Nitrous Oxide in Labor, Delivery, and Postpartum

Kari Bernhardt

University of Mary

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Dr. Joan Doerner

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The world of healthcare can be a legal land mine as patients and the public may become injured. With this is mind, healthcare organizations develop policies and procedures to assistance the organization in complying with various regulatory and accreditation demands. Moreover, policies provide organizations and their staff with appropriate courses of action driven by laws, regulations, and standards of practice (O'Donnell & Vogenberg, 2012). The policy identified for this assignment is titled, “Nitrous Oxide in Labor, Delivery, and Postpartum,” reference number BRTH0097 (Catholic Health Initiatives, 2019). This policy is specific to CHI St. Alexius and applies to the departments that care for women during the intrapartum and immediate postpartum periods. According to the Catholic Health Initiatives (2019), the purpose of this policy is to standardize care, “according to current practices and guidelines to provide safe, consistent administration for women who desire this modality and are appropriate candidates” (p. 2).

Nitrous oxide is a relatively new analgesic modality offered during the intrapartum/immediate postpartum period and is an ideal option for patients seeking a more ‘natural’ birth experience. With the advent of the COVID-19 pandemic and the largely unknown route of transmission, patient care providers questioned whether the ‘elective’ use of aerosolized analgesia is safe; consequently, nitrous oxide use was abruptly ceased. As the pandemic progressed, individual practices among providers regarding the elective use of nitrous oxide varied leaving staff feeling unsure how to proceed. Currently, the organization has not updated the written policy to reflect COVID-19 practices and there remains to be administration inconsistency. The safety concerns of these events prompt review of the current nitrous oxide policy as well as an assessment of how the policy could be strengthened.

Stakeholders

At CHI St. Alexius, all policies pertaining to ‘the birthplace’ are written by the clinical supervisor and clinical director. Written policies are then approved by the department of OB/GYN which consists of obstetricians, certified nurse midwives (CNM), advanced practice providers (APP), and registered nurses (RN) specialized in this area. The nitrous oxide policy was created in November of 2019 and is subject for review again in November of 2022 (Catholic Health Initiatives, 2019). Once under review, Labor and Delivery leadership (department directors, managers, and educators), RN’s who work closely with obstetric patients, and the anesthesia care team will have the ability to provide feedback on the current policy and offer recommendation for maintenance or change. This policy applies to and therefore affects those who practice within the department of OB/GYN, anesthesia care providers (both anesthesiologists and certified registered nurse anesthetists), and any other members of the care team. This policy helps to ensure that obstetric patients during the intrapartum/immediate postpartum periods receive care that is consistent, safe, and meets quality standards of care. A revised nitrous oxide administration policy will guarantee that every patient receives the same pretreatment evaluation with a consistent understanding of contraindications to nitrous use. In turn, this assures that standard precaution and the administration procedure in relation to COVID-19 is uniformly and accurately performed every time.

Use of IOM

The National Academy of Medicine, founded as the Institute of Medicine in 1970, is a non-profit, nongovernmental institution that strives to, “improve health for all by advancing science, accelerating health equity, and providing independent, authoritative, and trusted advice nationally and globally” (National Academy of Medicine, 2022, para. 1). While searching the Health and Medicine Division database, key word searches of nitrous oxide, COVID-19 during pregnancy, and pain management throughout labor produced minimal relevant results to assist in revisions of the defined policy. However, as the policy in question is largely affected by the COVID-19 pandemic, a report by the National Academies of Science, Engineering, and Medicine on how the pandemic shaped birth rates was reviewed. The data suggests that during the start of the pandemic older couples with a higher education and a greater access to resources delayed conception. Thus, a large proportion of babies born during the pandemic were to young couples with few resources. Research demonstrates that women of lower socioeconomic status are more vulnerable to COVID-19 infection; Frueh (2022) states, “There are real consequences for maternal and child health outcomes because of [COVID-19] infection in pregnancy, and infection is distributed among the least-resourced people, and so this has the capacity to increase health inequality of new cohorts of Americans” (para. 13). Therefore, it is evident that women did and will continue to present with COVID-19 during pregnancy (Frueh, 2022). As there is a higher population of women with limited resources infected with COVID-19, health care professionals must engage in shared decision making when discussing pain management modalities.

Policy Options

Although inconsistent practices continue at CHI St. Alexius, many professional organizations have released recommendation on this topic to help institutions update written policy and facilitate standards of care. The Association of Women’s Health, Obstetrics and Neonatal Nurses (AWHONN) (2022) put an emphasis on ‘shared decision making’ during the COVID-19 pandemic and highlighted the importance of a woman’s autonomy and self-determination based on available evidence and patient preferences. Additionally, AWHONN (2022) released a statement encouraging, “Facilities currently offering N20 to check with the manufacturer of their N20 equipment for recommendation for use during the pandemic” (section 11). Interestingly, The Society for Obstetric Anesthesia and Perinatology (SOAP), whom were previously against the use of nitrous oxide during the pandemic, retracted their statement from May 2020 that recommended limiting the use of nitrous oxide in the setting of COVID-19 (Royal College of Obstetricians and Gynecologists [RCOG], 2020). In an updated statement, guidelines advocate for the use of a single patient microbiologic filter and affirmed that nitrous oxide remains to be a safe option for patients with a negative SARS-CoV-2 test (Berghella & Hughes, 2022). The American College of Obstetricians and Gynecologist (ACOG) (2022) released a similar recommendation to SOAP declaring, “For patients with a diagnostic test for COVID-19 confirmed negative, nitrous oxide may continue to be offered as an option for analgesia” (section 4). Additionally, ACOG (2022) agrees and supports the decision to suspend use for individuals with an unconfirmed COVID-19 status and/or suspected illness.

After analyzing the various recommendations from several professional organizations, this author can advocate for numerous revisions to the existing policy. Firstly, the ‘pre-treatment evaluation’ as listed in the nitrous oxide policy should include testing all patients (asymptomatic & suspected) for COVID-19 with a rapid, nasopharyngeal SARS-CoV-2 test (Centers for Disease Control and Prevention [CDC], 2022). COVID-19 testing serves as a risk-reduction measure limiting patient/staff exposure and decreasing unnecessary use of personal protective equipment. Therefore, the second revision is to update the ‘contraindications’ section to include COVID-19 as a contraindication to use. As this author is unable to contact the manufacturer of the facility’s nitrous oxide equipment, the tentative, final recommendation is to include the use of a single patient microbiologic filter under the ‘administration procedure’ section if applicable. These revisions are intended to ensure a consistent, standard of care to intrapartum/postpartum patients desiring nitrous oxide use while minimize exposure of COVID-19, encouraging patient autonomy, engaging in shared decision making, and increasing patient safety.

APRN as Change Agent

Advanced practice registered nurses (APRN) are called upon to be transformational leaders and challenged to lead organizational change that improves quality, decreases adverse events, reduces cost, and enhances patient satisfaction (DeNisco, 2019). Thus, the APRN should use their advanced knowledge in quality improvement processes and evidence-based practices to optimize patient outcomes through policy reform. Furthermore, APRNs understand the complex nature of healthcare systems and recognize that influencing system wide change beings with those closest to the work of the organization (DeNisco, 2019) Thus, the author of this paper will act as a change agent by bringing the findings from research to the attention of the current organizational leaders who have the power to initiate policy change. If the suggested policy revisions are approved, the APRN’s role as a change agent is multifaceted. For example, the APRN will be proactive in ordering specimen collection from patient who verbalize an interest in the use of nitrous oxide during the admission assessment. Furthermore, the APRN can assist in communicating the policy change to registered nurses who care directly for the patient population affected. If non-compliance with the policy revisions occurs, the APRN should inspire shared accountability by encouraging event reporting.

Factors of Influence

Although the resources needed to make the recommended changes to the nitrous oxide policy already exist, the prescribing providers as well as the registered nurses who directly carry out these orders need a greater involvement in the review process scheduled for November 2022. This participation could include open round table meetings, feedback requests via email, or gathering input during provider/nursing shifts. The proposals brought forth by this author pose no additional financial investment on the organization’s behalf. Contrary, the organization could benefit financially by providing increased quality of care thus decreasing frees from regulatory agencies, reduced risk of litigation, and less wasted personal protective equipment that is deemed unnecessary. Socioeconomic factors will not impact the encouraged changes being the purpose of this policy is to promote consistent, uniform care regarding COVID-19 without concern for presenting complaints, ability to pay for services, or educational level. Possibly the prime request of the recommended changes is uniformity in provider decision making and willingness of staff to adjust their current practice. To promote these modifications, the APRN should and can serve as a change agent.

Conclusion

The use of nitrous oxide as an analgesic modality is a relatively new options for patients seeking a more ‘natural’ birthing experience. With the advent of the COVID-19 pandemic, the safety of nitrous oxide administration came into question leading to inconsistent practices among health care providers. The administration of nitrous oxide can be safely and uniformly administered by registered nurses, in consultation with the attending physician, if patients receive the same pretreatment evaluation with a consistent understanding of contraindications. By referring to and adapting practice guidelines set forth my professional organizations such as AWHONN (2022), ACOG (2022), and the CDC (2022) the APRN can serve as a change agent by suggesting and supporting policy revisions.

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