Changing Nursery Practice Gets Inner-city Infants in the Supine Position for Sleep

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Objective: To determine whether an educational intervention to change nursery practice would result in more inner-city parents placing their infants in the supine position for sleep.

Design: We conducted semistructured interviews at the 2-week health supervision visit with 1 convenience sample of parents before and a different convenience sample of parents after an educational intervention was conducted to change nursery practice in positioning infants for sleep.

Setting: University hospital clinic located in an urban setting.

Participants: Parents of 2-week-old infants at their first health supervision visit in an urban, university-affiliated clinic. All parents who were approached agreed to participate.

Intervention: Nurses were instructed to place infants exclusively in the supine position in the nursery and to instruct parents to exclusively place infants in the supine sleeping position at home.

Main Outcome Measure: The usual sleeping position in which parents reported placing their 2-week-old infants.

Results: Before the intervention, 41% of parents reported that a clinician had told them to place their infants to sleep in the supine position compared with 81% after the intervention (odds ratio [OR], 6.1; 95% confidence interval [CI], 3.1-12.3). Before the intervention, 37% of parents reported that the nursery staff placed their infants to sleep in the supine position, compared with 88% after the intervention (OR, 12.5; 95% CI, 5.7-27.7). Before the intervention, 42% of parents reported that they usually placed their infants to sleep in the supine position at home compared with 75% after the intervention (OR, 4.2; 95% CI, 2.1-7.9).

Conclusion: After an educational intervention to change practice in a well-newborn nursery, many more parents reported placing their infants in the supine position for sleep, which suggests that such an intervention may have an impact on the position in which parents place their children to sleep.


IN THE UNITED STATES, sudden infant death syndrome (SIDS) is the leading cause of death among infants between the ages of 1 and 12 months. Although the etiology of SIDS is unclear, infants who sleep in the prone or side position are at increased risk. The incidence of SIDS has dropped substantially in countries in which the usual sleeping position has changed from prone to supine. The supine position has been shown to be the safest position in which to have infants sleep. The American Academy of Pediatrics (AAP) now recommends the supine position for sleep for all healthy infants because it has the lowest risk.

Since the AAP began advocating that parents place their infants to sleep in the supine position, the incidence of SIDS has decreased by nearly 40% in the United States. However, this effect has not been observed in all segments of the population. African American infants continue to have a higher incidence of SIDS than do white infants. Several studies have shown that infants born to African American families and families in an inner-city setting are more likely to be placed in the prone position to sleep.

In response, organizations such as the AAP have designed public health campaigns to educate families about the importance of the supine sleeping position for infants. Nursery practice was targeted in the initial campaigns as one way to disseminate information to most families about the safest sleeping position for infants. However, a recent study showed that nursery practice has not changed in many areas and that many infants are not placed in the supine sleeping position in well-newborn...
PARTICIPANTS AND METHODS

INTERVIEWS

We conducted semistructured interviews at the infants' 2-week health supervision visit with 2 convenience samples of parents. The first sample of parents was interviewed prior to the implementation of the educational intervention. The second sample was interviewed after the educational intervention. All of the infants were cared for in the well-newborn nursery at Yale-New Haven Hospital (New Haven, Conn) and were brought for regular pediatric care to the Pediatric Primary Care Center of the Yale-New Haven Hospital. The Pediatric Primary Care Center is located in the inner city and serves predominantly Medicaid-eligible families. Approximately 90% of the patients are African American, 25% are Hispanic, 10% are white, and the rest are from a variety of ethnic groups. Parents were approached for the interview based exclusively on the availability of the research assistant. No parents refused to participate.

Both groups were interviewed using the same format. The interview consisted of questions about sociodemographics, risk factors for SIDS, as well as knowledge, attitudes, and behavior related to the sleep position of infants. Specific questions were asked about the advice parents received about infant sleeping position during the postpartum stay and about the sleep position in which their infants were placed by nursery staff.

INTERVENTION

The educational intervention consisted of mandatory training of all nursing staff responsible for the care of newborns in the well-newborn nursery. Seventy-eight percent of all nursery staff participated. The intervention was led by a physician and a clinical nurse specialist and took approximately 30 minutes. For each class, an update about SIDS was provided, the current recommendations of the AAP for positioning of infants for sleep were reviewed, and unfounded concerns about choking in the supine position were discussed. The importance of giving the appropriate advice about the sleeping position of infants and of modeling the advice for families by always placing the infants in the supine position in the nursery was emphasized.

To assess the efficacy of the educational intervention, covert observations were made of the positions of infants sleeping in the nursery during all 3 shifts. The nursery staff was told that observations were being made of new ankle bracelets that were being tested at the time.

STATISTICAL METHODS

The magnitude of the differences between the groups of parents interviewed before and after the intervention was estimated by odds ratios and associated 95% confidence intervals. Odds ratios for which the 95% confidence intervals did not include 1.0 were considered statistically significant. Logistic regression was used to adjust for differences in ethnicity and parity between the 2 groups. This study was approved by the institutional review board of Yale University School of Medicine (New Haven).

RESULTS

EFFICACY OF THE INTERVENTION

One month prior to the intervention, the sleeping positions of 100 infants in the well-newborn nursery during the postpartum stay were observed. Three months after the intervention, the sleeping positions of another 100 infants in the nursery were again assessed. Before the intervention, 20% of the infants were placed in the supine position, 79% were placed on their sides, and 1% were placed in the prone position. Three months after the intervention, 99% of the infants were placed in the supine position.

PARENT INTERVIEWS

Before the intervention, a group of 100 parents was interviewed at their infants' 2-week health supervision visit, between December 1999 and March 2000. A different group of 100 parents was interviewed after the intervention was completed, between July 2000 and January 2001. Sociodemographic characteristics of the 2 groups are presented in Table 1. The group of parents before the intervention differed slightly from the group after the intervention in that the first group had fewer Hispanic parents and fewer parents with more than 1 child.

Table 2 presents the reports of the 2 groups before and after the intervention. The magnitude and the statistical significance of the association between sleep position and study group (before vs after the intervention) were virtually unchanged after adjusting for ethnicity and parity using logistic regression.

COMMENT

This study was designed to assess whether an educational intervention in a well-newborn nursery would increase the proportion of inner-city parents who reported that they placed their infants in the supine position.
for sleep. The intervention was successful; almost twice the number of parents reported placing their infants to sleep in the supine position after the intervention and one third fewer parents reported sometimes placing their infants to sleep in the prone position.

Prior to the intervention, fewer than half of parents reported that they usually placed their infants in the supine position for sleep. In addition, we found that many parents put their infants to sleep in the prone position at least some of the time. These findings are similar to prior studies from 1996 and 1997.17,18 This is likely related to parents’ reports that most had not received appropriate education from nursery staff about sleeping position during the postpartum stay. The initial public health campaigns aimed at getting infants “back-to-sleep” specifically targeted well-newborn nurseries; yet, prior to our intervention, only 41% of the parents in our study reported having received advice from a clinician to have their infants sleep exclusively in the supine position. In addition, parents reported that members of the nursery staff did not always model the appropriate sleeping position for infants by consistently placing them in the supine position in the nursery.

Although our findings are from a single urban center in the northeastern United States, we do not believe that they are unique to this medical center because they are consistent with findings from other studies. Investigators from Iowa reported similar findings; newborn nursery staff in 94 hospitals most often placed infants on their sides because of unfounded concerns about aspiration if infants were placed in the supine position.12 Investigators in Washington, DC, and in Hartford, Conn, have also found that nursery staff do not uniformly recommend the supine sleeping position for infants.13,14

The educational intervention in our study seems to have been effective in changing nursery staff behavior and subsequent parent behavior. The reason for the apparent efficacy of the intervention in changing parent behavior may be related to the impact that education can have during the postpartum period. Our data are supported by other studies that have shown that parents make decisions about the sleeping position they will choose for their infants based on what they see the nursery staff do in the hospital and what their clinicians tell them to do.13-15

This study has some potential limitations. Although there may be some reporting bias, parents reports about their infant’s sleeping position in the nursery were consistent with our covert observations, which were made in the nursery before and after the intervention.

This study did not include a control group that was not exposed to the intervention. It is possible that other factors besides the intervention could have caused the change in infant sleeping position. However, a large change occurred during a relatively short time and we know of no other events that are likely to have caused this change. We did not include a control group for practical and ethical reasons. For practical reasons, we were logistically unable to have separate groups because all of our postpartum staff rotate to each of the maternity floors. For ethical reasons, we felt that we should provide education for all parents to place their infants in the supine sleeping position, knowing the association between SIDS and sleeping in the side or prone positions.

Bias may have been introduced because the interviewers were not blinded to the group status. To minimize bias, the interview tool was straightforward and standardized. We instructed interviewers not to deviate from the interview tool. Each interviewer was observed using the interview tool prior to beginning the study.

Finally, the parents were not selected randomly but rather based on the availability of the interviewer. There was no fixed pattern for the interviews, which occurred at various times of the day throughout the week. We have no specific reason to believe that the selection of the parents for interview in this manner had an effect on the results of the study. Our results regarding the proportion

### Table 1. Sociodemographic Characteristics of the 2 Samples*

<table>
<thead>
<tr>
<th>Before Intervention (n = 100)</th>
<th>After Intervention (n = 100)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent’s ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>54</td>
<td>48</td>
</tr>
<tr>
<td>Hispanic</td>
<td>23</td>
<td>37</td>
</tr>
<tr>
<td>White</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Respondent’s relationship to child</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>98</td>
<td>98</td>
</tr>
<tr>
<td>Father</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Respondent’s age, y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-18</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>&gt;18</td>
<td>86</td>
<td>82</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>No. of older children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>53</td>
<td>39</td>
</tr>
<tr>
<td>Respondent’s education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;High school</td>
<td>33</td>
<td>30</td>
</tr>
<tr>
<td>WIC benefits</td>
<td>93</td>
<td>95</td>
</tr>
</tbody>
</table>

*Data are given as percentage unless otherwise indicated. WIC indicates Women, Infants, and Children.

### Table 2. Parents’ Reports at the 2-Week Health Supervision Visits: Before and After the Intervention

<table>
<thead>
<tr>
<th>Before, No. (%)</th>
<th>After, No. (%)</th>
<th>OR (95% CI)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parents learned how to place infants to sleep during the postpartum stay</td>
<td>56 (56)</td>
<td>77 (77)</td>
</tr>
<tr>
<td>Clinicians gave advice to parents to exclusively place infants in supine position to sleep</td>
<td>41 (41)</td>
<td>81 (81)</td>
</tr>
<tr>
<td>Nursery staff exclusively placed infants in the supine position to sleep</td>
<td>37 (37)</td>
<td>88 (88)</td>
</tr>
<tr>
<td>Parents usually placed infants to sleep in the supine position at home</td>
<td>42 (42)</td>
<td>75 (75)</td>
</tr>
<tr>
<td>Parents sometimes placed infants to sleep in the prone position at home</td>
<td>28 (26)</td>
<td>8 (8)</td>
</tr>
</tbody>
</table>

*OR indicates odds ratio; CI, confidence interval.
It is known that sleeping in the prone or side position increases the risk of SIDS. It is also known that some parents (particularly African American and inner-city parents), clinicians, and nursery staff do not use or recommend the supine sleeping position for infants. We found that providing parent education to place infants in the supine position and modeling this behavior by always placing infants in that position during the postpartum stay changes inner-city parents’ behaviors in a significant way. This study demonstrates the importance of a consistent message given to parents about the supine sleeping position for their infants.

of parents in our study who placed their infants in positions other than the supine position for sleep prior to our intervention are similar to previous studies of inner-city populations. Consequently, we believe that the results of this study likely would be generalizable to other similar populations.

Despite these limitations, this study is the first, to our knowledge, to show that an educational intervention that recommends the uniform placement of infants in the supine position for sleep in the newborn nursery and emphasizes the importance of the supine position to parents is effective in getting inner-city parents to place their infants in the supine sleeping position. Future studies in this area might be aimed at confirming these findings using other methodologies. Future research should also assess whether such interventions in the nursery are potent enough to convince families to keep their infants sleeping in the supine position as their infants get older, when parents are more likely to switch them to the prone position for sleep.59

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REFERENCES