
Nurses' Knowledge and Adherence To Sudden Infant Death Syndrome Prevention Guidelines

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Sudden infant death syndrome (SIDS) is defined as the unexplained death of an infant younger than one year (National Institute of Child Health and Human Development [NICHD], 2008). No specific cause of SIDS has been found, but a clear relationship has been established between both infant positioning and sleep environment and risk of SIDS (American Academy of Pediatrics [AAP], 2011; Stastny, Ichinose, Thayer, Olson, & Keens, 2004). In 1992, the AAP published prevention guidelines that indicated prone positioning was a significant risk factor. In 2005, the AAP Task Force on Infant Sleep Position and Sudden Infant Death Syndrome added side-lying and soft items in cribs as additional risk factors. With the publication of guidelines and the 1994 launch of the Safe to Sleep campaign (formerly the Back to Sleep campaign) to educate parents, caregivers, and health care providers, SIDS death rates decreased considerably, from 130.5 (per 1,000 live births) in 1990 to 39.9 in 2013 (NICHD, 2013). The AAP released further updated guidelines in 2011, emphasizing a safe sleep environment in addition to its prior recommendations. SIDS continues to be the leading cause of death in infants aged 1 to 12 months (Cen-

The American Academy of Pediatrics (AAP) defines standard guidelines for infant positioning and sleep environment to reduce the rate of sudden infant death syndrome (SIDS), but recent data on nurses' knowledge and adherence to these guidelines in hospital settings are limited. An observational, quantitative, and descriptive study was conducted on well-baby postpartum nurseries at two urban Washington, DC, hospitals. Sixty-six direct observations of infant position and crib environment were conducted, and a 17-question survey was administered to determine nurses' knowledge and practice regarding AAP SIDS prevention guidelines. Of observed sleeping conditions, 69.7% failed the guidelines for infant positioning, crib environment, or both, despite nurses' reporting knowledge of the AAP guidelines. Further research is needed to determine if the study's findings are consistent with hospitals elsewhere, and to better understand the disconnect between nurses' knowledge and behavior regarding SIDS prevention guidelines.

ters for Disease Control and Prevention [CDC], 2012) and is, therefore, still a significant concern.

Nurses in postpartum units are in a unique situation to model correct positioning and educate caregivers about SIDS prevention. The AAP (2011) advises that health care professionals, including nurses in the newborn nursery, endorse and educate parents about SIDS risk-reduction recommendations. Role modeling of infant care by nurses is an important factor in the care of infants once they are discharged home (Colson, Bergman, Shapiro, & Leventhal, 2001; Levy Raydo & Reu-Donlon, 2005; Moon & Omon, 2002). According to research, nurses do not demonstrate complete compliance with the AAP positioning guidelines; nor do they consistently model correct care related to SIDS prevention (Bullock, Mickey, Green, & Heine, 2004; Stastny et al., 2004). This study focused on assessing current SIDS prevention practices in two Washington, DC, urban hospitals by addressing the following research question: "Do nurses caring for infants in the well baby postpartum nursery know and practice the AAP SIDS prevention guidelines?"

Method

Design

The study was observational, quantitative, and descriptive. It was conducted at well-baby postpartum nurseries in two Washington, DC, hospitals. Staff nurses were not informed of the purpose of observations, but the nursing unit directors were aware. Hospital A delivers an average of 4,000 infants every year. Hospital B delivers approximately 1,080 infants annually. Neither hospital has a written policy regarding SIDS prevention practices.

A convenience sample of direct observations was used to collect data on infants' positioning and crib environment. Observations were conducted in the postpartum nursery where infants were monitored by registered nurses rather than their mother or caretaker. No requests were made for infants to be brought in for observation. Nurses' knowledge and attitudes were measured using an anonymous, self-administered questionnaire, which was distributed within the postpartum units after observations concluded.

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Figure 1.
Nursery Observation Checklist

Observation Checklist														
Date: _____														
Location: _____														
Observer: _____														
Total number of infants/cribs viewed: _____														
Baby	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Position														
Supine														
Prone														
Right lateral														
Left lateral														
Other														
Blankets in use for swaddling														
0														
1														
2														
Other														
Blankets on infant (not used for swaddling)														
0														
1														
2														
Other														
Excess materials in crib														
Blankets														
Stuffed animals														
Loose diapers														
Other														

Materials and Procedure

The study included observations of 66 infants and their crib environments; 33 observations were made over 10 visits to Hospital A and 33 over seven visits to Hospital B. Observations occurred at randomly selected times over a two-week period. Each observation included one observer, who observed the nursery for approximately 5 to 10 minutes and collected data on every infant that was in the nursery at that time. Observations occurred at randomly selected times over a two-week period. The observers noted position of infant (supine, right-lateral, left-lateral or prone) and items within the infant's

crib. Items noted were blankets used for swaddling, number of blankets on the infant, and excess materials in the crib. Empty cribs were not counted as an observation. A rehearsed response, "We are assessing the nursery environment," to why the observers were in the nursery was discussed and agreed upon prior to observation.

Infant positioning was measured using an original checklist based on parameters of the AAP guidelines. Observers discussed the criteria and parameters to qualify for the checklist prior to observations to reduce variability between observers (see Figure 1). Standardized criteria for observations were defined to eliminate bias and create consistency in data collection.

The instrument used to collect data on nurses' knowledge and attitudes is a content valid, self-administered questionnaire that was adapted from Bullock et al. (2004). Of the original 25 questions from Bullock et al. (2004), 17 were relevant to the scope of this study and were used for the questionnaire (see Figure 2).

A total of 61 questionnaires were distributed to the postpartum staff at Hospital A and 30 to Hospital B. At Hospital A, unit managers distributed the questionnaires to all postpartum registered nurses. At Hospital B, questionnaires were placed in all unit nurses' mailboxes. The surveys were distributed following the observations to minimize change in nursing prac-

Figure 2.
Nursing Staff Questionnaire

Infant Sleep Position Questionnaire

Instructions: Please take a few minutes to complete this questionnaire as it pertains to your activities working with newborns in your institution.

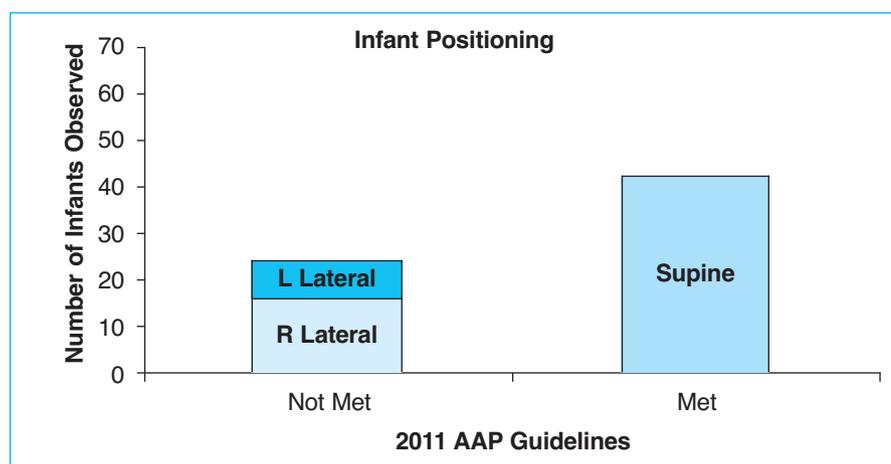
- | | | |
|---|--|---|
| <p>1. How many years have you worked in all or either of the following area/s combine? (Please check ALL that apply)</p> <p><input type="checkbox"/> L&D</p> <p><input type="checkbox"/> Newborn</p> <p><input type="checkbox"/> Postpartum</p> <p><input type="checkbox"/> Mother/Baby</p> <p><input type="checkbox"/> NICU</p> <p>2. Are you currently licensed as a (an):</p> <p><input type="checkbox"/> LPN</p> <p><input type="checkbox"/> RN</p> <p><input type="checkbox"/> BSN-RN</p> <p><input type="checkbox"/> MSN</p> <p><input type="checkbox"/> Other</p> <p>3. In your current practice, during the first 24 hours after delivery, what percentage of the time do you place a healthy newborn in the following positions?</p> <p>_____ Supine (back)</p> <p>_____ Prone (tummy)</p> <p>_____ Lateral (side)</p> <p>4. In your current practice, after the first 24 hours following delivery, what percentage of the time do you place a healthy newborn in the following positions?</p> <p>_____ Supine (back)</p> <p>_____ Prone (tummy)</p> <p>_____ Lateral (side)</p> <p>5. Have you ever encountered a healthy newborn in distress because it was placed in any of the following positions? (Respond to each one)</p> <p>Supine (back) ___ Yes ___ No</p> <p>Prone (tummy) ___ Yes ___ No</p> <p>Lateral (side) ___ Yes ___ No</p> | <p>6. In your current practice, what sleep position(s) do you encourage parents to use while they are in the hospital? (Check ALL that apply)</p> <p>_____ Supine (back)</p> <p>_____ Prone (tummy)</p> <p>_____ Lateral (side)</p> <p>7. In your current practice, what sleep position(s) do you encourage parents to use after they go home? (Check ALL that apply)</p> <p>_____ Supine (back)</p> <p>_____ Prone (tummy)</p> <p>_____ Lateral (side)</p> <p>8. In your opinion, are infant sleep positions associated with sudden infant death syndrome (SIDS)?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Unsure</p> <p>9. Are you currently aware of the American Academy of Pediatrics (AAP) recommendations regarding sleep positions for healthy infants?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>10. In reference to question #9, if yes, what was the source of this information? (Check ALL that apply)</p> <p><input type="checkbox"/> Nursing school</p> <p><input type="checkbox"/> Hospital in-service</p> <p><input type="checkbox"/> Nursing journal</p> <p><input type="checkbox"/> Back to sleep nurse training Program</p> <p><input type="checkbox"/> Physician</p> <p><input type="checkbox"/> Continuing education</p> <p><input type="checkbox"/> Other</p> <p>11. What is the preferred sleep position in general for a normal healthy newborn according to AAP recommendations? (Check ALL that apply)</p> <p>_____ Supine (back)</p> <p>_____ Prone (tummy)</p> <p>_____ Lateral (side)</p> | <p>12. Rank the following choices regarding what factors have the most influence on how you position a healthy infant for sleep in the hospital. (Rank from 1=the most influential, to 9=the least influential).</p> <p>_____ Policy</p> <p>_____ Personal preference</p> <p>_____ Supervisor</p> <p>_____ Parent's choice</p> <p>_____ Clinical experience</p> <p>_____ Co-workers</p> <p>_____ Physician order</p> <p>_____ Research</p> <p>_____ Personal experience with SIDS</p> <p>13. In your clinical experience, have you found that placing a healthy infant on its back for sleeping will: (Check ALL that apply)</p> <p><input type="checkbox"/> Increase risk of aspiration</p> <p><input type="checkbox"/> Decrease comfort of infant</p> <p><input type="checkbox"/> Cause infant not to sleep well</p> <p><input type="checkbox"/> Decrease the risk of SIDS</p> <p><input type="checkbox"/> Other</p> <p>14. Does your institution have a written policy regarding sleep position for healthy infants on the unit?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Don't know</p> <p>15. If yes, check the position(s) in which the policy permits a normal healthy newborn to be placed.</p> <p>_____ Supine (back)</p> <p>_____ Prone (tummy)</p> <p>_____ Lateral (side)</p> <p>16. Does your patient discharge information include sleep position and AAP recommendations related to SIDS risk reduction?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>17. Do you document what was taught regarding sleep positions?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> |
|---|--|---|

Thank you for participating in our research. The information you have provided can contribute to improvements in the care provided to newborns.

Table 1.
Audit Findings: Overall and by Hospital
with a Comparison of Differences

	Overall (N = 66)	Hospital A (N = 33)	Hospital B (N = 33)
Completely adherent (correct position and no objects)			
Yes	30.3%	57.6%	3.0%
No	69.7%	42.4%	97.0%
Position			
Supine	65.2%	84.8%	42.4%
Right lateral	24.2%	12.1%	36.4%
Left lateral	10.6%	3.0%	21.2%
Prone	0.0%	0.0%	0.0%
Crib objects			
None	40.9%	75.8%	6.1%
1 object	10.6%	21.2%	0.0%
2 objects	33.3%	3.0%	63.6%
3 or more objects	15.2%	0.0%	30.3%
Type of soft objects			
Blankets	84.4%	13.3%	71.1%
Towels	8.9%	0.0%	8.9%
Gloves	2.2%	2.2%	0.0%
Onsies	2.2%	2.2%	0.0%
Loose diapers	2.2%	0.0%	2.2%

Figure 3.
Observation Results of Infant Positioning



tice. Hospital A returned 10 completed surveys and Hospital B returned 9.

Simple descriptive statistics were used for the statistical analysis of data to quantitatively describe the main features of the sample. This form of analysis was chosen based on the descriptive nature of the study and the aim to summarize the sample. In conducting the data analysis, Micro-

soft Excel® was used to organize the data and calculate percentages.

Results

Nursery Observations

Regarding sleep position, 34.8% of total observations did not meet the AAP position guidelines (see Table 1).

At Hospital A, 15.1% did not meet the guidelines compared to 57.6% at Hospital B, as shown in Table 1 and Figure 3 demonstrating position by hospital.

Of the observations for sleep environment, 59.1% did not meet AAP recommendations, as shown in Table 1. At Hospital A, 24.2% of cribs observed did not meet the guidelines regarding soft items. At Hospital B, 93.9% did not meet the crib environment guidelines (see Table 1 & Figures 5 and 6). The following soft items were observed in cribs: blankets, towels, gloves, onsies, and loose diapers. The majority of excess soft items found in cribs at Hospital B were rolled up blankets found on either side of the infant, particularly if infants were positioned on their side (see Table 1). Overall, 69.7% of observations did not meet the AAP guidelines for both positioning and sleep environment (see Table 1).

Questionnaire

Knowledge about SIDS. All 19 nurses who responded to the survey stated they were aware of the AAP guidelines regarding infant positioning, with 95% correctly identifying supine as the recommended position. The comprehensive results of selected questions can be found in Table 2.

Nurses' reported practice. Of the responding nurses, 53% stated that they placed infants in the supine position 100% of the time (see Table 2). None reported using the prone position. At Hospital A, 80% of nurses stated that they exclusively use the supine position. At Hospital B, 22% reported exclusive supine positioning, as shown in Table 2.

In regard to parent education, 89% of responding nurses stated they encouraged parents to use the supine position at home (see Table 2), and 79% indicated their discharge teaching includes sleep position and AAP recommendations. At Hospital A, 90% of nurses encouraged parents to use supine positioning at home, as compared to 78% of nurses at Hospital B (where 22% recommended both supine and lateral positioning). Sixty percent of nurses at Hospital A stated they include sleep position and AAP recommendations in their discharge teaching. At Hospital B, 100% of nurses did this (see Table 2).

Attitudes about SIDS. Overall, 74% of responding nurses stated they believed infant positioning was associ-

Figure 4.
Infant Positioning by Hospital

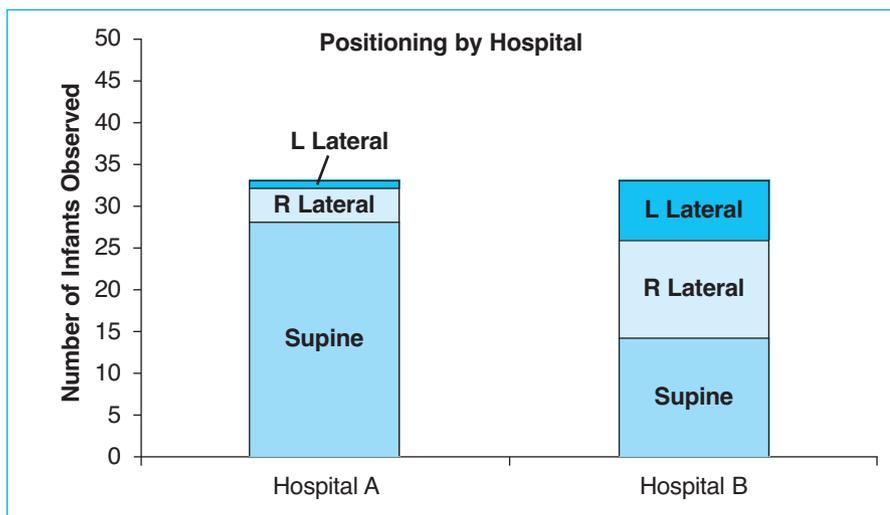


Figure 5.
Observed Soft Items in Cribs

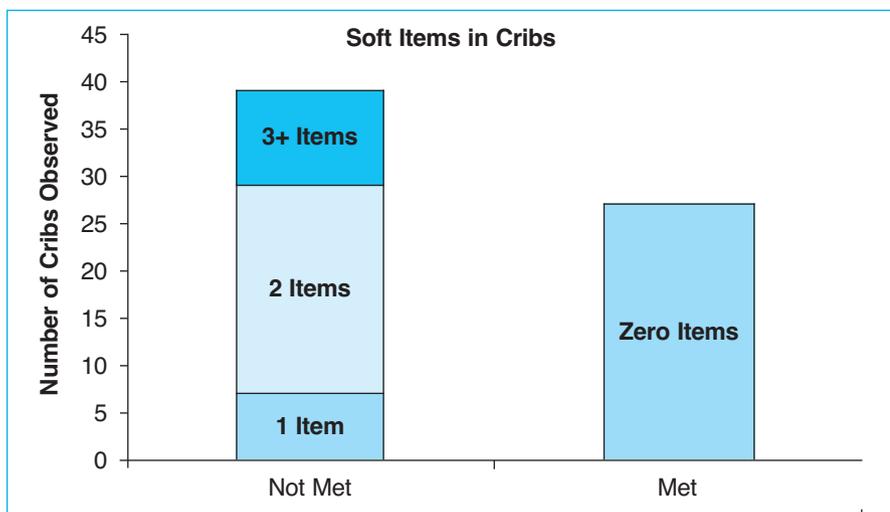
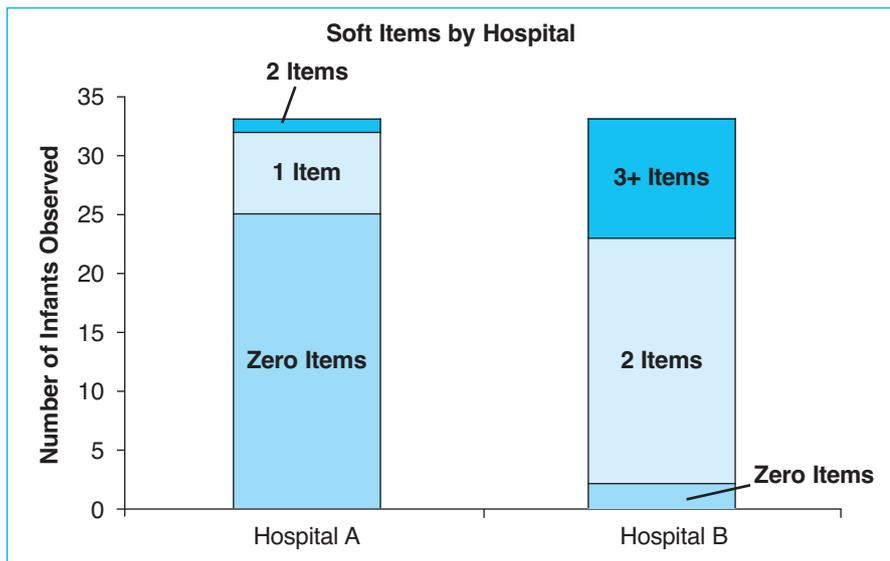


Figure 6.
Soft Items in Cribs by Hospital



ated with SIDS; 26% indicated no or that they were unsure (see Table 2). Nurses were asked to rank a list of nine factors that influence their practice regarding infant sleep positioning. The influential factors included policy, research, clinical experience, personal preference, supervisor, parent's choice, co-workers, physician order, and personal experience with SIDS. Overall, the top three most influential factors chosen by the respondents were policy, research, and clinical experience, as shown in Table 2. Surveys from Hospital B showed that 56% of nurses ranked personal preference as a top-three factor. When asked about reasons for placing an infant in a non-supine position, 25% of respondents stated that in their clinical experience, the supine position will increase risk of aspiration, cause the infant not to sleep well, and decrease comfort of the infant.

Discussion

The nursery observations and survey results suggest that despite extensive research and published literature on the topic, AAP guidelines regarding SIDS prevention are not consistently followed, and the attitudes toward the guidelines are uncertain. Despite reported awareness of the guidelines and correct identification of the supine position as the AAP recommendation, only 30.3% of infants observed fully met the AAP guidelines, including sleep position and crib environment. These findings were consistent with other studies (Bullock et al., 2004; Hein & Pettit, 2001) that found nurses were aware of the AAP guidelines but were reluctant to fully embrace the use of the supine sleeping position.

When asked about factors that guide practice, surveyed nurses rated policy and research as their top two; however, neither hospital has a written policy on SIDS prevention practice, and the observations do not reflect current guidelines. Despite ranking research as a top factor that guides practice, 26% of nurses stated they either do not believe there is an association between sleep position and SIDS, or that they are unsure. When asked about reasons to place an infant in a position other than supine, 25% of nurses indicated they thought using the supine position would increase the risk of aspiration.

Table 2.
Survey Results, Selected Questions

Content Area	Response	Overall (N = 19)	Hospital A (N = 10)	Hospital B (N = 9)
Positioning Knowledge				
• Are you aware of the recommendations of the AAP regarding sleep positions?	Yes	100%	100%	100%
	No	0%	0%	0%
• What is the preferred sleep position for a newborn according to AAP recommendations?	Supine	95%	100%	89%
	Lateral	0%	0%	0%
	Prone	0%	0%	0%
	Supine and lateral	5%	0%	11%
• In your opinion, are infant sleep positions associated with SIDS?	Yes	74%	60%	89%
	No	21%	40%	0%
	Unsure	5%	0%	11%
Clinical Practice				
• Years of experience in Women and Infant Services	0 to 5 years	31%	10%	44%
	6 to 10 years	31%	40%	11%
	More than 10	38%	40%	22%
• Does your hospital have a policy regarding SIDS prevention?	Yes	42%	70%	11%
	No	11%	0%	22%
	Don't know	47%	30%	67%
• Top 3 factors that influence how you position a healthy infant for sleep in the hospital.	Policy	68%	100%	33%
	Research	63%	70%	56%
	Clinical experience	42%	40%	44%
• Percent of time you place infants in each position, after the first 24 hours of life.	100% supine	53%	80%	22%
	50% to 99% supine, 1% to 50% lateral	36%	20%	55%
	Less than 50% supine, More than 50% lateral	11%	0%	22%
Patient Teaching				
• Does your discharge teaching include sleep position and AAP recommendations?	Yes	79%	60%	100%
	No	21%	40%	0%
• What position(s) do you encourage parents to use when they go home?	Supine	89%	90%	78%
	Lateral	0%	0%	0%
	Prone	0%	0%	0%
	Supine and Lateral	11%	0%	22%

Research shows that the supine position does not increase risk of aspiration (Hunt, Fleming & Golding, 1997; Malloy, 2002), in addition to the undisputed evidence that the supine position decreases the risk of SIDS (AAP, 2011, Hunt, 1997; L'Hoir, Engelberts, & van Well, 1998; Scragg & Mitchell, 1998).

Although comparing hospitals was not the purpose of the study,

there were some interesting discrepancies found between knowledge and practice worth noting. The observation results from Hospital A correlated with their reported knowledge of the guidelines and reported use of the supine position, yet 40% believed there was no association between sleep position and SIDS, and only 60% of nurses include proper positioning information in discharge teaching.

At Hospital B, the nurses reported knowledge of AAP guidelines, including correct identification of the supine position and believing that sleep position was associated with SIDS (89%). This reported knowledge was not reflected in their self-reported practice or the observations because only 22% of nurses reported exclusive use of the supine position, 57.6% of observed infants did not meet posi-

Changes within the hospital setting are necessary to create a culture of evidence-based practice among nurses.

tion guidelines, and 93.9% of observed infants did not meet sleep environment guidelines. Of note, over half of the nurses at Hospital B chose personal preference as a top factor that guides their practice.

Regarding discharge teaching, 21% of nurses reported that they do not include information regarding SIDS prevention in their teaching. Discharge teaching is vital for parents because infants are at highest risk of SIDS between the ages of 2 and 4 months when they are at home with caregivers (NICHD, 2008). According to AAP recommendations, health care professionals and staff in newborn nurseries should endorse the SIDS risk-reduction recommendations from birth (AAP, 2011).

Results from both institutions show a disconnect between knowledge and practice. While Hospital A nurses generally model correct practice, their attitudes toward the recommendations show uncertainty. Hospital B nurses believe that sleep position is related to SIDS, yet their practice does not reflect this. Neither hospital's nurses fully utilize the two practices together.

Newborn nursery staff should educate and model AAP recommendations from birth and well before discharge home (AAP, 2011). Research shows that parents are most likely to practice SIDS prevention behavior when they are taught correct behavior in conjunction with seeing it modeled by nurses (Colson et al., 2001). Because neither Hospital A nor B combine teaching and modeling SIDS reduction practices, the opportunity to have the biggest influence on caregiver behavior is missed. The disconnect found between nurses' knowledge and practice suggests that a greater effort must be made to ensure proper understanding of and adherence to the AAP guidelines.

Limitations of the study include the Hawthorne effect (i.e., wherein participants' behavior may be altered due to the awareness of being observed) small sample size, and low

rate of questionnaire return. The Hawthorne effect could influence the results of the study in that observations may not represent typical nurse behavior. Both the small sample size and low return rate limit the ability to apply these results to all nurses working in well-baby postpartum units, and thus, make a general conclusion about nurse behavior. To do so, larger studies must be conducted. In addition, due to the anonymity of the questionnaire, the connection between nurses staffed during observations and questionnaire respondents is unknown, and thus, a direct connection cannot be made.

Conclusion

Further research is needed to determine if this study's findings are consistent with hospitals elsewhere. In addition, research is needed to uncover the cause of the disconnect between nurses' knowledge of SIDS prevention guidelines and their practice. Until this is better understood, it will prove difficult to produce a change in behavior.

Changes within the hospital setting are necessary to create a culture of evidence-based practice among nurses. This may include the implementation of written policies in post partum units regarding SIDS prevention practices. Guidelines for creating hospital policy are available, including a 2005 publication by Thompson, which lists step-by-step instructions for implementing a policy within the hospital setting. ■

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