# Descriptions of Maternal Mortality From Nurses Who Practice in Perinatal Settings

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**ABSTRACT**

**Objective:** To explore nurses' descriptions of maternal mortality when caring for women in the perinatal period in Indiana.

**Design:** A qualitative descriptive approach was used to produce nurses' descriptions of maternal mortality.

**Setting/Participants:** Convenience sample of 16 nurses recruited from the Indiana Section of the Association of Women's Health, Obstetric and Neonatal Nurses.

**Measurements:** Semistructured phone interviews were conducted, and participants were asked to explain their experiences related to maternal mortality. This information, which was summarized using content analysis, provided data related to nurses' descriptions of maternal mortality when caring for women in the perinatal period.

**Results:** Analysis revealed three main themes that explain nurses' descriptions of maternal mortality: *When It Comes to Maternal Mortality: Out of Sight Is Out of Mind*, *Nurses Express Detachment From Their Role in Preventing Maternal Mortality*, and *Experience With Maternal Mortality or a Near-Miss Event Is a Turning Point for Nurses.*

**Conclusion:** Nurses who have limited experience with maternal mortality and who approach the issue in a detached manner may miss opportunities to provide health education to women in the perinatal period. Nurses need education on substance use disorders in the perinatal period, guidance on how to support women in the postpartum period, and support for coping with death and dying in the perinatal period.

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## CLINICAL IMPLICATIONS

- Nurses may want to consider obtaining education on issues related to maternal mortality to keep prevention at the forefront of their attention and improve the safety culture of the workplace.
- Nurses working in maternity settings may want to consider becoming a member of their local Maternal Mortality Review Committee to gain an understanding of factors affecting their state.
- Nurses need to be equipped with tools to assess social support for women with substance use disorders in the perinatal period and refer them to community resources.

Maternal mortality is a serious public health crisis in the United States compared to other developed nations. Rates of maternal mortality have steadily increased in high-risk populations in the United States while declining elsewhere (Carroll, 2017). Approximately 700 women die yearly because of pregnancy or birth complications in the United States (Petersen et al., 2019). Physical causes of pregnancy-related deaths include cardiovascular conditions, preexisting medical conditions, infection, hemorrhage, and cardiomyopathy (Creanga et al., 2017). Additionally, maternal substance use has become a leading contributor to pregnancy-associated deaths, which occur during pregnancy or within 1 year of the end of pregnancy for any reason (Carroll, 2017; Goldman-Mellor & Margerison, 2019; Smid et al., 2019).

More recently, COVID-19 has become an increasing threat to maternal health and may be implicated in maternal death (Blitz et al., 2020). The Centers for Disease Control and Prevention (CDC) defines maternal mortality as a pregnancy-related death, which includes the death of a woman during pregnancy or within 1 year of the end of pregnancy from any cause related to pregnancy or aggravated by the pregnancy (CDC, 2020). The maternal mortality rate (MMR) among all populations increased from 7.2 in 1987 to 17.3 per 100,000 live births in the United States in 2017 (CDC, 2020). Urgent action is needed to reverse these trends.

Greater rates of maternal mortality are particularly concerning because maternal mortality serves as an indicator of overall population health (World Health Organization, 2022). In fact, the U.S. Department of Health and Human Services (n.d.) has identified maternal mortality as a leading health indicator in the United States, meaning that addressing maternal mortality may improve the health and well-being of all people.

## Racial Disparities

Black women are disproportionately affected by maternal mortality in the United States. Between 2014 and 2017, the MMR for Black women was 41.7 per 100,000 live births—more than triple the rate of 13.4 deaths per 100,000 live births for White women (CDC, 2020). Black women experience greater MMRs compared to White women, regardless of sociodemographic factors. Black women with doctoral level training have a similar MMR as White women with a high school education, suggesting the accumulative effect of structural racism where Black women are often invisible and experience discrimination in the health care system (Petersen et al., 2019; Taylor, 2020).

## Maternal Mortality in Indiana

Indiana is an area of particular concern because it is ranked the third-highest state for maternal mortality in the United States (Leins, 2019). In efforts to better understand and prevent maternal mortality, the Indiana Department of Health (IDOH; 2020) established a Maternal Mortality Review Committee (MMRC) in 2018. The MMRC reviewed 10 pregnancy-related deaths. The committee found no obvious trends among the listed causes of pregnancy-related deaths, including hemorrhage, preeclampsia, postpartum cardiomyopathy, cerebrovascular accident, pulmonary disease, gastrointestinal, cancer, intentional injury, and unintentional injury. Eight of the 10 deaths occurred in the postpartum period, while one occurred during pregnancy and another on the day of birth. The MMRC also reviewed 63 pregnancy-associated deaths that occurred in 2018. Fifty of those 63 maternal deaths occurred during the postpartum period, nine deaths occurred during pregnancy, and four deaths occurred on the day of birth (IDOH, 2020). The MMRC considered the majority (87%) of the deaths preventable (IDOH, 2020). Consistent with causes of maternal deaths occurring in other states, substance use was a contributing factor in Indiana. Accidental overdose was the leading cause of pregnancy-associated deaths and was a crucial factor in 36.5% of the maternal death cases in Indiana (IDOH, 2020). Similar to what is observed in national rates of maternal mortality, Black, non-Hispanic women had the greatest ratio of pregnancy-associated deaths at 103.1 per 100,000 births in Indiana (IDOH, 2020). Women who were 40 years of age or older experienced the greatest ratio of pregnancy-associated

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deaths and were 2.5 times more likely to die within a year of pregnancy or childbirth than women in their 20s (IDOH, 2020).

Community-level risk factors may increase the risk of death for women living in Indiana during and after pregnancy. Many communities in Indiana face gaps in comprehensive maternity care for pregnant women. Roughly a third of Indiana counties are located in what is referred to as a maternity care desert where there are limited obstetric services and providers (IDOH, 2020; March of Dimes, 2020). Given that substance use is a significant contributor to maternal deaths, community-level stigma toward substance use disorders (SUD) is also a significant risk factor. Stigma serves as a barrier for women with SUD to accessing adequate perinatal care (Stone, 2015), seeking treatment for SUD, and breastfeeding their newborns (Demirci et al., 2015; Substance Abuse and Mental Health Services Administration, 2018).

> Greater rates of maternal mortality are particularly concerning because maternal mortality serves as an indicator of overall population health

Nurses can serve as a buffer against maternal mortality risk as they advocate for women's health by providing support, ensuring women's safety, and offering education during the perinatal period (Lyndon et al., 2017). Nurses are often responsible for identifying and educating women about physical signs and symptoms that could be serious or life-threatening. However, nurses may be missing key opportunities to educate women on factors that could place them at risk for maternal mortality. Researchers have indicated that 67% of registered nurses spent less than 10 minutes educating women in the postpartum period about potential warning signs of maternal morbidity and mortality (Suplee et al., 2017). Additionally, nurses were not current on the rates and timing of maternal mortality in the postpartum period in the United States (Suplee et al., 2017).

As front-line workers in this public health crisis, nurses are well positioned to assist in preventing maternal deaths. To our knowledge, limited research exists on how nurses describe maternal mortality in Indiana, where the risk for maternal mortality is greater than most other states. The purpose of this study was to explore nurses' descriptions of maternal mortality when caring for women in the perinatal period.

## Methods

### Design

A qualitative descriptive approach was used to conduct this study. Qualitative description (QD) is used to produce low-interpretive findings that focus on the surface meaning of the participants' words to describe a phenomenon from their perspectives (Sandelowski, 2000). The approach provides a direct summary of narrative data in a format that can be used to inform policy and health care concerns. Sandelowski (2000) provides examples of QD questions: What are the concerns of people about an event? What are peoples' responses (e.g., thoughts, feelings, and attitudes) toward an event? What factors facilitate and hinder recovery from an event? Because QD provides a comprehensive summary rather than abstract conceptualizations of data, semistructured interviews with individuals or groups are a common means of acquiring participant narratives (Neergaard et al., 2009). Little is known about how nurses conceptualize maternal mortality; therefore, a qualitative descriptive approach was used to explore this phenomenon. QD was determined to be the most appropriate method because the goal of this study was to provide straightforward descriptions of maternal mortality from the perspective of nurses who provide perinatal care, which can readily inform practice.

### Participants

Participants came from a convenience sample of 16 nurses recruited from the Indiana Section of the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN). Nurses were included in the study if they (a) had at least 1 year of experience working in a maternity nursing area, including a prenatal office; labor and delivery unit; postpartum unit; or a labor, delivery, recovery, and postpartum unit (LDRP); (b) held a registered nurse license with various educational degrees; (c) were at least 18 years of age; (d) were able to speak and write in English; and (e) worked full time or part time in a health care setting in Indiana.

### Procedures

Institutional review board approval was received from the primary investigator's (PI) institution. An administrative letter of approval was received from AWHONN before beginning the study. A study announcement was posted by the East Central Indiana Chapter Coordinator on the Facebook page of the Indiana Section of AWHONN. The study announcement briefly described the study and invited interested nurses to complete a survey, accessible by clicking on an online Qualtrics link. The Qualtrics link contained an informed consent form for their review. Nurses who gave their consent to participate in the study by clicking "yes" were administered a set of screening questions to determine their eligibility. Eligible participants then completed a demographic questionnaire and were asked to consider filling in their e-mail address so the research team could reach out to them to schedule an in-depth interview.

The research team consisted of three doctoral-prepared nurse-researchers, a doctoral-prepared medical social worker, a doctoral-prepared community health specialist, a master's-prepared perinatal nurse-educator, a master's-prepared

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neonatal nurse practitioner, and a graduate student in psychology, all of whom were experienced in maternal–child health.

An interview guide was constructed consistent with QD methods that would elicit a direct narrative rather than an abstract conceptualization. The interview questions answered the who, what, and when of maternal mortality as described by Sandelowski (2000). The PI constructed a list of questions and consulted with three perinatal nurse specialists on the research team to determine which questions on the list were the most appropriate to meet the purpose of this study. Audio-recorded phone interviews were conducted using the interview guide (see Supplementary Figure S1) and lasted between 25 and 35 minutes. The interviews were conducted from March to May 2021. Participants were asked to describe their knowledge, perceptions, and experiences of maternal mortality. Participants received a $30 gift card after completing the interviews as compensation for their time. To ensure confidentiality, audio recordings were stored in a password-protected computer and were deleted at the completion of this study. All participant information was deidentified and labeled with a study identification number.

### Analysis

Interviews were completed with the first 16 nurses who expressed an interest in participating in the study and who met all of the study criteria. Data collection ended when data saturation was reached and no new information contributed to additional themes (Fusch & Ness, 2015). All the interviews were deidentified and transcribed by an institutional review board–approved professional transcriptionist. Data analysis was completed by the research team using a conventional content analysis approach, supported by NVivo (QSR International, 2020). Using a content analysis, codes were formed inductively from the data (Kyngas, 2020).

The analysis was conducted in several steps. First, the researchers read through all transcripts several times to become immersed in the data and obtain a thorough understanding of the nature of how nurses describe maternal mortality. Second, the first author (K.M.R.) highlighted and extracted each text unit (e.g., phrase, sentence, story) related to the nurses' descriptions of maternal mortality. In the third step, each text unit was assigned a code by the first author. The codes were verified by the fifth author (J.M.P.). The fourth step included placing codes into a case-by-topic table as described by Miles et al. (2013). Fifth, the research team met and categorized and summarized the codes in each column. Finally, a narrative description with the use of examples taken from the transcripts was constructed by the research team. The summaries were reviewed by each team member to ensure the findings were consistent with the data.

To ensure the trustworthiness of the findings, the research team became immersed in the data, discussed emerging analytic ideas, and routinely returned to the data to test emerging hypotheses. The narratives of the participants that described maternal mortality were reviewed by the research team, and consensus was reached. To ensure that the findings are dependable and can be repeated, the first author maintained an audit trail that chronicled all methodologic and analytic decisions made throughout the study. A detailed description of the sample was provided so that readers can determine the transferability of the findings to their own settings and context. Throughout the data conceptualization and analytic process, the research team engaged in discussions to consider the biases, identities, and personal and professional experiences each brought to the study.

**TABLE 1 DEMOGRAPHIC CHARACTERISTICS OF STUDY PARTICIPANTS ($N = 16$)**

| Demographics | Value |
|---|---|
| **Age, years** | |
| Range | 27–61 |
| *M* | 37.81 |
| **Sex, *n*** | |
| Female | 16 |
| Male | 0 |
| **Ethnicity/race, *n*** | |
| White/non-Hispanic | 15 |
| Black | 1 |
| **Employment status, *n*** | |
| Full time | 14 |
| Part time | 2 |
| **Maternal setting, *n*** | |
| Labor and delivery unit | 9 |
| Postpartum unit | 3 |
| Labor, delivery, recovery, and postpartum unit | 4 |

## Results

Participants worked in a health care setting located in Indiana and had worked between 3 and 40 years ($M = 11.81$ years) as a registered nurse and between 2 and 36 years ($M = 10.25$ years) in a maternity setting. Demographic characteristics are displayed in Table 1.

### Nurses' Descriptions of Maternal Mortality

Three main themes emerged from the data that revealed nurses' descriptions of maternal mortality: (a) *When It Comes*

**TABLE 2 MAIN THEMES AND THE ASSOCIATED SUBTHEMES**

| Theme | Subthemes |
|---|---|
| Main Theme 1: ***When It Comes to Maternal Mortality: Out of Sight Is Out of Mind*** | *Maternal mortality is a rare event*<br>*Nurses are not "serious" about maternal mortality*<br>*Nurses do not know what happens after hospital discharge* |
| Main Theme 2: ***Nurses Express Detachment From Their Role in Preventing Maternal Mortality*** | *Nurses do not want to damper a positive birth experience for women by talking about maternal mortality*<br>*Nurses do not spend enough time educating women about maternal mortality*<br>*Nurses sometimes miss opportunities to educate women about their risks associated with maternal mortality* |
| Main Theme 3: ***Experience With Maternal Mortality or a Near-Miss Event Is a Turning Point for Nurses*** | *Experiencing maternal mortality or a near-miss event changes nurses' approaches to care*<br>*Nurses experience a lasting emotional impact from maternal mortality or near-miss events* |

*to Maternal Mortality: Out of Sight Is Out of Mind*, (b) *Nurses Express Detachment From Their Role in Preventing Maternal Mortality*, and (c) *Experience With Maternal Mortality or a Near-Miss Event Is a Turning Point for Nurses*. The three main themes were structured by eight subthemes. The main themes and their associated subthemes are displayed in Table 2.

## *When It Comes to Maternal Mortality: Out of Sight Is Out of Mind*

The first theme that emerged from the data was *When It Comes to Maternal Mortality: Out of Sight Is Out of Mind.* Nearly all participants acknowledged that they had not directly experienced cases of maternal mortality in the maternity settings in which they worked. Three additional subthemes emerged: *Maternal mortality is a rare event*, *Nurses are not "serious" about maternal mortality*, and *Nurses do not know what happens after hospital discharge*.

### *Maternal mortality is a rare event.*

Few participants had cared for a woman who died in a maternity setting. One participant (P2) expressed the following:

> I tend to think of it (maternal mortality) as a rare occurrence that happens. I've been lucky enough not to actually be involved in a maternal death in a patient, and I don't know of moms who've died that I've interacted with. That doesn't mean it doesn't happen. I just don't know about it.

Several participants described how working in a maternity setting did not typically include care of a dying patient. One participant (P13) stated, "I think it goes to the wayside, people think like . . . it's never affected me, I've never seen it. It's something that is just like hearsay, or something that falls to the back of your mind and that's unfortunate." Participants acknowledged not thinking about maternal mortality when caring for their patients. A participant (P4) stated, "You're not really thinking in those terms [of maternal death]." Another participant (P10) acknowledged that even though she had consented to be interviewed about maternal mortality, she was "shocked to even start thinking about it [maternal mortality]."

### *Nurses are not "serious" about maternal mortality.*

Participants described maternal mortality as only a minor concern to some nurses. One participant (P11) stated, "Nobody thinks it's going happen [maternal death]." Because participants tended to think of childbearing as a normal process, they tended to not think about maternal mortality. Another participant (P1) warned that when nurses do not prioritize the possibility of maternal complications and death, early warning signs can be missed. She stated, "I think people just don't want to think about it. They don't want to think that their patient could die, so they may not pick up on things as quickly because they're convinced that something else (is the cause)."

### *Nurses do not know what happens after hospital discharge.*

In further explaining the theme of *When It Comes to Maternal Mortality: Out of Sight Is Out of Mind,* participants suggested that maternal mortality might result from problems after hospital discharge rather than during hospitalization. Because they had witnessed so few instances of maternal mortality during hospitalization and yet rates were high in Indiana, participants mused that the problems must develop after discharge. However, only five participants identified substance use as a risk factor for maternal mortality. One participant (P10) indicated, "I guess that's a little bit shocking for myself to not know exactly why we [Indiana residents] are the worst [rates of maternal mortality]?" Another participant (P7) questioned, "What happens to those mommas who get through labor and get through delivery and then go home and have significant morbidity leading to mortality postpartum?"

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Participants further inferred they could not feel responsible for what went on after discharge and believed women needed to take responsibility to pursue help when necessary. One participant (P2) stated, "Now, I've experienced patients that had a hemorrhage, but it was corrected. We intervened and it was corrected, and then they were stabilized, and they were fine the rest of their hospital stay. I'm not sure what happens to them after they go home."

Another participant (P11) declared, "We're just sending them home and hoping for the best." Participants acknowledged a general lack of knowledge of what happens to women after they are discharged home from the hospital.

> As front-line workers, nurses need to be equipped with a more in-depth understanding of the comprehensive factors that contribute to maternal mortality

## *Nurses Express Detachment From Their Role in Preventing Maternal Mortality*

The second theme, *Nurses Express Detachment From Their Role in Preventing Maternal Mortality*, was derived from three subthemes: (a) *Nurses do not want to damper a positive birth experience for women by talking about maternal mortality*, (b) *Nurses do not spend enough time educating women on maternal mortality*, and (c) *Nurses sometimes miss opportunities to educate women about their risks associated with maternal mortality*. Although the majority of participants stated education as one of their main roles in preventing maternal deaths, they were often detached from their role in educating women on key issues of maternal mortality.

***Nurses do not want to damper a positive birth experience for women by talking about maternal mortality.*** Childbirth is often a joyful and exciting time for many families; thus, participants were reluctant to discuss issues of maternal mortality in a direct manner. One participant (P4) noted,

> It just seems like such a negative to be thinking about mortality. Just, in general, their recuperation from their pregnancy and labor and delivery is to try to get them up and moving around and that sort of thing and making it a positive.

Several participants discussed the dilemma of educating women about maternal mortality versus trying to avoid provoking fear. One participant (P5) claimed, "You don't want to put in their head, 'I feel like you could die.' To say that is pretty extreme." Another participant (P7) affirmed,

> I wonder if it's the cultural norm that nurses just don't speak to death very well. I wonder if that's it. I wonder if it's because we're afraid we say the words, "You will die," that we'll lose our audience, or they will stop listening.

Participants appeared to express detachment from their role in educating women about their risks and sometimes avoided the topic altogether.

***Nurses do not spend enough time educating women about maternal mortality.*** Participants acknowledged not spending enough time educating women, stating they give small "blurbs" of information or "touch on" issues related to maternal mortality. When a participant (P6) was asked how much time she spent educating women on issues related to maternal mortality, she responded, "Not enough. We probably really only spend a few minutes at discharge on maternal mortality. We give away the paper with AWHONN warning signs. We give that away to patients, but I don't really feel like we do a great job of educating throughout their stay."

Another participant (P8) believed that she and other nurses did not spend enough time and stated, "I would say nurses or me in general probably briefly touch on it very rarely. I don't think people bring that up unless they have a high-risk case." In addition to being uncomfortable talking about death, participants also described challenges to educating women in the perinatal period. For example, one participant (P2) stated,

> Sometimes you have a ton of stuff you want to tell them and talk to them about, but in that two-day stay, they're exhausted. They're feeding their baby. They're thinking about their baby, they do have hormonal shifts. They may have social dynamics going on. You only get their attention for a short time, you know what I mean?

***Nurses sometimes miss opportunities to educate women about their risks associated with maternal mortality.*** Some participants believed that nurses lack knowledge about maternal mortality and therefore are unable to educate women adequately. A participant (P8) stated, "I think we in nursing need to be better at talking with our patients about mortality and understanding it ourselves and we need to ourselves understand it; that way we can teach our patients." Another participant (P3) indicated, ". . . we need to figure out those causes and how can we improve that for our patients and how can we educate them more. . . ."

Participants believed that women are not knowledgeable on issues related to maternal mortality and generally do not see themselves as at risk for maternal death. Although some participants felt that their role in preventing maternal mortality was through educating women, others believed that women should educate and advocate for themselves. One participant (P1) explained, "Again, they need to take their own health into their own hands sometimes. You need to do your education. . . ." Another participant (P10) stated, "I think that for the

women that are planning these pregnancies and planning they're wanting to have a baby, and all of that, or once they do become pregnant, I think we need to push for—They need to educate themselves. They need to ask questions like, what am I at risk for?"

### *Experience With Maternal Mortality or a Near-Miss Event Is a Turning Point for Nurses*

Experiences with maternal mortality or a near-miss event served as a turning point for participants and created heightened vigilance and a lasting emotional impact in their concerns and care for women. This theme is structured by two subthemes: (a) *Experiencing maternal mortality or a near-miss event changes nurses' approaches to providing care* and (b) *Nurses experience a lasting emotional impact from maternal mortality or near-miss events*.

***Experiencing maternal mortality or a near-miss event changes nurses' approaches to providing care.*** Although few participants had witnessed maternal mortality firsthand, nearly half of the participants had experienced near misses or knew stories of maternal mortality cases. Some deaths happened on their maternity units when they were not working or when they were not directly caring for the patient. Some stories that had happened years earlier and were shared with participants by colleagues were described as "eye opening" and "everyone was in a state of shock" after the maternal death. One participant (P7) described how a near-miss event changed her attitude toward maternal mortality by stating, "From then on, I think of how important it is to listen to women. What if she had died? We need to be able to listen to women." Other participants described how maternal mortality and near-miss events resulted in their ability "to see the bigger picture" and became more "aggressive" and vigilant in their nursing care. Another participant (P6) stated,

> It definitely affects my care, because I think if you've ever taken care of somebody who's died, if you've ever had a maternal death, it's pretty obviously glaring. I think it has changed the way I care for these women.

Direct or vicarious experiences with maternal mortality or near misses changed nurses' approaches to care, enhanced patient assessments, and heightened awareness of women's risk of death.

***Nurses experience a lasting emotional impact from maternal mortality or near-miss events.*** Direct or vicarious experiences with maternal mortality or near-miss events left a lasting emotional impact on nurses who cared for the women. Participants described these experiences as "horrible" and "scary." One participant (P10) described the lingering emotional effects from experiencing a maternal death:

> Thankfully, it has been a while, but it is definitely still felt, believe it, that the nurses that did care for the mothers that passed away, it definitely still impacts them. They can still remember them [women who died] by name, by, we were in this room. There are some [nurses] that won't even go into one specific room anymore. Yes, definitely difficult.

Another participant (P5) recalled feeling anxious when caring for a woman having complications. She stated,

> What did I do just this past week? I was caring for a patient in the same room that I'd had the mom that I had lost her in. She complained of having chest pain and shortness of breath. Then that fear just set in really quick and made me anxious.

Yet another participant (P6) described leaving a maternity nursing setting that was her "passion" as a result of distress she experienced related to a maternal death. She stated, "I actually left labor and delivery for about a year and a half and went into a leadership role in another unit. People don't talk about traumatic stress for nurses, but obviously it is a thing."

## Discussion

The themes and subthemes revealed in this study suggest that nurses viewed maternal mortality as an uncommon occurrence, especially during hospitalization—one that could be due to unknown circumstances in a woman's life after discharge. Nurses did not feel a strong ownership about what happened after hospital discharge, noting that women needed to educate themselves about their risks and were responsible for what happened when they were discharged home. Regarding educating women about mortality, nurses approached the topic indirectly and briefly, in part because giving birth was to be a happy time and nurses did not desire to instill fear or create worry.

These findings also indicate that nurses working in a maternity setting in Indiana do not fully understand the broad scope of maternal mortality. As front-line workers, nurses need to be equipped with a more in-depth understanding of the comprehensive factors that contribute to maternal mortality. Most participants discussed maternal mortality as a medical issue rather than considering the leading psychosocial factors that contribute to maternal mortality, such as substance use and mental health conditions. Nurses who understand how substance use contributes to maternal mortality can gain confidence in their ability to better educate women in the perinatal period. The perinatal period is a particularly vulnerable period for women with SUD. Women may be reluctant to seek help for substance use, placing them at risk for complications such as relapse or overdose. Previous research suggests that women may be fearful of punitive actions taken against them, such as incarceration or loss of child custody, and thus delay or avoid care altogether (Harvey

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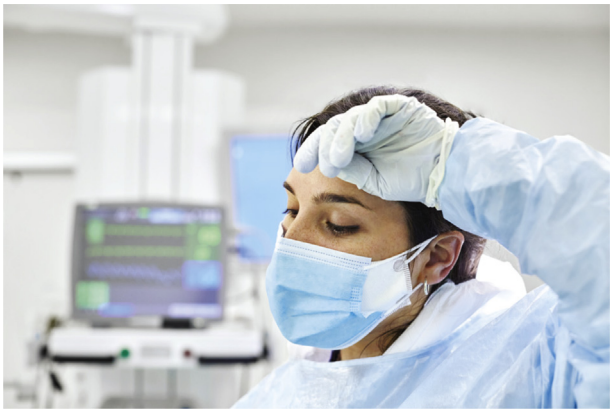



The findings of this study revealed that a near-miss or maternal death left a lasting emotional impact on the participants

et al., 2015; Stone, 2015). Additionally, women who use substances often experience stigma in health care settings, including that from nurses, and may hesitate to seek help after the birth of a child (Menard-Kocik & Caine, 2019; Shaw et al., 2016).

Participants' limited knowledge of substance use as a contributor to maternal mortality may be the result of a lack of attention to the issue in the United States over prior decades. MMRCs were founded largely in the early 20th century in response to poor medical practices and inadequate care provided by physicians to understand the causes of death during childbirth. After a decline in the MMR over several decades, many MMRCs were defunct by the late 1980s (Guttmacher Institute, 2021). As a result, the attention to maternal mortality in the United States declined. However, with a renewed focus on maternal mortality since 2016 because of disparate MMRs by race (Guttmacher Institute, 2021) and in conjunction with continued research and training, opportunities exist to increase awareness for nurses and other health care providers. Since 2018, more attention has been given in the state of Indiana through the development of the MMRC. The first maternal mortality report by the Indiana MMRC (IDOH, 2020) became available to the public in December 2020 just a few months before the interviews were conducted and may explain why many participants did not connect substance use as a leading factor of maternal mortality in their state.

The findings of this study revealed that a near-miss or maternal death left a lasting emotional impact on the participants. This echoes prior literature on death and grieving experiences of nurses. In an integrative review of literature, Meller et al. (2019) found that nurses indicated that anticipating the death of a patient produced anxiety. Unexpected deaths were identified as the hardest to deal with and the most challenging for nurses. Nurses were able to recall past death experiences that triggered the emotions they experienced when the death occurred decades prior (Gerow et al., 2010; Meller et al., 2019). Additionally, nurses exhibit emotional distancing to limit experiencing grief when an individual is dying or has died (Meller et al., 2019). Consequently, nurses who work in a maternity setting may be particularly uncomfortable due to the nature of maternal deaths, which are often unexpected and untimely. Dartey et al. (2019) discovered that midwives experienced inabilities to accept death, exhibited grief reactions, had difficulty forgetting the deceased, and lacked professional and social concentration after a maternal death.

A small number of participants described how their nursing care changed after experiencing a near-miss event or maternal death. The participants became more vigilant in their nursing care. However, participants who described nursing care changes did not identify a need for improving the education of women. The focus was on what nurses might do preventively, not on what education women might need to reduce risk factors or to self-monitor during pregnancy and after hospital discharge. Nurses who have and have not experienced maternal mortality may need detailed education and coaching on how to tailor and communicate information for women in the perinatal period.

## Limitations

A limitation of the study is that some of the data on participants' nursing experiences with maternal mortality and near-miss situations were obtained retrospectively. It is possible that information may have been affected by recall bias. Trustworthiness could have been enhanced with member checks. The sample size was small and limited to one geographic area. This did not allow for more in-depth interpretations, such as the influences of the participants' culture, gender, race, or ethnicity on nurses' descriptions of maternal mortality. We were also unable to determine how the maternity setting of the participants' employment influenced descriptions of maternal mortality. Information on the maternity setting was limited. Only a few of the participants worked in a postpartum setting where patient education is typically provided. Nurses who work in prenatal care offices may spend more time with women and can spend more time on education than in a labor and delivery setting. It is possible that nurses who practice in high-risk settings may have more experience with maternal mortality than those in low-risk settings. Additionally, nurses who are members of a professional nursing organization may be more knowledgeable about issues surrounding maternal mortality or other viewpoints versus others who are not members. Future studies should include larger and more diverse samples of nurses from a variety of maternity settings.

### *Implications for Practice*

The findings of this study have several clinical implications for nurses, particularly related to preventing maternal mortality among women with SUD who are at high risk. First, Bingham et al. (2018) suggested enhancing social and mental support as a strategy to prevent mortality in the postpartum period. Nurses can be key in assessing the social networks of women with SUD and implementing solutions to remove barriers to support (Bingham et al., 2018). Referring women to alternative models of prenatal care may be beneficial to women with SUD. Group prenatal care, where women receive care in small groups and participate in group discussions covering a variety of health topics, has been shown to foster social support. Women who participate in group prenatal care have experienced improved emotional well-being and developed supportive relationships with peers during pregnancy that continued into the postpartum period (Renbarger et al., 2021). Nurses can also be a significant source of social support for women with SUD in the perinatal period. Therefore, nurses should consider how they approach women with SUD at each point of contact and how stigma may influence a woman's willingness to seek further treatment before, during, and after birth. In prior studies, health care providers who developed rapport, demonstrated caring behaviors, included women in care, were understanding of women's substance use treatment efforts, reassured women, and delivered competent care were able to establish trusting relationships with women with SUD during perinatal care (Cleveland & Gill, 2013; Kramlich et al., 2018; Renbarger et al., 2022).

Second, nurses need to educate women with SUD about their increased risk of maternal mortality with a focus on the postpartum period. Nurses should also inform women on the importance of having naloxone available and where to obtain it in their community. Nurses could provide women with SUD with a list of available resources, including maternal substance use treatment centers.

Third, although infrequent, maternal mortality sometimes occurs in acute care settings, and nurses need to be prepared. Therefore, increasing nurses' knowledge in perinatal settings can assist in keeping maternal mortality prevention at the forefront of their attention and improve the safety culture of the workplace. Because the participants viewed maternal mortality as a rare event, continuous education, such as through perinatal simulations and emergency drills, can be key in helping nurses gain vigilance in their care of women in the perinatal period. It may be particularly important to include perinatal simulations and drills that address screening for and management of perinatal substance use and overdose in Indiana, given their identification as leading contributors to maternal mortality.

Fourth, nurses need more guidance on how to increase women's awareness of issues surrounding maternal mortality. Nurses who seek education on maternal mortality may be better prepared to deliver consistent messages and provide effective care to women in the perinatal period. AWHONN offers online resources for nurses on topics related to maternal mortality, including critical care obstetrics, improving maternal morbidity and mortality, perinatal safety standards, and intimate partner violence. The CDC (2020) also provides resources for maternal mortality, including the Hear Her campaign, which is designed to share potentially life-saving messages about urgent warning signs, information on enhancing reviews and surveillance of maternal mortality, and data from MMRCs (CDC, 2020). Nurses working in maternity settings may also consider becoming a member of their state MMRC to gain an understanding of factors affecting their local communities. Nurses can also participate in other state-based initiatives such as perinatal quality collaboratives, which are state or multistate networks of multidisciplinary teams who work to improve measurable population outcomes for maternal–child health. Perinatal quality collaboratives have demonstrated promising results for reducing maternal deaths and complications (Main, 2018).

Fifth, educational strategies that have demonstrated effectiveness in raising awareness on other maternal–child health issues could be used to increase community awareness. Social marketing campaigns using bus and bus stop ads, signage, brochures, handouts, and public service announcements on the radio have been shown to increase community awareness (Rienks & Oliva, 2013). Maternal peer groups, such as those established through group prenatal care led by nurses and other health care providers, may be key to providing women with factual information about maternal mortality. Group prenatal care has been shown to facilitate the exchange of perinatal health information and promote health outcomes (Byerley & Haas, 2017; Heberlein et al., 2016; Renbarger et al., 2021). As maternal mortality receives more publicity in communities, nurses may feel more comfortable speaking directly to women about prevention.

Finally, support and coping strategies are needed for nurses in dealing with severe maternal complications and death. Peer support from nurses who have cared for women who experienced maternal mortality may be beneficial. Our findings suggest that education for nursing practice could be enhanced by providing education on death and dying in the perinatal period to new nurses and nurses currently working in a perinatal setting. Nurses need information to help support families as well as coping strategies to care for themselves after a maternal death.

## Conclusion

We identified three themes and eight subthemes that explained nurses' descriptions of maternal mortality. The participants often had limited knowledge of the psychosocial factors related to maternal mortality and approached their role in preventing mortality in a detached manner. Nurses who had

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experience with maternal death were more vigilant in their care and serious about maternal mortality. Recommendations for practice include increasing nurses' knowledge of SUD as a significant risk factor for maternal mortality through perinatal simulations and drills, equipping nurses with local resources and support for women with SUD in the perinatal period, and supporting nurses during experiences with death and dying in the perinatal period.

## Supplementary Materials

Note: To access the supplementary material that accompanies this article, visit the online version of Nursing for Women's Health at http://nwhjournal.org and at 10.1016/j.nwh.2022.05.003.

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