

Chuckle, Snicker, Giggle during Labor! Putting Nitrous Oxide into Practice



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Program Purpose

- One multi-hospital system's journey to establish an evidence-based nitrous oxide program during labor & immediate post-partum period.
- Nitrous oxide can help decrease pain and anxiety during labor and promote feelings of euphoria and relaxation.
- Minimal risk- No complications
 - Maternal
 - ❖ No impact on cardio-respiratory functioning
 - ❖ No impact on labor progress or post partum bleeding
 - ❖ Minimal/possible side effects: nausea, vomiting, drowsiness
 - Fetus
 - ❖ No change in FHTs
 - ❖ No impact on Agpars or resuscitation
 - ❖ No impact on cord pH
 - ❖ No known effects on breastfeeding



Implementation

- Assembled an interdisciplinary team of nurses, obstetricians, anesthesiologists, respiratory therapy, and administration to develop a nurse-driven evidence-based nitrous oxide protocol.
- Key elements of the protocol included:
 - Standardized patient education
 - Equipment use, safety and securement
 - Eligibility criteria
 - Concurrent use of opioids
 - Written consent
 - Identification of prescribing providers (obstetricians/midwives)
 - Monitoring and assessment before and during use
 - Documentation
 - Discontinuation



Additional organizational considerations were also addressed:

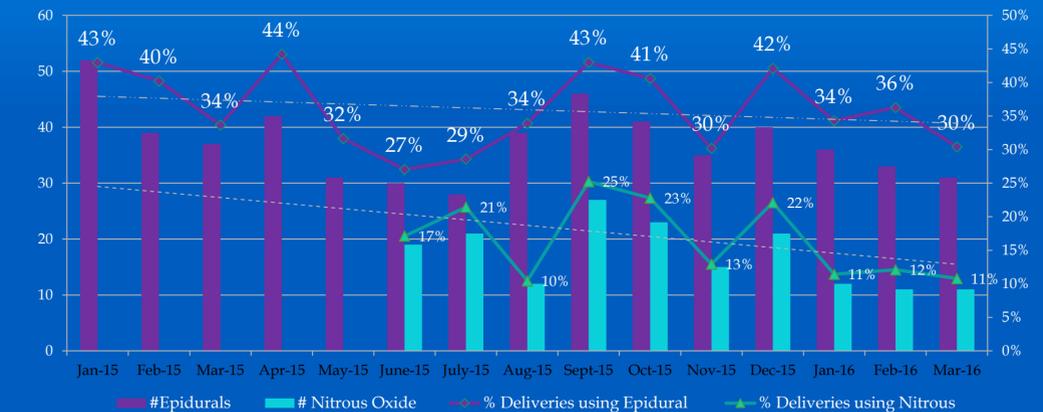
- Equipment selection
- Occupational exposure for labor staff
- The implementation plan included multimodal strategies for nursing staff and provider education:
 - Face-to-face instruction
 - On-line educational module
 - Webpage promotion
 - Attestation for adherence to the protocol, and marketing of the program to ensure successful adoption by the patient population

Implications for Practice

- Intrapartum nurses are privileged to provide front-line support to laboring women. Once the protocol is ordered by the physician or midwife, the bedside RN is empowered to provide complete oversight to patient education, screening, use, and evaluation of the patient's response.
- Nitrous oxide is a noninvasive modality that nurses can use to elevate practice and promote a women's birth experience.

Outcomes/Evaluation

- Overall positive, occasional disappointment- *"I didn't like how it made me feel"*
- Increased option for pain management intra- and immediate post-delivery, i.e. repairs
- Delay in epidural request
- Bridge until epidural insertion
- Direct impact on anxiety



Nitrous Oxide Patient Information Sheet

What is Nitrous Oxide and how is it used for labor?
Nitrous oxide use for labor pain is a mixture of 50% nitrous gas and 50% oxygen that is inhaled through a mask or mouthpiece that a woman holds and self-administers, as she wishes. A version of nitrous oxide is used widely in dental offices, where most people know it as "laughing gas". The balanced gas used in laboring women is different, and does not have the same effect, as it is not anesthetic. The pain may still exist for some women but the gas may create a feeling of "pleasant confusion" (who cares? It has been, and still is, widely used in Canada and Europe for labor.

How does Nitrous Oxide work?
Nitrous oxide reduces pain and anxiety. You hold your own mask, so you decide when to use it and how much you need. Patients start to breathe in the gas mixture about 30 seconds before a contraction begins allowing the pain relief to occur when the contraction reaches its peak. You can put the mask down between contractions, and use it on and off as you choose.

How much does Nitrous Oxide help with labor pain?
How well nitrous oxide works is different for every woman, but at least half of women who use it say it is helpful and they would choose to use it again. Some women say that it "takes the edge off" of the peak of the contractions, enough that they are able to cope with their labor. Others report more pain relief. Nitrous oxide also lowers anxiety. This helps you feel less tense during contractions, which may also help you cope with pain and complete a normal delivery.

How will I feel while I am using Nitrous Oxide?
You might feel drowsy, lightheaded, nauseated, or a little silly while you are using nitrous oxide. These are common side effects that go away quickly when you stop breathing the gas. Rarely, women say they feel restless or confused.

Can using Nitrous Oxide affect my baby?
Nitrous oxide is the only pain relief method used for labor that is cleared from the body through the lungs. As soon as you pull the mask away, the effect of breathing the gas is gone within a few breaths.

Will using Nitrous Oxide affect labor progress?
No, nitrous oxide does not have any effect on your status (awake) or contractions.

Can I be out of bed and use Nitrous Oxide?
Yes. As long as you are steady on your feet, you may be up and about in your room with assistance from the nursing staff. You can stand at the bedside, on the commode or the birth ball. You may also use Nitrous Oxide in a birthing tub.

Must I choose between either using Nitrous Oxide or having an epidural?
No. Some women may use nitrous oxide before they have an epidural placed. Usually the epidural and nitrous oxide are not used at the same time. You may choose to use nitrous oxide first and then move to a different type of pain relief later in labor.

Are there any reasons I could not use Nitrous Oxide?
You cannot use nitrous oxide if you:
- Cannot hold your own mask.
- Have pernicious anemia or vitamin B12 deficiency and take vitamin B12 supplements.
- Have had opioids within 2 weeks prior to implementation of nitrous oxide administration, or have taken Methadone, Suboxone, or Subutex within the last 5 days.
- Have a few other rare medical conditions; see consent.

I hereby authorize Lee Memorial Health System to provide me with Nitrous Oxide for the purpose of pain control during labor.

I understand that nitrous oxide has been safely used throughout the world for labor pain for many decades and continues to be used worldwide currently. It is considered to be safe for use during pregnancy and labor. Some animal studies have shown effects on animal fetuses at doses many times higher than is used with humans. It is not known if in the future, there may be some negative effect proven on human fetuses but there are no studies demonstrating any adverse effects on humans that exist currently. I also understand that the risks for nitrous oxide use are the same risks that exist for virtually all other pain-relieving medications that I may choose to use during labor and birth, such as nausea, vomiting, mental impairment, slower or depressed breathing and drowsiness in mother and infant, and changes in the fetal heart rate.

Other health problems related to the mask and/or use:
I acknowledge that I do NOT have any of the conditions listed below and understand that I am NOT a candidate for nitrous oxide if any of these conditions exist:
- Pernicious anemia (a vitamin B12 deficiency) and take vitamin B12 supplements.
- I have not taken opioids within 2 hours prior to implementation of nitrous oxide administration, or have not taken Methadone, Suboxone, or Subutex within the last 5 days.
- I do not have decreased Vitamin B12 functioning (cobalamin functioning), such as Crohn's Disease, Celiac Disease, Pernicious anemia, and wagon diet.
- I do not have any history of pneumothorax, bowel obstruction, increased intra-ocular pressure or recent eye ear surgery in the past five months.
- I do not have any condition that currently affects my ability to oxygenate my blood for example, oxygen saturation consistently less than 95% on room air or alterations with the fetal heart rate tracing.
- I am not under the influence of illegal/recreational drugs or alcohol.

The risks and benefits of inhaled nitrous oxide for labor have been explained to me as have alternative forms of pain control options in labor:
- I understand that using nitrous oxide may make me unsteady and if I need to get out of bed, I will do so only with assistance.
- I agree to hold the mask/mouthpiece without assistance from others and will not let friends or family members hold the mask to my face.
- I will not use nitrous oxide continuously but will use it as needed.
- I will not let anyone besides myself inhale the nitrous oxide from the mask/mouthpiece and I understand that use of nitrous oxide by any unauthorized person can result in the removal of nitrous oxide from my room and/or the removal of the unauthorized person from the hospital.
- I understand that some possible side-effects of nitrous oxide include: nausea, vomiting, dizziness, and fatigue.

I have read and understand this consent form. I have had the risks, benefits, and alternatives explained to me and have had the opportunity to ask questions. I agree to the above and wish to use nitrous oxide during my labor and/or birth.

Signature of Patient: _____ Date: _____ Time: _____

LEE MEMORIAL HEALTH SYSTEM
Lee County, Florida
INFORMED CONSENT FOR NITROUS OXIDE ADMINISTRATION IN THE INTRAPARTUM/IMMEDIATE POSTPARTUM PERIOD
PM 1800 Rev. 08/15 Page 2 of 2
SIGNATURE - CONSENT