

Should home apnea monitoring be recommended to prevent SIDS?

■ EVIDENCE-BASED ANSWER

While home apnea monitoring may find an increased incidence of apnea and bradycardia in preterm infants compared with term infants, no association links these events with sudden infant death syndrome (SIDS). Apnea of prematurity is not a proven risk factor for SIDS. Since apnea of prematurity has not been shown to be a precursor to SIDS, home apnea monitoring for the purpose of preventing SIDS cannot be recommended (strength of recommendation [SOR]: **B**, based on a single prospective cohort study and multiple case-control studies). Neonates with significant neurologic or pulmonary disease may benefit from apnea monitoring (SOR: **C**, expert opinion).

■ EVIDENCE SUMMARY

Multiple case-control studies have identified risk factors for SIDS, which are presented along (with odds ratios) in **Table 1**.¹⁻⁶ None of these case-control studies found apnea of prematurity to be a risk factor for SIDS.

A prospective cohort study of 1079 infants monitored for cardiorespiratory events, the Collaborative Home Infant Monitor Evaluation (CHIME) study, demonstrated that prior to 43 weeks postconceptional age, preterm infants had a statistically significant greater risk of extreme events (apnea or bradycardia longer than 30 seconds) compared with healthy term infants (**Table 2**). After 43 weeks postconceptional age, there were no differences in incidence of apnea or bradycardia, comparing preterm and term infants. Neither preterm infants nor infants with apnea, bradycardia, or apparent life-threatening events had increased incidences of SIDS.⁷

Significant financial costs are associated with home monitoring. The average monthly

cost is \$300 to \$400, not including physician fees. This would lead to an estimated annual cost of \$24 million dollars if every infant <1500 grams in the United States were monitored.⁸

The psychological costs of home apnea monitoring have also been studied. One hundred and four parents of monitored and unmonitored infants were enrolled in a questionnaire study to determine emotional distress and family functioning. As is common among families in the postpartum period, all experienced increased stress. But parents of monitored infants, compared with parents of unmonitored infants, had an increased incidence of subjective depression (number needed to harm [NNH]=7) and hostility (NNH=12) at 2 weeks postpartum. Interestingly, at 1-year follow-up interviews, 83% of parents who had consistently used the monitor reported feeling more secure for having used it and 69% believed that monitor use had been helpful.⁹

■ RECOMMENDATIONS FROM OTHERS

The American Academy of Pediatrics (AAP) acknowledges that no established predictive or precursor relationship exists between prolonged apnea and SIDS, stating that the "prevention of SIDS is not an acceptable indication for home cardiorespiratory monitoring." They issue a weak recommendation that home cardiorespiratory monitoring may be necessary for recurrent apnea, recurrent bradycardia, hypoxemia, chronic lung disease, and technology-dependent infants. Finally, they state that monitoring should be discontinued at 43 weeks postconceptional age or after cessation of extreme cardiorespiratory events, whichever occurs last. The AAP recommends proven practices such as supine sleeping position, a safe sleeping environment, and elimination of prenatal and postnatal exposure to tobacco smoke to decrease the risk of SIDS.⁸

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TABLE 1

Risk factors for SIDS

Risk factor	Odds ratio (95% CI)
Maternal factors	
Transport problems for prenatal care ¹	11.8 (2.7–52.7)
Education ≤ 12 years ¹	4.2 (1.1–15.5)
Prenatal smoke exposure ³	3.7 (2.9–4.6)
<7 prenatal visits ¹	3.3 (1.1–9.8)
Unmarried ³	2.0 (1.6–2.5)
Paternal factors	
Education ≤ 12 years ¹	8.8 (1.1–70.8)
Parental factors	
Parental smoking ⁴	5.19 (2.26–11.91)
Passive smoke exposure—all sources ⁵	3.50 (1.81–6.75)
Maternal consumption of alcohol	
First trimester ¹	6.7 (2.2–20.1)
Any trimester ¹	3.4 (1.4–10.9)
Binge drinking— first trimester ¹	6.3 (1.8–22.8)
Binge drinking— any trimester ¹	3.9 (1.4–10.9)
Infant care	
<3 well-child visits ¹	13.8 (1.7–109.9)
Sleeping prone ⁴	6.96 (1.51–31.97)
≥ 2 layers of clothing ¹	3.9 (1.4–10.9)
Routine use of reused mattress ²	3.1 (1.5–6.2)
Drug treatment in previous week ⁴	2.33 (1.10–4.54)
Infant demographics	
Low birth weight (≤ 2500 g) ³	3.6 (2.4–5.2)
Black ³	2.5 (1.6–3.9)
Male gender ⁶	1.47 (1.26–1.70)

Table adapted from multiple case-control studies.

■ CLINICAL COMMENTARY:

Apnea monitors are not the answer

An episode of SIDS is devastating to parents and leaves physicians questioning what more could have been done to prevent the tragedy. Apnea monitors, however, are not the answer. There are clearly downsides to apnea monitors and the added stress they place on parents. I do not think anyone would argue this would be a small price to pay if they helped to prevent SIDS; unfortunately, this is not the case.

I find it interesting that although apnea monitors add stress to parents, most would use them again and many felt they were helpful. This highlights the importance of education and clear communication with parents about SIDS and its prevention. Anecdotally, I have yet to have parents who did not stop using apnea monitor early because of the constant false alarms.

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