**First in the state**

No Laughing Matter: UCH Offers Nitrous Oxide for Labor and Delivery

*By Tyler Smith*

Flanked by anesthesiologists, certified nurse midwife Jessica Anderson faced a room of cameramen, reporters, and staff and explained in simple terms how nitrous oxide can help women through the pain of contractions during child birth.

“Women don’t rate the pain any lower” on nitrous oxide, said Anderson, MSN, CNM, senior director of the Center for Midwifery at University of Colorado Hospital. “They just care about it less.”

“Patients have requested it, and we want to make sure that they have all the options available,” she said. "We don’t like to say no to women in labor.”

Nitrous oxide isn’t for every woman. Vitamin B12 deficiency, pneumothorax compartment syndromes, and pulmonary hypertension are contraindications, and it will not be an option for women who have received intravenous narcotics in the past two hours or for those who cannot hold the mask, said obstetric anesthesiologist Cristina Wood, MD, MS.

The introduction of nitrous is starting slowly, with two machines available, but Wood said the hospital has already received “several calls” from women requesting to deliver at UCH and use the gas for labor.

**A safe alternative.** Nitrous oxide is commonly used in surgical procedures and in some outpatient clinics. For labor and delivery, it offers advantages over other pain blocks, Anderson said.

For example, narcotic analgesics like fentanyl pass through the mother's bloodstream to the baby. Nitrous oxide works fast, but leaves the body quickly, she said. Data from institutions that have used it for labor and delivery, including Vanderbilt University Medical Center (VAMC) and University of California San Francisco, show it is very safe for both mothers and babies, Anderson added.

For example, a review of nitrous oxide for labor analgesia by a VAMC anesthesiologist concluded that most studies have shown no significant adverse effects on neonates, as measured by APGAR scores or umbilical artery and vein blood gases. By contrast, the review noted that narcotic analgesics have produced higher rates of neonatal respiratory depression.

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Unlike epidurals, nitrous oxide allows women to move about, and it can be administered in various settings. For example, women who choose water births through UCH’s Center for Midwifery can use it.

"Women can be more present and part of the birth," Anderson said.

**Gas class.** Before the Oct. 13 launch date, Hatfield, Pa.-based manufacturer Porter Instrument trained anesthesiologists, nurses, and certified nurse midwives on using the Nitronox system. Anderson demonstrated the steps with Neil Mehta, MD, an anesthesiology resident, who played the part of the patient.

Anesthesia mask fits over the patient’s nose and mouth. Once the mask has a tight seal, patients are instructed to begin breathing the 50-50 mix of oxygen and nitrous oxide 30 to 45 seconds before a contraction begins and stop when the contraction ends.

The woman controls the amount of gas she receives, added Wood. “The flow of nitrous oxide only occurs when the woman is actively inhaling into the mask, so she can use as much or as little as she likes,” Wood said.

“It’s only for the patient. No family members,” Anderson quipped.

The hospital plans to build a database to track outcomes for every patient who uses nitrous oxide, Anderson said. These will include APGAR scores, the number of C-sections, use of forceps for delivery, rates of blood loss and lacerations, admissions to the Neonatal Intensive Care Unit, and use of breast-feeding.

Patients will be able to make the choice of using nitrous oxide either before or at the time of labor, Anderson said. That’s in keeping with the overall goal of introducing it at the hospital.

“We’re proponents of options,” she said.