict with those of other professions.

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