

# Sudden infant death syndrome: bed sharing with mothers who smoke

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**Aim:** To examine the sleeping arrangements of sudden infant death syndrome (SIDS) cases on the Wirral. In particular to determine the prevalence of bed sharing with mothers who smoke, a known risk factor for SIDS.

**Methods:** Retrospective study of postmortem determined cases of SIDS from 1995 to 2000 on the Wirral peninsula (population 350 000, 3500 annual births). Ambulance crew reports, case notes, health visitor reports, postmortem reports, and case discussion records were studied for each case.

**Results:** There were 25 cases of SIDS in the postneonatal age group over the six year period. In nine cases the baby was bed sharing with the mother, of whom seven were smokers. Five of these mothers reported using alcohol or illicit drugs on the night of their infant's death. In two further cases the baby slept on a sofa with a parent.

**Conclusions:** Bed sharing and smoking remain important risk factors for SIDS. Mothers should be advised ante- and postnatally of this combination of risk factors. Such advice should also include a recommendation not to sleep with their baby if under the influence of alcohol or illicit drugs, and never to sleep on a sofa with their baby. All "Child Health Record" books given to parents on the Wirral now include this advice. "Reduce the Risk" advice leaflets given to parents pre- and postnatally also now carry the recommendation, and health visitors and midwives have been educated with respect to these additions.

Despite the fall in incidence of sudden infant death syndrome (SIDS) in the UK, particularly following the "Back to Sleep" campaign in 1991, it remains the largest single group of causes of death in infancy.<sup>1</sup>

Before the reduction in incidence there was conflicting evidence on the effect of bed sharing as a risk factor for SIDS.<sup>2-4</sup> The Foundation for the Study of Infant Deaths provides written information on "Reducing the Risk of Cot Death", which is readily available to parents and includes the following recommendations: to place the baby on his/her back to sleep, to reduce or stop smoking in pregnancy, to avoid smoking in the same room as the baby, to not allow the baby to get too hot, to place the baby with his/her feet at the foot of the cot, and to seek medical advice if the baby is unwell.<sup>5</sup>

While the benefits of following this advice have been known for some time, recent studies in New Zealand and the United Kingdom highlight bed sharing with mothers who smoke as a further reducible risk factor.<sup>6-8</sup> Despite this finding, national and local advice given to mothers does not warn them that if they smoke, sharing a bed with their baby substantially increases the risk of SIDS.

The Wirral is a peninsula in northwest England with a population of 350 000 and around 3500 annual births. At the time of study, less than 1% of the population were from ethnic minorities and 27% of live births were to mothers living in the most deprived quartile of enumeration districts, with 22% in the least deprived quartile (unpublished data), as determined by Townsend deprivation scores.<sup>9</sup>

In the knowledge that mothers who smoke on the Wirral were, until now, not advised that bed sharing increases the risk of SIDS, we investigated its contribution to SIDS on the Wirral.

## METHODS

Data were examined for each infant death where a postmortem had given sudden infant death syndrome as the

cause of death between January 1995 and December 2000. Cases where a postmortem examination concluded that the cause of death was "unascertained" were included in the study to ensure that all available cases were analysed.

Information was obtained from ambulance crew reports, accident and emergency documentation, paediatric case notes, health visitor reports prior to death, the postmortem report, and notes made at the case discussion following death.

Each case discussion involved a consultant paediatrician, general practitioner, midwife, and the relevant health visitors.

For each case the sleeping arrangements on the night of death were noted, as was the mother's smoking habit, and whether the mother volunteered that alcohol or illicit drugs were taken around the time of death.

Townsend deprivation scores were assigned to each case according to postcode and were available for the rest of our population.

## RESULTS

Between 1995 and 2000 there were 25 cases of SIDS on the Wirral, a rate of 1.2/1000 live births. In nine of the cases the baby was found dead in bed with the mother, seven of whom were smokers. In four of these cases the mother reported taking alcohol before going to bed with her baby. In addition, one mother reported taking a benzodiazepine before taking her baby to bed. In two further cases the baby was sleeping on the sofa with a parent.

Of the 14 cases where the infant was not found in the parental bed or on the sofa with a parent, 11 were infants of smoking mothers, and one mother reported consuming alcohol before going to bed. None of these mothers reported the use of illicit drugs on the night of their infant's death.

Fifteen of the 25 SIDS cases were from the most deprived quartile of Townsend deprivation scores, with just one case from the least deprived quartile.

## DISCUSSION

Research in recent years has identified risk factors for SIDS, some of which are potentially modifiable, and others which are not. The identification of modifiable risk factors is important in disease prevention and assists in the quest to understand the pathogenesis of SIDS. In Britain, SIDS rates have fallen dramatically since the "Back to Sleep" campaign in 1991<sup>5</sup> in which parents were advised to place their babies on their backs to sleep with their feet at the bottom of the cot, to cut smoking in pregnancy and in the same room as their baby, to avoid overheating, and to seek medical advice if their baby becomes unwell.

The national incidence of SIDS (expressed per 1000 live births) was 1.7 in 1990 and fell to 0.6 in 1995. In 1996 and 1997 the incidence of cot deaths rose for the first time in eight years; an increase of 6 per cent to 0.7/1000 live births.<sup>10</sup> Despite falling again since 1997, the incidence of SIDS has not fallen below 0.5/1000 live births.<sup>11</sup> The reason for our inability to reduce the incidence of SIDS further is unknown. A major possibility, however, is that while we educate our mothers about the aforementioned risk factors, not addressing others has resulted in an increase in their relative importance.

Three papers in recent years have highlighted bed sharing with mothers who smoke as a risk factor for SIDS.<sup>6-8</sup> Fleming *et al* showed that this risk was independent of socioeconomic variables and that smoking mothers who bed shared carried more than twice the risk of SIDS compared to smoking mothers who did not.<sup>6</sup> Fleming *et al* reported that 26% of SIDS cases in three regions of England involved babies sharing a bed with their mothers, 86% of whom were smokers.<sup>7</sup> Our study on the Wirral reports even higher figures, with 36% of our SIDS cases occurring when the infants were sharing a bed with the mother, 78% of whom were smokers.

The studies of Fleming and colleagues<sup>6,7</sup> also showed a much greater risk of SIDS if the bed sharing mother had recently consumed over two units of alcohol or if the baby slept on a sofa with one of the parents. They showed an association between previous use of illicit drugs and co-sleeping with SIDS but, unlike our study, data were not available for the use of such substances on the night of death. In our study, four of the nine bed sharing mothers admitted to having consumed alcohol on the night that death occurred, and one volunteered the use of illicit drugs. Consumption of alcohol or illicit drugs on the night of death may be under-reported.

The limited number of cases and lack of controls in this study would normally make interpretation difficult, but given that the study follows on from larger national case-control studies,<sup>3-7</sup> the findings can be put into context.

The incidence of SIDS on the Wirral between 1995 and 2000 was 1.2/1000 live births, twice the national incidence of 0.54–0.7/1000.<sup>10</sup> This high incidence of SIDS on the Wirral is not confined to the period of study. The reason behind this is not certain, although local audit suggests that most cases occur within pockets of extreme socioeconomic deprivation among the most deprived Townsend quartile of enumeration districts (unpublished data, H Klenka). That so many cases are from a deprived population is unsurprising given the results of the Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI) study.<sup>5</sup>

Sharing a bed with your baby if you smoke, or have consumed alcohol or illicit drugs, and sleeping with your baby on a sofa are now proven modifiable risk factors for SIDS. Despite this, national and, until recently, local advice given to parents does not inform them of these risks.

As a result of our findings, all "Child Health Record" books and "Reduce the Risk" leaflets given to mothers on the Wirral now advises them of these additional risk factors. Midwives and health visitors have been alerted accordingly.

## CONCLUSIONS

A significant proportion of SIDS cases on the Wirral between 1995 and 2000 involved the baby sleeping in the same bed as the mother, most of whom were smokers. It is time to recommend that mothers who smoke do not share a bed with their baby. Similarly, mothers should be advised not to share a bed with their baby if they have consumed alcohol or illicit drugs, and under no circumstances should they sleep on a sofa with their baby.

Future studies will reveal whether this change in practice produces a reduction in the incidence of SIDS locally and the prevalence of bed sharing with mothers who smoke as a risk factor.

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