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Sudden unexpected infant death—no more "stunned amazement"!

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The last 20 years have seen the dramatic reduction in the toll from Sudden Unexpected Death in Infancy (SUDI) in New Zealand from 200 to 60 deaths per annum. The reduction in mortality stems largely from the recognition that placing babies to sleep on their backs reduced the risk of death, as was highlighted in the New Zealand case control study in 1992.[1] It can be calculated that approximately 3000 infants have survived who would otherwise have died over these 20 years.

The fact that 60 deaths continue to occur annually is a major tragedy, however. Among the industrialised nations, New Zealand has the highest rate of death from SUDI.[2] The burden of this problem falls disproportionately in the Māori community and amongst families living in deprived circumstances.[3] The total mortality rate is 1.1 deaths per 1000 live births—the Māori rate is at 2.3 deaths per 1000 births while the rate for other ethnicity is 0.52 per 1000 births.[4]

Over the last few years, coroners rulings have increasingly stressed that many deaths from SUDI are "unnecessary and preventable" with intense focus falling on the hazards associated co-sleeping (when an infant and other individual/s adult, infant or child are sleeping together on a shared surface e.g. bed, couch, chair, floor, mat or other surface).[5,6]

> …Mothers and families are simply not getting the message and although loving their babies dearly and thinking they are doing the very best for them they are in fact unwittingly "killing" them. This is a very sad state of affairs and it seems to me, can only be rectified by education and on the ground assistance for mothers [Coroner Dr Wallace Bain].[5]

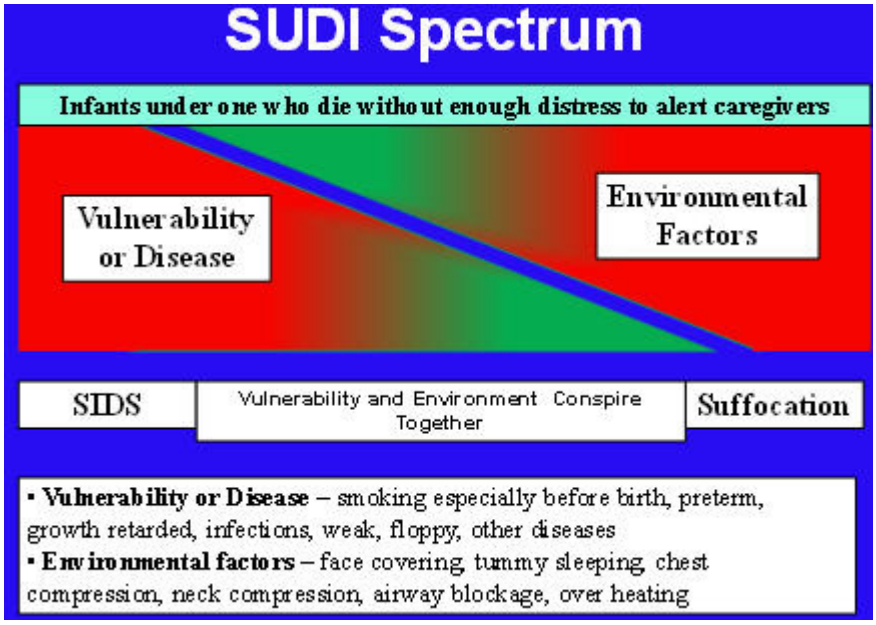
SUDI is an umbrella term used to describe a heterogeneous group of infants under age one who die without warning signs or distress sufficient to alert parents or caregivers. The term SUDI therefore relates to the experience from the viewpoint of parents or caregivers and allows preventive measures to target all the conditions within the group. The term encompasses a spectrum of cases ranging from those that remain unexplained following full investigation (SIDS) to cases which are fully explained (Figure 1). Between the two ends of the spectrum are cases where a pathologist or coroner is unclear to what extent the deaths are explained, and which tend to be called "unascertained."

Unexpected deaths where significant external forces are applied—e.g. motor vehicle crashes or assault are not included within the term SUDI. The explained SUDI group includes cases that are clearly attributable to factors which on their own alone, would be sufficient to cause death such as suffocation, strangulation or overwhelming infection. Typical circumstances of accidental suffocation include wedging or overlying.

Wedging occurs when a baby moves into a confined space such as a gap between wall and mattress, between mattresses, is entrapped in a faulty cot or amongst couch

cushions. With regard to overlaying, case review studies suggest that it does not require the whole body of another person to be on the baby. A limb, breast or even a small sibling can be sufficient to cause fatal compromise. In both these situations airway impairment can occur through face covering or neck flexing[7] and pressure on the chest can compromise breathing.[8]

Figure 1. Interaction between cause of death, vulnerability and environmental factors in sudden unexpected death in infancy



SUDI=Sudden Unexpected Death in Infancy, SIDS=Sudden Infant Death Syndrome.

A high proportion of infants that die from SIDS have "intrinsic vulnerabilities" such as tobacco exposure before birth, prematurity or growth retardation.[4] For some these intrinsic vulnerabilities are associated with death without any external factor or illness contributing. For the SUDI cases that are called unascertained, infant factors and environmental factors conspire together leading to an accumulation of risk which proves lethal. Whenever intrinsic vulnerabilities exist in an infant it is especially important that environmental factors which may compromise the infant are minimised. Any baby may, however, suffer suffocation or strangulation if placed in an unsafe sleeping environment.

Coroners only review cases where infants have died, and health professionals predominantly work with families whose infant care practices have not lead to death. It is no surprise that there are differences of opinion as to the best approach for SUDI prevention. Unfortunately polarisation of opinion can lead to confusion and failure to deliver clear messages to families. It is the responsibility of all professionals (health, legal, and social services) to deliver clear and consistent messages regarding SUDI prevention in order for us to learn lessons from these fatal cases and make a substantial reduction in New Zealand's unacceptable SUDI toll.

Coroners comment that on almost every occasion families have "stunned amazement" that the circumstances their baby died in were dangerous.[3,5] This represents a major

failure of risk communication by health and other professionals. Families have a right to be informed that there are definite risks while co sleeping for all infants, especially under 3 months of age,[8] and greater risks for more vulnerable infants.

Families must have clear explanations and be supported in having a plan for sleeping arrangements tailored to their situation and infant needs which aims to minimise risks in the sleeping environment. If families decide to not follow the plan they must do so with their eyes open in full knowledge of the risks, just as people know swimming in deep turbulent water is never completely safe, and that there are some circumstances related to swimming skills or water conditions when the water must be avoided!

Information to reduce SUDI needs to be provided to families in the form of public health messages, antenatally, at birth and during postnatal and ongoing infant care. Health services need to model sleeping practices that reduce risks in all settings. When delivering information, messages need to be clear, consistent and take into account the health literacy and the reality of the lives lived by people from the deprived communities where risks cluster.

The low health literacy skills in some Māori and lower income households are likely to have a negative impact on the uptake of health messages and need to be recognised as communication techniques are developed.[9] In some Māori families, where SUDI occur, the mothers and family as a whole may be living in "survival mode", contending with multiple stressors and marginalised from wider health and social support networks. In this setting, simple provision of information is a poor mechanism for change; efforts are needed to support engagement with innovative and culturally appropriate behaviour modification approaches as well as addressing the determinants of deprivation.[10]

To reduce risk it is important that all infants have a smokefree place where they can sleep on their back, on a firm surface, with their faces clear in an arrangement where they cannot be trapped and nothing can accidentally move to cover their face or flex their neck. Even when an infant sleeps alone in a bed designed for an adult, there is at least a twenty-fold increased risk of suffocation compared with an infant in a cot.[11]

Furthermore, infants are also placed at increased risk when placed to sleep in faulty cots and cots with an inappropriately fitted mattress. New Zealand is developing some options to support safe sleep with the increasing use of Wahakura and Pepi Pods which are currently undergoing research evaluation. Work and Income NZ (WINZ) is also able to offer financial support for sleeping spaces for infants.[4]

The unexpected nature of SUDI can lead to the unfortunate acceptance that these deaths "just happen" and cannot be prevented, and leave families feeling disempowered. In fact a substantial proportion of SUDI are preventable. Health professionals have an absolute duty to ensure that families are never again left with "stunned amazement" if their infant dies in a setting of unsafe sleep.

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