SHORT REPORT

The continuing decline in SIDS mortality

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The ''Back to Sleep'' campaign resulted in a dramatic decrease in sudden infant death syndrome (SIDS) worldwide. SIDS mortality has continued to decline (in New Zealand by 63% from 1993 to 2004), but the reason for this has not been explained. A postal survey found that the proportion of infants sleeping on their back has increased substantially (from 24.4% in 1992 to 72.3% in 2005), and this could account for the 39%–48% decrease in SIDS mortality.

Sudden infant death syndrome (SIDS) mortality decreased substantially in the early 1990s, and this has been attributed to the recommendation not to place infants to sleep in the prone position.[1] After the initial 50% fall in SIDS mortality from the mid 1980s to 1993, at which stage prone sleeping was nearly negligible, there has been a further gradual improvement, which has seen SIDS mortality decrease by an additional 50%. The side sleeping position as a risk factor for SIDS was originally reported by our group[2] and has since been confirmed in other,[3] but not all, studies. We hypothesise that the decline in SIDS is due to the change from the side to the back sleeping position.

The aim of this study was to determine the change in prevalence of side sleeping position and to compare the prevalence of the side sleeping position with changes in SIDS mortality.

METHODS

The method has been described in detail previously.[4] In brief, a questionnaire was mailed in April–May 2005 to a random sample of 400 mothers who had delivered infants at the National Women's Hospital, in Auckland, New Zealand. A stamped addressed return envelope was included. Half of the infants were aged 6–8 weeks and the other half were between 3 and 4 months. If no response was received within 2–3 weeks, a reminder phone call was made to the mother.

The outcome of interest was obtained from the question: ''What position, or positions, did you put your baby to sleep in *last night*? (Tick more than one if necessary)''.

Annual SIDS mortality was obtained from New Zealand Health Information Service publications.

The study received ethical approval from the Auckland Regional Ethics Committee.

RESULTS

There were 278 (69.8%) responses with usable data. The infants of 135 (67.8%) of the responders were in the older age group, and the infants of 143 (71.9%) were in the younger age group. Non-responders were more likely to be from Maori, Pacific or other ethnic groups. According to the sleep last night question, 72.3% of infants were placed to sleep on their back, 14.0% on their side, 1.4% on their front, and 12.2% on their side and back.

SIDS mortality rates from 1984 to 2004 are shown in fig 1. SIDS mortality declined by 63% from 1993 to 2004. In addition, the point estimates of the prevalence of sleep position are shown (fig 1 and table 1).

The proportion of infants sleeping in the prone and side positions (predominantly the side) decreased from 75.6% (in 1991–3) to 27.7% (in 2005) if those reporting infants sleeping in the side or back position are conservatively considered to be referring to the side position. The population attributable risk associated with the prone and side positions in 1991–3 was 0.61.[3] Assuming that side and prone sleeping positions are

Abbreviation: SIDS, sudden infant death syndrome

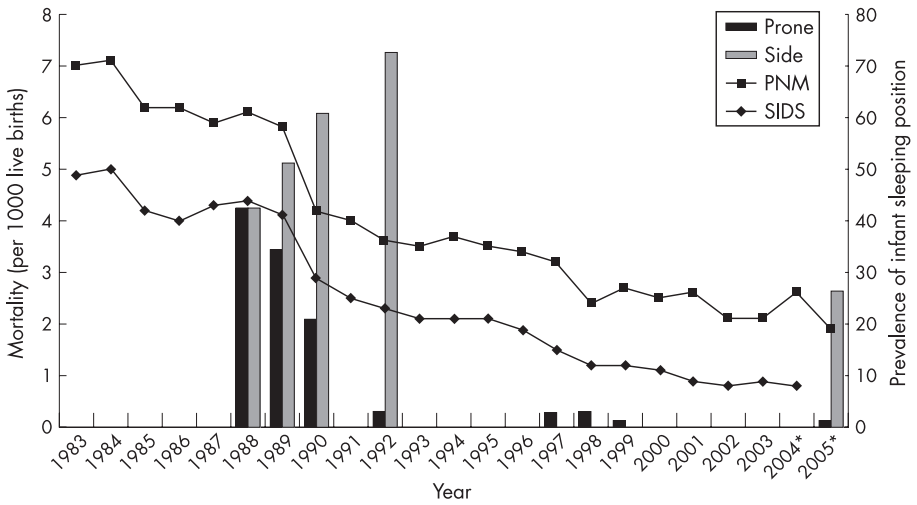

Figure 1 Post-neonatal and SIDS mortality (1983–2004) and prevalence of sleep position. *Indicates provisional mortality data. PNM, post-neonatal mortality.

Table 1 New Zealand studies examining the prevalence of infant sleep position since the ''Back to Sleep'' campaign

Survey date	Author	Locality	Prone	Side
1987–1990	Mitchell *et al*, 1992[2]	Nationwide	32.9%	51.4%
1991–1993	Mitchell *et al*, 1997[3]	Nationwide	3.0%*	72.6%*
1992	Scragg *et al*, 1993[5]	South Auckland	2.5%	82.5%
1997	Ford *et al*, 2000[6]	Canterbury	2.9%	Not reported
1997–1998	Mitchell *et al*, 2000[7]	Auckland	3.0%	Not reported
1999	Dow, 2000[8]	Dunedin	1.2%	Not reported
2005	This study	Auckland	1.4%	26.3%†

*At 2 months of age; †includes infants placed on their side and back.

causally associated with SIDS, then this decline in the side sleeping position would be associated with a 39% decrease in SIDS. Alternatively, if those reporting side or back positions are considered to be referring to the back position, then this change would be associated with a 48% decrease in SIDS.

DISCUSSION

The rapid and dramatic decline in SIDS mortality in the early 1990s has been attributed to the decrease in the proportion of infants sleeping prone.[1] In New Zealand the original infant sleeping position recommendation was side or back, which was later changed to back or side and eventually to back only as more evidence became available that the side sleeping position was associated with an increased risk of SIDS compared to the back sleeping position. The prone sleeping position has been reported as being less than 4% in all surveys since 1991, and was 1.4% in this survey. The proportion of infants sleeping supine has increased steadily, with a corresponding decline in the side sleeping position. The side sleeping position doubles the risk of SIDS compared with the supine position.[2 3]

In New Zealand the SIDS prevention campaign was officially launched in February 1991, although the prevalence of the prone sleeping position had begun to decline from August 1989. Since then SIDS mortality has fallen a further 63%. A similar finding has been reported from England and Wales.[5] The most likely explanation for this decline in mortality has been the decrease in infants sleeping on their side. Our study suggests that this change would result in a 39% reduction in SIDS, assuming that there is a causal relationship between sleeping position and SIDS. This is a minimum estimate as all infants that were placed on their side and back last night were classified as side sleepers. If these were considered back sleepers, the reduction in SIDS would be estimated to be 48%.

The strengths and limitations in this study must be considered. Women resident in the Auckland District Health Board region deliver only at National Women's Hospital apart from the small number who deliver at home (<4%). Thus the eligible sample is close to being representative of all births in the study region. The participation rate was 70% and although this is good for a postal survey, participants may be more likely to comply with health messages.

We conclude that there has been a further fall in SIDS following the initial considerable decline in SIDS following the recommendation to avoid placing infants prone to sleep, and this is likely to be due to the substantial increase in the proportion of infants placed to sleep on their back rather than on their side.

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