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**Nurses' Perceptions of their Role Utilizing Eat, Sleep, Console, in the Management of
Neonatal Abstinence Syndrome**

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The author has no known conflict of interest to disclose.

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Abstract

Background: There is a rising prominence of infants being born and diagnosed with Neonatal Abstinence Syndrome (NAS) in the United States. In recent years, a new non-pharmacological method of managing these infants called Eat, Sleep, Console (ESC) has emerged. While there is mounting evidence demonstrating the positive outcomes for infants treated with this method, there is limited research regarding nurses' perceptions of this new intervention. This study seeks to understand the nurse's experience and role during caring for infants with NAS utilizing the ESC method in comparison to the past practices.

Methods: This study used a qualitative descriptive design to conduct interviews with perinatal nurses in a local community hospital to determine their perceptions regarding their role and experiences in managing infants with NAS and utilizing ESC.

Results: Eight nurses participated in the study, representing a neonatal intensive care unit and maternity unit. Three major themes resulted from analysis: (1) let babies be babies; (2) implementation barriers; and (3) nonjudgmental, family-centered care. Minor themes supported each of the major themes.

Discussion: While there are many benefits to using ESC for managing NAS, it can be difficult to implement due to various barriers at the parent, nurse, and facility level. More education is needed in nursing schools and medical facilities about substance use disorder, NAS, ESC, and how to have difficult conversations about substance use with families. Additionally, caring for an NAS infant can be emotionally distressing and requires support for nurses and families to prevent burnout. Finally, family-centered care and involvement is a key component of successful implementation of ESC to ensure positive patient outcomes.

Keywords: nursing; neonatal abstinence syndrome; Eat, Sleep, Console; neonatal care; registered nurse; non-pharmacological care

Nurses Perceptions of their Role Utilizing Eat, Sleep, Console, in the Management of Neonatal Abstinence Syndrome

The opioid epidemic in the United States has led to an increase in maternal opioid use and in the number of infants diagnosed with Neonatal Abstinence Syndrome (NAS). Increased opioid use and misuse within recent years has resulted in a rising incidence of Neonatal Abstinence Syndrome nationally, recently estimated to affect six infants per 1,000 hospital births (Blount et al., 2019). From 2004 to 2013, NAS "was responsible for a substantial and growing portion of resources dedicated to critically ill neonates in NICUs nationwide" (NEJM, 2015, p. 2118). According to the Center for Disease Control and Prevention, the number of infants born with NAS increased by 82 percent nationally from 2010 to 2017 with increases across all states and demographic groups (Hirai et al., 2021). Overall, increased prevalence of NAS nationwide is having negative effects on both infants and the healthcare system, with rising costs and increased resources needed to care for this patient population (Anbalagan & Mendez, 2022).

Neonatal Abstinence Syndrome is a withdrawal syndrome that begins shortly after birth and can cause neurological, gastrointestinal, and emotional distress to the infant (Anbalagan & Mendez, 2022). The typical clinical presentation of infants experiencing NAS includes increased tone, tremors, irritability, excessive high-pitched crying, diarrhea, skin breakdown, and seizures (Grossman, 2018). Neonatal Abstinence Syndrome occurs during withdrawal from intrauterine drug exposure and is most associated with maternal non-prescription opioid use. However, NAS can also occur from maternal use of medication-assisted therapy medications such as methadone and buprenorphine, as well as antidepressant, antipsychotic, nicotine, and benzodiazepine use (Anbalagan & Mendez, 2022). While the presentation can vary by infant and the degree of

exposure they had in utero, many infants over the years have ended up needing higher levels of care and intervention to manage these symptoms and help them through the withdrawal process.

Previously, the best practice to treat Neonatal Abstinence Syndrome was to use the Finnegan Neonatal Abstinence Scoring System (FNASS). With this scoring system, nurses assess infants every three to four hours, and assign scores based on symptoms of withdrawal and clinical presentation. Individual symptoms are weighted, based upon severity, with individual scores ranging from one to five. Cumulative scores greater than eight typically require pharmacological intervention with opioids, and a transfer to a Neonatal Intensive Care Unit (Jansson et al., 2009). Titration of opioids is performed to keep the score under eight throughout the infant's withdrawal, and the average hospital stay is around three weeks. While this scoring system and treatment plan does eventually help infants recover from withdrawal, there were noted flaws with this scale.

Opioid use in infants significantly prolongs an infant's stay in the hospital, separates them from their mothers by placing them in specialized units, and focuses more on suppressing withdrawal signs and less on having the infant and caregivers adjust to typical neonatal behaviors (Grossman, 2018). Another observation that has been discussed in studies is the variability between institutions regarding FNASS scoring and treatment related to those scores. It has been found that some institutions treat infants based on their exposure to any amount of opioid exposure in utero and not based on symptom severity. Additionally, many assessment findings present on the FNASS tool overlap with normal infant behaviors which also increases the likelihood of variability in score assignments, impacting the care an infant receives. Due to this

variability, there is consequently a growing gap between FNASS scoring and clinical decision making and treatment of these infants (Curran et al., 2020; Grossman, 2018).

In 2018, Dr. Matthew Grossman, a pediatric physician, introduced a new approach to treating NAS, called Eat, Sleep, Console (ESC). His new method prioritized non-pharmacological interventions and utilized a new scale to determine severity of withdrawal in terms of how it was affecting basic infant needs. The ESC scale has three main sections to it, with nurses assigning scores to infants based on if their ability to eat, their ability to sleep after feeding and, if the infant can be consoled, specifically related to NAS. With this scale, poor eating refers to less than ten minutes of breastfeeding or bottle feeding due to NAS. Poor sleeping refers to an infant who sleeps less than an hour between feedings due to NAS. Finally, inability to be consoled refers to an infant who is unable to be consoled within ten minutes of holding due to NAS. If an infant is unable to eat, sleep, or be consoled due to their NAS symptoms, the ESC method suggests implementing other non-pharmacological care interventions prior to utilizing medication. These non-pharmacological interventions range from rooming in, skin-to-skin, swaddling, non-nutritive sucking, a low stimulation environment and clustering cares. If none of these interventions work, and an infant is still distressed, then medication can be utilized. (Grossman 2018; Grossman et al., 2019).

In his novel study utilizing ESC on inpatient units, Grossman found that ESC implementation decreased the infant's average length of stay in the hospital from 22.5 days to 5.9 days and decreased morphine usage from 62% to 12%. In addition, ESC provided infant and family centered care by increasing parent involvement and keeping mom and baby together (Grossman 2018; Grossman et al., 2019). Multiple other institutions and research studies after this pilot study have reported the same findings as Grossman, with results also showing

significant decreases in length of stay and morphine usage in infants as opposed to FNASS (Achilles & Castaneda-Lovato, 2019; Blount et al., 2019; Miller & Willier, 2021; Parlaman et al., 2019; Ryan et al., 2021; Wachman et al., 2020). Research has also shown that ESC use is unlikely to miss infants requiring pharmacological treatment that would have been identified by FNASS (Curran et al., 2020) and decreases the cost per patient as well (Dodds et al., 2019).

From a qualitative standpoint, research is limited, but current studies have found that care is able to be more family centered and includes the mother directly in patient care (Grossman et al., Dodds et al., 2019, Ponder et al., 2021). Two qualitative studies have been conducted about perceptions and experiences of nurses and families related to NAS, but both focused on NAS and parent engagement, with no mention of Eat, Sleep Console (McRae et al., 2021; Shuman et al., 2020). However, the results of the parent-focused study showed that parents were supportive of fewer interventions with ESC and felt encouraged to lead their infant's care. They also expressed the need for increased support and gaps in communication between them and the care team regarding what to expect during their child's stay. These findings suggest that further education is needed for parents and that ESC also benefits them positively by allowing parents to be an active part in caring for their child.

Regarding nurses' perceptions relating to NAS, the one study conducted was specific to engaging mothers of NAS infants. The findings of this study have several implications for practice, including ensuring that nurses "engage mothers with substance use histories with empathy and nonjudgement, identify and promote maternal agency to care for their infants, and engage and activate mothers to deliver nonpharmacological care during the hospital stay and following discharge" (Shuman et al., 2020, p. 1). This study focused on biases present within

nursing that may hinder relationships and engagement with parents regarding their infant's care and may pose a barrier to ESC implementation.

After review of current literature, it was determined that little to no research has focused on nurses' perceptions of ESC and how their role has changed with its implementation. Given that nurses are responsible for implementing interventions and treatments for NAS, they are the ones who would be able to best evaluate this new method in comparison to the standard one. This gap in knowledge regarding nurse's potentially changed roles may offer insight into the effectiveness of this intervention and barriers for implementing this new practice. Many hospitals in the United States still utilize FNASS and do not use ESC, so the findings of this study could be helpful in explaining this phenomenon.

Methods and Materials

Purpose

The purpose of this study was to determine nurses' perceptions of their experiences and role in utilizing ESC to manage NAS. Information from this study may help to improve implementation of ESC and the management of NAS. The specific aims of this study were to (1) better understand nurses' perceptions regarding their role in implementing ESC, and how this affects patient care in relation to past practices¹, and to (2) better understand nurses' perceptions regarding their role in managing care of infants with NAS. The study was a qualitative descriptive study that utilized semi-structured interviews to elicit perinatal nurses' perceptions and thoughts on both ESC and their roles in managing care of an infant diagnosed with NAS.

¹ Amongst interviewees, there is a chance that some nurses more recent to practice will only have experience treating infants with NAS with ESC. If that is the case, their input can still add relevant anecdotes that support Aim 2's approach to understanding nurse's overall perceptions of NAS.

Qualitative, descriptive designs are ideal for eliciting perceptions about a particular phenomenon in ways quantitative designs are unable to and fit the purposes of this study.

Sample

While it was not possible to determine the necessary sample size for the study in advance, previous studies of nurses' perceptions of interventions and their roles in care (Shuman et al., 2020; Williams et al., 2020), suggested that with a sample size of approximately 15-20 participants, saturation of data would occur. However, the research planned to continue until the researcher determined that there was saturation in the data, or when interviews disclosed no new information, which happened to occur with eight participants. It is possible this happened quickly because participants worked at the same hospital and on the same units, therefore having similar roles and experiences, as well as working under the same medical orders and policies.

The participant population of interest included Registered Nurses (RN) working in perinatal departments at a local hospital, specifically in the Maternity and Newborn Intensive Care Units. These nurses were ideal participants due to their frequent exposure to the specific patient population this study focused on. Inclusion criteria for this study required all participants to be over 18 years of age, licensed as a Registered Nurse (RN), employed at least part time at the hospital and have experience utilizing standard hospital practices and policies to assess and treat a newborn with NAS in the last 3 years. Exclusion criteria included those who have not directly provided infant care to at least one newborn diagnosed with NAS and are not able to speak, read, or write in English.

Participation recruitment was completed through posting flyers (Appendix A) throughout break and huddle rooms on three units at the local community hospital. In addition, nurse educators and managers on these units aided recruitment through word of mouth and sending an

email out to staff about the research study. All participants were screened for eligibility before interviews were conducted (Appendix B). Prior to beginning any part of the interview process, participants were provided with the approved study consent form via email (Appendix C) which provided information about the study. Consent documentation was reviewed at the beginning of the Zoom call, and verbal consent was obtained at the start of the interview.

Data Collection

To formulate interview questions for this qualitative descriptive study, the researcher looked at other interviews regarding nurses' perceptions of interventions (Williams et al., 2020; Shuman et al., 2020), which included semi-structured interview guides with open-ended questions, suggested probes, and an introductory and closing script, which this study's interview guide follows in terms of formatting.

The researcher conducted semi-structured interviews with the participants via Zoom. The semi-structured interview guide for this study included four open-ended questions, suggested probes, and an introductory and closing script. The guide was created with each question relating to the aims of this study to help elicit and explore nurses' perceptions of their experiences utilizing ESC and caring for infants with NAS (Appendix D). At the beginning of the interview, each participant was asked to respond to a series of demographic questions (Appendix E). This demographic information was used to improve clarity during the data analysis. Each interview lasted approximately 15 to 30 minutes and were audio recorded for later transcription and analysis.

Data Analysis

Data analysis included narrative and thematic analysis of the interview data. Interviews were transcribed verbatim, and then coded for central themes, along with annotation of each interview. Throughout the interpretive process, summaries from each interview were created. The case summaries included narratives analyzed within that case, observational notes, and thematic analysis related to perceptions of the role of a nurse in managing infants with NAS. As the process of data analysis continued, whole integrative summaries of what the case reveals about the concerns, roles, and activities of the nurse were written. Memos written based on these case summaries guided the cross-case analysis and this process ensured that data interpretations occurred simultaneously with data analysis and subsequent interviewing. Data was analyzed for themes as they related to the research aims and questions.

Procedures to ensure ethical considerations in research with human subjects

This study was reviewed by the University of New Hampshire's Institutional Review Board (IRB), (IRB-223), and given approval. Throughout data collection and analysis, confidentiality was maintained. Following each interview all the data, both recorded and written, was transferred into encrypted computer files, and stored on UNH Box in a separate password protected file, and not stored on any personal computers or devices. A participant log was created that matched participant pseudonyms with their demographic data. This log was stored separately from all other data files, in a separate password protected file on Box. Only the principal investigator and her faculty mentor had access to this information. As previously described, the informed consent documentation (Appendix C) was reviewed with participants

before the interview began, and verbal consent was obtained at the start of the recording. There were minimal risks associated with this study.

Results

Participant Demographics

Eight perinatal Registered Nurses from both Maternity and Newborn Intensive Care Units participated in the semi-structured interviewing for this study. Most participants, 85% (n=6), had a bachelor's degree or higher, and 50% (n=4) had over five years of experience working with infants, while two had less than two years of perinatal nursing experience. Three participants (37.5%) held specialty nursing certifications, two having achieved their RNC-NIC, and one having their RNC-MNN. In terms of exposure to NAS infants, 87.5% (n=7) of participants reported working with NAS infants monthly. No nurses reported working with NAS infants daily, and one reported working with them weekly. Additional demographic characteristics of the participants are available in Table 1.

Key Findings

Three major themes resulted from qualitative analysis: (1) let babies be babies; (2) implementation barriers; and (3) nonjudgmental, family-centered care. Minor themes supported each of the major themes (Figure 1). Exemplar quotes for each major theme can be found in Table 2.

“Let Babies be Babies” - This specific phrase was used in two different interviews by two nurses with no connection to each other, but also was a good phrase to encapsulate one of

the major themes of this study. Nurses discussed that one of the primary benefits of ESC is the focus on promoting normal infant behavior. With ESC, nurses evaluate whether an infant can or cannot function normally to determine if intervention is needed, and do not make treatment decisions by looking strictly at withdrawal symptoms as was the case with Finnegan scoring. As one participant said: "I love it (ESC) because it teaches you, let your baby be a baby, don't just medicate them because they're having symptoms, let them be a baby and go from there, you know. Let them eat, let's feed them, let them sleep, let them be a baby and then if the symptoms continue or need to be addressed then they can treat it".

In addition, nurses with both ESC and Finnegan experience discussed that there was much less variability in ESC scoring as opposed to Finnegan. Multiple nurses spoke of how they had seen infants receiving high scores on the FNASS, and subsequent morphine dosing, simply because they were an NAS infant, but not because they had many withdrawal symptoms. Nurses also spoke of how many of the symptoms on the FNASS are based on adult withdrawal symptoms and include many normal infant behaviors. Additionally, the FNASS includes symptoms that newborns can experience for reasons other than withdrawal, specifically if they are ill and in the NICU setting. Some of the symptoms on the FNASS, such as tachypnea and tremors, could be related to neurological issues or respiratory distress, unrelated to withdrawal from substances. Nurses shared that it is important for a nurse to use their judgement to discern between if an infant's presenting symptoms are withdrawal-related or related to another underlying issue to properly manage their care. Some of the less experienced nurses noted they liked that ESC gave them practice guidance by allowing them to assess their patient's overall level of functioning, as well as a list of nonpharmacological interventions to utilize. If those interventions did not work, they then felt more comfortable advocating for a dose of morphine,

because they knew when a good time to administer that was. However, some of the nurses with Finnegan experience suggested that the FNASS scoring system could be effective and was effective for them. They stated that one of the issues with this system was that many nurses did not utilize it correctly, attributing scores simply to an infant's label of having NAS and assessing the child at their most irritable state. This observation can potentially be attributed to bias, something that came up in subsequent themes.

Implementation Barriers: "A Lack of..." Despite the positive outcomes ESC can provide infants and families if implemented properly, numerous implementation barriers were discussed by every nurse. These barriers can impact the quality of care they provide to NAS infants, and the overall ability to provide ESC to this population. The most common barriers included lack of time, lack of parental involvement, lack of cuddlers on the unit, lack of education, and lack of support from units, specifically from those who struggle with practice change. Infants with NAS are often more irritable and typically need continuous consoling and holding, especially those undergoing severe withdrawal. Cuddlers are hospital volunteers that come to cuddle irritable infants on perinatal and pediatric units to allow nurses and parents to take a break or get tasks done. This volunteer role reportedly helps nursing staff because they are unable to sit and console infants for extended periods of time, specifically when there are high acuity assignments on the unit or if there are staffing issues. Nurses discussed that they must coordinate and manage care for not just the NAS infant, but other patients and families that they have to care for as well. This led many of the nurses to share that they believe managing a patient assignment with an NAS infant is emotionally difficult and difficult from a time-management standpoint. The difficulties continue if cuddlers are not available, something that has decreased due to COVID-19 restrictions in hospitals as well, increasing the burden on nurses. The primary

caregiver for these infants and the primary person to console them is ideally a parent or caregiver, but there can be barriers for parents being present. Nurses shared that in their experiences, these barriers included parents having other children, jobs, as well as the distress they may be experiencing from their own withdrawal, or the guilt they may feel when seeing their child in distress. Many nurses stressed that most parents do want to be present, but they can have barriers to getting to the hospital to care for their child. This causes the nurse to be the one to take that responsibility and does not allow ESC to be as effective, as was found in multiple interviews. Another point brought up by nurses is that practice change can be difficult to implement, despite evidence to support new changes. If there is not support on a unit regarding a new practice, then nurses will be less likely to support and implement it themselves. As one nurse said, "Some parents are going through their own difficult time where they're not even able to care for themselves, so I feel like we need more cuddlers to help with that. Then some parents also have other children at home, and they are caring for themselves, and trying to care for other children, and they have this other stress. I think ESC is a good goal and I think it could work, but I think that there's just sometimes variables that make it really hard to implement."

Finally, there is a lack of formal education in nursing schools as well as in professional development related to understanding addiction and how to have conversations about substance use with patients and families. As one nurse said, "When I graduated from nursing school, I had no idea what some of the medications were that treated substance use disorder.... there is a lack of education for both our patients as well as for our nursing staff who are going to care for these patients. I think in order to provide the best care possible; we need to have that education." This lack of education or experience related to substance use has made nurses, including those in the study, feel uncomfortable speaking to parents and can inhibit the creation of a trusting

relationship with parents. Most nurses who felt comfortable having these conversations and who can consistently create trusting relationships either had personal experiences with family or loved ones with substance use disorders or relied on past positive experiences with patients and families to guide their care and interactions with NAS families. Even these nurses shared that they think more education for in nursing programs and in orientation to perinatal units about how to have conversations relating to substance use would be extremely beneficial.

Nonjudgmental, family-centered care One of the most prevalent themes within interviews was nonjudgmental, family-centered care in relation ESC and how to provide the best care to NAS infants. Nurses emphasized the prevalence of bias in healthcare and society regarding substance use disorders and addiction, and how this can potentially hinder patient care. Many of the participants had experiences on their units with other nurses making judgmental comments about mothers of NAS infants and had seen parents not involved in their child's care due to bias and judgment. Nurses attributed this bias to numerous factors, from having negative personal and professional experiences with those struggling with addiction, safety concerns with parents using substances and fatal outcomes for some infants, as well as the extreme societal stigma regarding addiction. While these reasons are by no means justifications for bias, they can help staff become self-aware and acknowledge their biases so that they are aware of them and can provide better care to their patients. Almost every nurse spoke of the importance of providing nonjudgmental care to families and building trusting relationships with them to ensure the most positive outcomes for infants and their parents. Nurses spoke of how building a trusting relationship can help them have more of an impact on a family and be the most effective at providing education and ensuring parents feel comfortable voicing concerns and being a part of their child's care team. The role of the nurse, specifically in a perinatal unit, is to be both a

patient and parent advocate, and this trusting relationship and nonjudgmental care allows that to happen. One nurse shared, “I want to be this nurse who provides this nonjudgmental care and I know I keep saying that word over and over but it's so crucial to these patients because they feel such stigma; they feel such a judgment from everywhere, from society, from their care providers, from their friends, from their family, so we have to be those ones to really start and provide that care that they feel comfortable around”. Another issue that nurses discussed was the fact that NAS infants are emotionally difficult to take care of, and that they can face burnout from caring for this population. Nurses typically have support from coworkers and can take time away from these infants, while parents cannot. Many nurses spoke about how there needs to be more support in place for parents, specifically those with numerous stressors that may impact their ability to care for their children. The stress of caring for an NAS infant has the potential to lead to parent burnout, which can then in turn lead to safety issues and unfortunately, fatal outcomes at times, something a few nurses interviewed had experience with.

Participants provided suggestions on how to help with providing more nonjudgmental, family-centered care, and many attributed ESC to being an important part of this. By creating a care model that is family-centered, with interventions and assessments that parents can perform, they are able to be an integral part of their child's care team. As one nurse stated, “I think that it (ESC) has done a lot to really encourage a population that unfortunately sometimes is judged and a bit ostracized from their baby's care and not always 100% included as part of the care team.” Another nurse shared, “I think with Eat, Sleep, Console, it's also about parents too and making sure that they're educated and understand why the baby is acting this way, and their coping methods and making sure that they're being safe with the infant, so it's a lot of education.”

Another important point discussed about providing a nonjudgmental, family-centered environment for NAS families was nurses advocating for and creating a culture change around substance use. As one nurse shared: “We need to change the culture and language in nursing and on our units, not using words that are as stigmatizing, to create a more positive environment and to promote change. An NAS baby needs a calm, quiet, supportive environment and that is not going to come with bias and judgement”. By speaking up when harmful language is used, educating others on substance use, and creating positive relationships with families, nurses can start a culture change that will improve outcomes for patients and their families.

Discussion

This study was able to elicit the perceptions of perinatal nurses from both Maternity and Neonatal Intensive Care units relating to their experiences caring for NAS infants and utilizing the newly introduced ESC method. Findings were able to create the start of knowledge related to nurse's experiences with using ESC which can be further elaborated on in future studies. Nurses are the primary healthcare team members to be involved in the care of an infant with NAS, even more so with the use of ESC. The information obtained from this study will be particularly insightful on how to improve implementation, as well as suggestions on how to utilize this intervention in hospitals that have not yet adopted it. The results of this study showed that ESC promotes family-centered care and has many positive infant outcomes. By focusing on ensuring that the patient can be a functional infant that can eat, sleep adequately, and console with comfort, nurses are able to provide care that is truly patient-centered. This allows care and intervention to be focused on quality of life and functionality and not just treating a disease process.

However, ESC can be difficult to implement due to barriers at parent, nurse, and facility level. These various barriers impact the quality of ESC and the care provided to NAS infants, which indicates changes and improvements must be made to improve these barriers and make it easier to facilitate. In addition, this study shows that while nonjudgmental care is essential to develop trusting relationships with parents, bias is extremely prevalent within the healthcare setting and society relating to substance use. More education is needed, in both nursing programs as well as in orientation to perinatal units about how to speak with parents about their substance use, and about addiction and substance use more generally. In addition, nurses must address and recognize their own biases in order to prevent them from hindering patient care and creating relationships with infant's families.

Limitations

There were multiple limitations to this study that could have affected results. One of the largest limitations was recruitment issues. While communication was initiated with maternity, newborn intensive care unit (NICU), and pediatric units at a local community hospital in hopes of recruiting nurses from each unit, only maternity and NICU staff reached out about participation. Currently at that hospital, the most NAS infants are now taken care of on the pediatric and maternity units, but the primary source of participants was the NICU. The NICU only sees NAS infants now when there are other comorbidities that require a NICU level stay, but this group did have the insight of caring for infants with Finnegan scoring, which was performed exclusively in the NICU setting previously. It is also possible that the COVID-19 pandemic could have contributed to the low volume of participants, for numerous reasons, including not being able to meet in person with the participants, higher levels of nursing stress,

and the perceived burden of time to participate in the study. In addition, the limited sample size of eight participants and the fact participants came from a single site potentially could lead to limitations in perceptions and not be representative of the majority opinions of perinatal nurses who have cared for NAS infants. Future studies could include larger participant groups with more varied demographics to ensure all varying perceptions and thoughts are heard and able to be utilized in data analysis. The final limitation of this study was that only 3 nurses out of the 8 interviewed had experience with both FNASS and ESC, and the other 5 were unable to speak to the differences between the two interventions. A future study with a larger group including more staff with experience using both scales could help to clarify if the themes found in this research are present on a larger scale and are representative of the majority opinions relating to this topic.

Research Recommendations for Practice and Education

There is a gap in the literature surrounding nurses' perceptions and perspectives utilizing ESC to manage NAS. While there has been prior research relating to nurse's experiences caring for infants with NAS and their families, research is limited. This descriptive study adds to the knowledge in that research area as well as providing foundational information for future studies. More research should be done with a wider variety of perinatal nurses, those that work with ESC more frequently, and at larger facilities to determine if the findings of this study are shared universally with perinatal nurses. More research could also be done relating to parent's experiences with nurses and ESC because while infant outcomes are being researched, there is limited research regarding families' experiences with this intervention.

In addition, more education is needed in nursing programs and medical facilities about substance use disorder, NAS, ESC, and how to have difficult, candid, conversations about

substance use with families. This research showed that bias is extremely prevalent within nursing relating to addiction and substance use. It is important that individual nurses, as well as nursing as a whole work to acknowledge these biases and create a culture change to provide compassionate, nonjudgmental, family-centered care. Another type of education that could be important is parent education, specifically for mothers and parents who are expecting a child that will be diagnosed with NAS. By providing them with the resources and teaching about what their child will experience at birth and how they can be involved, this can help parents feel more prepared and potentially less overwhelmed, leading to less parent burnout and more positive patient outcomes.

Conclusion

In conclusion, while there are many noted and proven benefits to using ESC to manage NAS such as improved infant outcomes and family-centered care, it can be difficult to implement at times due to various barriers at the parent, nurse, and facility level. These barriers need to be addressed by nurses as well as units to make ESC implementation more successful. In addition, caring for an NAS infant can be emotionally distressing and difficult for nurses as well as parents, so support for both is needed to prevent burnout. With ESC family-centered care and involvement is a key component of successful implementation, and the best way to provide family centered care is to build trusting relationships with parents. The best way to create these trusting relationships is to provide nonjudgmental care and being candid about substance use with families. Finally, bias is extremely prevalent in healthcare and nurses must work to identify and address their own bias to provide the best care for patients.

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Tables and Figures

Table 1. Participant Demographics (N=8)

<u>Variables</u>	<u>N</u>	<u>Percentage</u>
Age		
18-30	2	25%
31-40	3	37.5%
41-50	1	12.5%
>50	2	35%
Highest Nursing Education Level		
ASN	2	25%
BSN	4	50%
MSN	2	35%
PhD/DNP	0	0%
Years of Nursing Practice		
< 2 years	0	0%
2-5 years	1	12.5%
6-10 years	3	37.5%
>10 years	4	50%
Years of Perinatal Nursing		
<2 years	2	25%
2-5 years	2	25%
6-10 years	2	25%
>10 years	2	25%

Specialty Nursing Certifications

RNC-MNN	1	12.5%
RNC-NIC	2	25%
None	5	62.5%

Time spent working with NAS**infants**

Daily	0	0%
Weekly	1	12.5%
Monthly	7	87.5%
Rarely	0	0%

Scheduling

FT Days	6	75%
FT Nights	1	12.5%
PT Nights	1	12.5%

Figure 1. Major and Minor themes

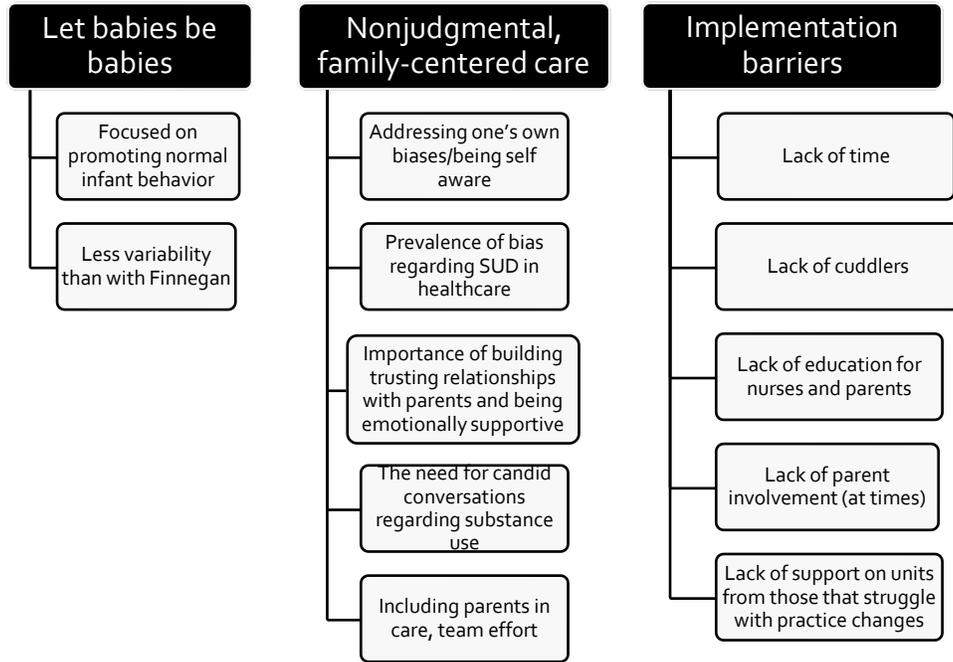


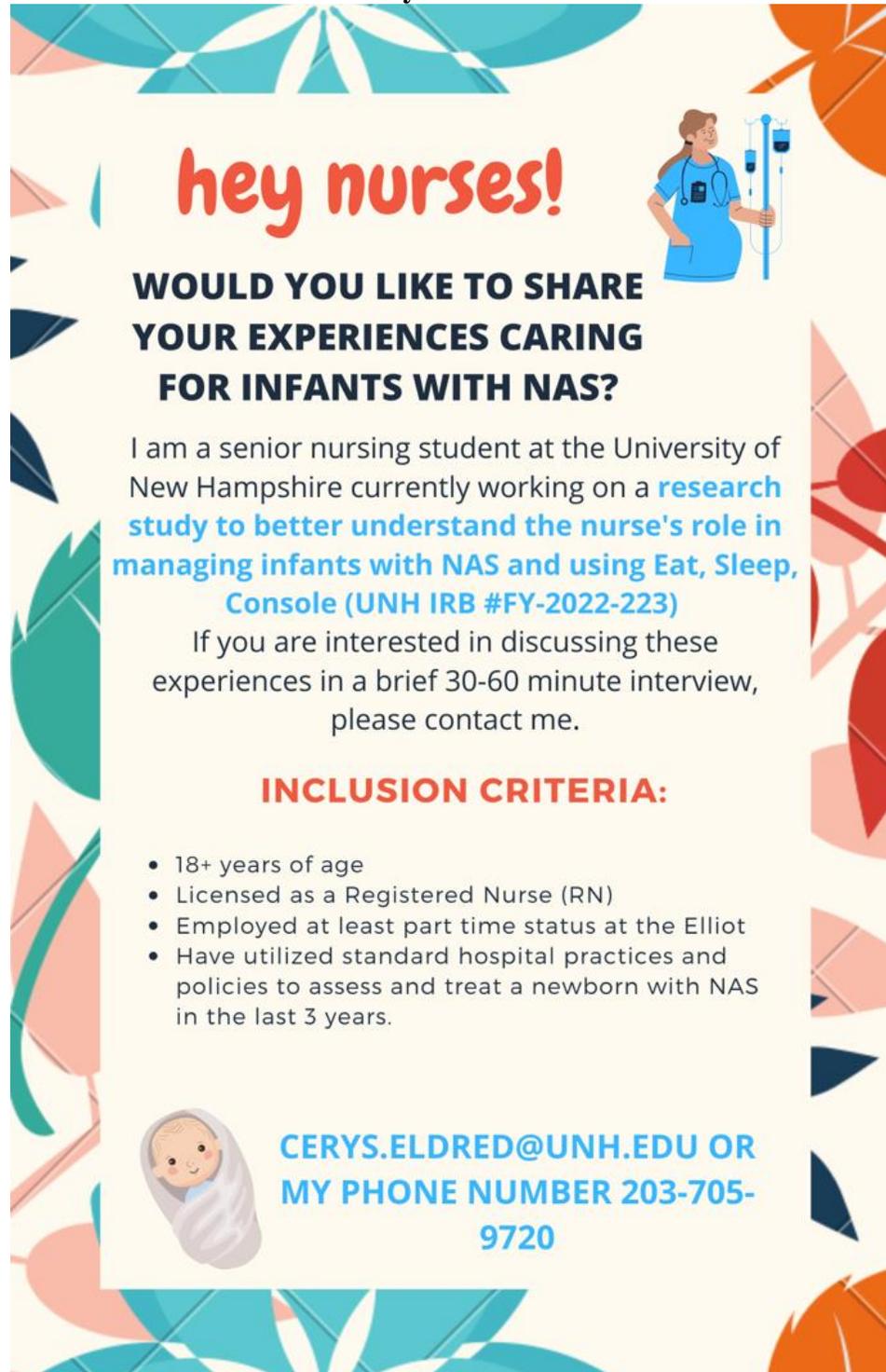
Table 2. Major themes and exemplar quotes

Major Themes	Exemplar Quotes
“Let babies be babies”	<ul style="list-style-type: none"> • “I love it because it teaches you, like let your baby be a baby, don't just medicate them because they're having symptoms, let them be a baby and go from there, you know. Let them eat, let's feed them, let them sleep, like, let them be a baby and then if the symptoms continue or need to be addressed then they can treat it.” • “The amount of pharmacological intervention that we needed when we implemented ESC significantly decreased and I think it also gave power back to the parents and the ability to care for their infants so that they can help them console, they can help them eat, and they can, you know, also treat their babies like babies.”
Implementation Barriers: “A Lack of...”	<ul style="list-style-type: none"> • “Some parents are going through their own difficult time where they're not even able to care for themselves, so I feel like we need more cuddlers to help with that. Then some parents also have other children at home, and they are caring for themselves, and trying to care for other children, and they have this other stress. I think ESC is a good goal and I think it could work, but I think that there's just sometimes variables that make it really hard to implement.” • “When I graduated from nursing school, I had no idea what some of the medications were that treated substance use disorder... specifically those addicted to opioids, so Subutex, suboxone, and methadone. Those were never brought up or talked about in school and I actually vividly remember looking up a patient and being like, “They're on Subutex, I have no idea what this medication is, what does this even mean to my care? What does that entail?” and so you know from that point, there is also that recognition that there is a lack of education for both our patients as well as for our nursing staff who are going to care for these patients. I think in order to provide the best care possible, we need to have that education.”
Nonjudgmental, family-centered care	<ul style="list-style-type: none"> • “We need to change the culture and language in nursing and on our units, not using words that are as stigmatizing, to create a more positive environment and to promote change. An NAS baby needs a calm, quiet, supportive environment and that is not going to come with bias and judgement”. • “I think that it (ESC) has done a lot to really encourage a population that unfortunately sometimes is judged and a bit ostracized from their baby's care and not always 100% included as part of the care team.”

	<ul style="list-style-type: none">• “I think with Eat, Sleep, Console, it’s also about parents too and making sure that they're like educated and understand why the baby is acting this way, and their coping methods and making sure that they're being safe with the infant, so it's like a lot of education.”• “I want to be this nurse who provides this nonjudgmental care and I know I keep saying that word over and over but it's so crucial to these patients because they feel such stigma; they feel such a judgment from everywhere, from society, from their care providers, from their friends, from their family, so we have to be those ones to really start and provide that care that they feel comfortable around .”
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Appendices

APPENDIX A: Recruitment Flyer



hey nurses!



WOULD YOU LIKE TO SHARE YOUR EXPERIENCES CARING FOR INFANTS WITH NAS?

I am a senior nursing student at the University of New Hampshire currently working on a **research study to better understand the nurse's role in managing infants with NAS and using Eat, Sleep, Console (UNH IRB #FY-2022-223)**

If you are interested in discussing these experiences in a brief 30-60 minute interview, please contact me.

INCLUSION CRITERIA:

- 18+ years of age
- Licensed as a Registered Nurse (RN)
- Employed at least part time status at the Elliot
- Have utilized standard hospital practices and policies to assess and treat a newborn with NAS in the last 3 years.



CERYS.ELDRED@UNH.EDU OR MY PHONE NUMBER 203-705-9720

APPENDIX B: Phone Script for Screening

Undergraduate student nursing researcher at the University of New Hampshire, Cerys Eldred, is studying the experiences of nurses caring for infants with Neonatal Abstinence Syndrome, and utilizing Eat, Sleep, Console (UNH IRB-FY2022-223). If you meet the criteria to be and agree to take part in the study, we could set up a time to talk now or later. At that time, Ms. Eldred will review the study with you, and if agree, complete the informed consent process. Once you consent to participate, Ms. Eldred will talk with you for 30-60 minutes about your experiences caring for this patient population. Your decision to participate or not participate will not in any way impact any benefits you receive or services anywhere. All participants who complete the interview will receive a gift card to thank them for their time.

You can be in this study if:

- You are 18 years of age or older
- Licensed as a Registered Nurse (RN)
- Employed at least part time status at your hospital
- Have cared for at least 1 infant diagnosed with NAS in the past 3 years
- Have utilized standard hospital practices and policies to assess and treat a newborn with NAS in the last 3 years.

Based on your answers, you meet the requirements for being in this study, if you are still interested, we can set up a time now to talk later.

Please indicate your interest in participating in this study to the researcher verbally. This is not confirmation of your participation in the study, solely to screen you for inclusion and to determine interest.

APPENDIX C: Informed Consent Form

Dear potential participant:

RESEARCHER AND TITLE OF STUDY

My name is Cerys Eldred, and I am an undergraduate at the University of New Hampshire, the title of this study is Nurse's Perceptions of their role utilizing Eat, Sleep, Console in the management of Neonatal Abstinence Syndrome. UNH IRB # FY2022-223.

WHAT IS THE PURPOSE OF THIS FORM?

This consent form describes the research study and helps you to decide if you want to participate. It provides important information about what you will be asked to do in the study, about the risks and benefits of participating in the study, and about your rights as a research participant. You should:

- Read the information in this document carefully, and ask me or the research personnel any questions, particularly if you do not understand something.
- Not agree to participate until all your questions have been answered, or until you are sure that you want to.
- Understand that your participation in this study involves you to have an initial phone contact and screening, you will be asked to meet with researcher, Cerys Eldred and talk about your own experiences with caring for infants with Neonatal Abstinence Syndrome. You will also be asked to answer some questions about your nursing background to help the researcher better understand your experiences. You will also be asked to fill out a demographic sheet. Interviews will last from 30-60 minutes.
- Understand that the potential risks of participating in this study are minimal. Some risks may include your perceived burden of time and possible emotional or stress responses related to recalling and reflecting upon experiences related to caring for infants with NAS.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this research is to better understand your experiences and role as a nurse taking care of infants with Neonatal Abstinence Syndrome. The anticipated number of participants who will be involved in this study is approximately 10-15, all who must be at least 18 years old to participate in this study.

WHAT DOES YOUR PARTICIPATION IN THIS STUDY INVOLVE?

This study involves you to have an initial phone contact and screening, you will be asked to meet with researcher, Cerys Eldred and talk about your own experiences as a nurse caring for infants with Neonatal Abstinence Syndrome. You will also be asked to fill out a demographic sheet. Interviews will last from 30-60 minutes.

For inclusion in this study nurses must:

- Be 18 years of age or older.
- Licensed as a Registered Nurse (RN)
- Employed at least part time status at their hospital
- Have utilized standard hospital practices and policies to assess and treat a newborn with NAS in the last 3 years.

Potential participants will be excluded if they:

- Are not able to speak, read, or write in English
- Have not directly provided infant care to at least one newborn diagnosed with NAS

For questions about compensation or eligibility, please contact the researcher (information provided at the end of the form).

WHAT ARE THE POSSIBLE RISKS OF PARTICIPATING IN THIS STUDY?

This study presents minimal risks for participants. Some risks may include the participant's perceived burden of time and possible emotional or stress responses related to recalling and reflecting upon experiences related to caring for infants with NAS.

WHAT ARE THE POSSIBLE BENEFITS OF PARTICIPATING IN THIS STUDY?

Although there are no direct benefits to participating in this study, it may be beneficial for the participants by giving them the opportunity to reflect on their experiences caring for patients with NAS. Through sharing their experiences of nursing practice in terms of this policy, they may help to give insight about how to improve this policy going forward. These findings will be useful for the researchers as well as healthcare workers that work in neonatal practice settings regarding improving care for their patient populations.

WILL YOU RECEIVE ANY COMPENSATION FOR PARTICIPATING IN THIS STUDY?

No, you will not receive any compensation for participating in this study.

DO YOU HAVE TO TAKE PART IN THIS STUDY?

Taking part in this study is completely voluntary. You may choose not to take part at all. If you agree to participate, you may refuse to answer any question. If you decide not to participate, you will not be penalized or lose any benefits for which you would otherwise get.

CAN YOU WITHDRAW FROM THIS STUDY?

If you agree to participate in this study and you then change your mind, you may stop participating at any time. Any data collected as part of your participation will remain part of the study records unless you would like that to be withdrawn as well. If you decide to stop participating at any time, you will not be penalized or lose any benefits for which you would otherwise qualify.

HOW WILL THE CONFIDENTIALITY OF YOUR RECORDS BE PROTECTED?

I plan to maintain the confidentiality of all data and records associated with your participation in this research.

There are, however, rare instances when I may be required to share personally identifiable information with the following:

- Officials at the University of New Hampshire,
- Regulatory and oversight government agencies.

Further, any communication via the internet poses minimal risk of a breach of confidentiality.

To help protect the confidentiality of your information,

Following each interview all the data, both recorded and written, will be transferred into encrypted computer files, and stored on UNH Box in a separate password protected file, and not stored on any personal computers or devices. All identifying information from the participants will be stored separately from their data files. All participants will be given a pseudonym and will be used in all transcribed data and data interpretations. In addition to participant pseudonyms, any other named individual within the interview will also be given a pseudonym to prevent identification. A participant log will be created that will match participant pseudonyms with their demographic data. This log will be stored separately from all other data files, in a separate password protected file on Box. Only Dr. O'Brien and Ms. Eldred will have access to this log. No names or identifying information will be stored within the data. Per Federal guidelines and UNH requirements, all data will be maintained and securely stored.

As stated above, the only people with access to identifiable information will be the researcher, Cerys Eldred, and her advisor, Alyssa O'Brien, including the log matching participant identities with pseudonyms.

If a participant mentions identifying information in the interview, that information will be removed, or modified, such as using a pseudonym, from the interview transcripts that will be used for data analysis.

Audio recordings will be transcribed in order to analyze data, and then transferred into encrypted computer files and stored on UNH Box in a separate password protected file, not stored on any personal computers or devices. All data will be maintained and securely stored. Once transcribed, audio recordings will be deleted. This researcher (Ms. Eldred) will be doing her own transcription, with the help of Dr. O'Brien, and no transcription service will be utilized.

Interview data will be deidentified in the transcription process including any removal of the hospital name, its geographical location, and any providers or organizations, or names of people. If needed, an alias will be used in the data. All demographic data will be reported in the aggregate, but interview data will be deidentified so that not possible correlation between data and the participant can be made, including hospital, unit name, or names of participants.

All data will be reported through an academic paper, a senior thesis, in which all identifying information relating to the participants will be kept confidential. In addition, a poster of study findings will be presented at research conferences and potentially a peer review manuscript will be submitted for publication. Any quotations used will not include any identifying information. Demographic information will be used to improve clarity during data analysis.

WHOM TO CONTACT IF YOU HAVE QUESTIONS ABOUT THIS STUDY

If you have any questions pertaining to the research you can contact Cerys Eldred at Cerys.Eldred@unh.edu or Alyssa O'Brien at Alyssa.Obrien@unh.edu to discuss them.

“If you have questions about your rights as a research subject you can contact Melissa McGee in UNH Research Integrity Services at 603-862-2005 or melissa.mcgee@unh.edu to discuss them.”

Thank you for your consideration.

Sincerely

Cerys Eldred
UNH Honors Nursing Student

APPENDIX D: Interview Questions

I am interested in understanding a nurse's role and perceptions regarding caring for infants with Neonatal Abstinence Syndrome.

Overarching Research Question:

This study seeks to better understand the nurse's perception of their role in using Eat, Sleep, Console, versus traditional Finnegan scoring, in the management of Neonatal Abstinence Syndrome.

Questions linked to Overall Research Question: To start, can you tell me a little bit about your role in managing care for patients diagnosed with Neonatal Abstinence Syndrome?

Do you have any notable stories about caring for an NAS infant you would like to share?

Specific Aim One: Aim 1: To better understand nurse's perceptions regarding their role in implementing Eat, Sleep, Console, and how this affects patient care in relation to past practices².

Question linked to Specific Aim One: How has using the Eat, Sleep, Console, protocol impacted the services you provide for your patients?

Potential follow-up questions to further explicate the nurse's experience if needed:

- i. Can you share a specific experience?
- ii. How did/does it make you feel?
- iii. What are the benefits of using this protocol for patients and families? For nurses?
- iv. What are the challenges?
- v. What potential does this have to impact hospital/infant care more broadly?
- vi. How does this protocol compare to past practices?

Specific Aim Two: To better understand nurse's perceptions regarding their role in managing care of infants with NAS.

Question linked to Specific Aim Two: What do you believe are the most pressing challenges related to caring for infants with NAS?

Potential follow-up questions to further explicate the nurse's experience if needed:

- How does it make you feel?
- Do you think anything differently could have been done?
- What cultural factors are important to consider in treating infants with NAS in Manchester?
- Can you tell me how your role was different than taking care of a baby with typical NAS scoring/care?

Closing Question:

Is there anything else about Neonatal Abstinence Syndrome or Eat, Sleep, Console that you would like to share?

² Amongst interviewees, there is a chance that some nurses more recent to practice will only have experience treating infants with NAS with ESC. If that is the case, their input can still add relevant anecdotes that support Aim 2's approach to understanding nurse's overall perceptions with NAS.

APPENDIX E: Researcher Developed Demographic Sheet

1. Age: _____
2. Maximum level of nursing education: _____
3. Years of nursing practice: _____
4. Any specialty nursing certifications? _____
5. Years of neonatal specialty nursing practice: _____
6. Do you work day or night shift? _____
7. How often do you work with NAS infants? (daily, weekly, monthly, rarely) _____
8. How many hours do you work per week? _____