

Sudden infant death syndrome – epidemiology and environmental factors

Prevention is still a challenge

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- I. Alm B, Möllborg P, Erdes L, Pettersson R, Åberg N, Norvenius G, Wennergren G. SIDS risk factors and factors associated with prone sleeping in Sweden. *Arch Dis Child* 2006; 91: 915-919.
- II. Möllborg P, Alm B. Sudden infant death syndrome during low incidence in Sweden 1997-2005. *Acta Paediatr* 2010; 99: 94-98.
- III. Möllborg P, Wennergren G, Norvenius SG, Alm B. Bed-sharing among six-month-old infants in western Sweden. *Acta Paediatr* 2011; 100: 226-230.
- IV. Möllborg P, Wennergren G, Almqvist P, Alm B. Bed sharing is more common in sudden infant death syndrome than in explained sudden unexpected deaths in infancy. *Acta Paediatr* 2015; 104: 777-783.



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Sudden infant death syndrome (SIDS) is still an important cause of death in infancy despite its declining incidence. The overall aim of this thesis was to study environmental factors influencing the risk of SIDS with the goal of still further reducing preventable deaths among infants in the future.

In a prospective study (Children of Western Sweden) consisting of 5600 healthy six-months-old infants born in 2003 and 430 healthy Swedish infants born in 1991-1995, the prevalence of risk factors was compared and factors associated with prone sleeping were studied. We found that parents had complied with advice to prevent SIDS but that further change to an exclusively supine sleeping position and reducing the number of pregnant women who smoke might be beneficial. A prone sleeping position was more common if the mother was unemployed or smoked during pregnancy, and also if the child was irritable, never used a pacifier or shared a bedroom with siblings.

To identify the changes in epidemiology since the national guidelines to prevent SIDS were established in 1992-94 we studied 207 SIDS cases in 1997-2005 and compared them with controls randomly selected from the Swedish Medical Birth Register (MBR). The results showed that the incidence of SIDS had remained low in Sweden and that the age at death continued to decrease. The odds ratio for smoking continued to increase. The high incidence at weekends persisted but there was no longer any seasonality.

Bed sharing is considered to be a risk factor for SIDS and we therefore we examined bed sharing at six months of age and associated factors. The questionnaire was answered by 5605 families with a response rate of 68.5% and we found that every fifth infant shared a bed. Factors associated with bed sharing were breastfeeding, sleeping problems and a single parent. Never using a pacifier was associated with a higher frequency of bed sharing but it was less common to bed share if the infant was bottle-fed during the first week.

In a retrospective study we investigated data from all sudden unexpected deaths in infancy (SUDI) in Sweden from 2005-2011. Medical records were obtained from hospitals and supplementary data from the Swedish MBR. Of the 261 infants, 136 were defined as SIDS and 125 as explained SUDI. We found that bed sharing was more common in SIDS than in explained SUDI. Sparse data in medical records were a problem. Bronchopneumonia, other infections and congenital anomalies were the most common causes of explained SUDI.

It is still possible to prevent more deaths in SIDS if prone and side sleeping positions, maternal smoking and bed sharing during the first months decrease. One tool for success is to have routines and documentation continuously to follow changes in the epidemiology of environmental factors, together with the possibility to communicate this and reach groups at risk with targeted information.

Keywords: *bed sharing, epidemiology, prevention, Sudden infant death syndrome, SIDS, Sudden unexpected death in infancy, SUDI, Sweden*

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