Anesthesia Quality Institute

520 N. Northwest Highway • Park Ridge, IL 60068-2573 • (847) 268-9192 • www.aqihq.org

25 April, 2011

To Whom It May Concern:

Respiratory depression is a leading cause of in-hospital cardiac arrest, especially in postoperative patients who are being treated with narcotic analgesic medications. While prevention and management of pain is an important goal in all patients, one of the unintended consequences of aggressive pain management therapy is the potential for inadvertent overdose. Narcotic tolerance is based on a myriad of factors including the kind and degree of pain, the patient's prior medication history, genetic predisposition, and even diet and drug interactions. Accurate prescription of narcotic therapy is a clinical challenge, and even adaptive devices such as patient controlled anesthesia pumps are not perfectly safe.

Prevention of morbidity and mortality arising from postoperative respiratory depression is an important patient safety goal of the American Society of Anesthesiologists. Prevention, early detection and treatment of postoperative respiratory depression will be the topic of a unique open forum in Scottsdale, Arizona, on June 8, 2011, organized by the Anesthesia Patient Safety Foundation and including leaders from industry, patient advocacy groups and anesthesiology. Mark Warner, M.D., President of the ASA, has made tangible reduction in the risk of postoperative respiratory depression one of the goals of his term in office.

There are many potential technical solutions to early detection of respiratory depression, based on measurement of arterial oxygen saturation, exhaled carbon dioxide, or respiratory rate. However all monitoring solutions share the common problem that failure of respiration can lead to hypoxic brain injury or death within minutes – often too rapidly to avert even when the problem is promptly recognized. The attached white paper by Lloyd Olson, M.D. describes an elegant technical solution for this scenario, which puts the universal antidote for narcotic overdose—naloxone—in the same unit that is administering the narcotics. This approach would significantly shorten the treatment loop from automated recognition of respiratory depression to successful reversal, and would allow for titration of postoperative narcotic therapy in both directions. The result would be better pain management with fewer adverse events.

The technical approach described by Dr. Olson will require careful human testing before it can be approved for widespread use, yet there are no inherent barriers to doing so. Even better, Dr. Olson describes several possible future directions for this technology that take advantage of the rapidly emerging field of target-controlled infusion to make it even more effective.

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In summary, the Apnea Rescue-Bot device proposed by Dr. Olson would be an easy modification for existing PCA infusion devices. It would address an important patient safety issue while enabling improved postoperative pain management. I encourage you to take a close look at this proposal, which I most heartily endorse.

Sincerely,

Richard P. Dutton, M.D., M.B.A.
Executive Director
Anesthesia Quality Institute