

# Sudden Infant Death Syndrome (SIDS): Cot Death

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## Citation

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## Abstract

The death of a child in any family for any reason is a devastating experience for both parents; the sudden and unexpected infant death will be more tragedy because in addition to the parent's grief, they might be accused of killing their own baby. There are instances when mothers do sometimes kill babies, whether intentionally or accidentally, so it is essential that these mothers are identified. The problem is that if the wrong mother is accused, it could lead to a catastrophic miscarriage of justice with an innocent mother in prison.<sup>(1)</sup>

## DEFINITION

Cot death isn't illness or disease, it's a diagnosis given when an apparently healthy baby under the age of one year dies without warning. Cot death is the sudden death of an infant that remains unexplained after review of the clinical history, examination of the scene of death, and postmortem examination.

## CAUSES

No one knows for sure what causes cot death, but researchers around the world are working to understand more about the syndrome and they're learning more every day. One suspected cause is an anatomical abnormality, possibly in the brain. The abnormality may lead to a failure in the way the baby breathes or controls blood flow to the body. Another possibility is that a developmental delay exists (that is, that proper breathing or blood flow control takes longer to appear in affected babies than in normal babies).

## A DEFECT IN THE BRAIN STEM

Many researchers have identified an abnormality in the brain stem like reductions in the degree of myelination of specific brain regions, neurotransmitter abnormalities, and abnormalities in adrenergic pathways related to cardiorespiratory control within the medulla and pons.<sup>(2,3,4,5)</sup> One medical researcher has identified an abnormality in the region of the brain stem which controls carbon dioxide sensing in some babies who have died of SIDS. Sleeping face down can trap carbon dioxide between the baby's face and the mattress, so the baby breathes in excess amounts of this deadly gas. Most babies will wake up when the levels of carbon dioxide get too high, but the brain-

stem abnormality may prevent some babies from knowing when the gas has accumulated to a life-threatening level.<sup>(7,8,9)</sup> Other researchers have looked at the brain's ability to overcome blood pressure falls which occur normally during sleep in all infants. They suspect that some babies may die from an inability to recover from a sudden loss in blood pressure. That failure may result from the brain stem abnormality noted above, the problem may be an inability to restore blood flow to critical organs (such as the heart), not a breathing failure.<sup>(10)</sup>

## DEVELOPMENTAL DELAYS IN A BABY'S DEFENSE SYSTEM

Babies are born with a primitive defense system known as the startle reflex (they pick their head up, kick and flail their arms) and later develop a more coordinated ability to move their body away from danger. The first year of life is a time of rapid growth and development throughout this period, near doubling of brain weight occurs with very dramatic developmental changes involving sleep state organization, arousal, cardiorespiratory control, and metabolism. Some researchers believe that some babies die because they simply have developmental delays and aren't able to defend themselves against a life-threatening event such as sleeping on their stomach and rebreathing carbon dioxide, overheating, breathing cigarette smoke or momentary loss of blood pressure during sleep; they may be too vulnerable to survive.

## RISK FACTORS

Identifying risk factors is controversial, but studies have shown that certain babies appear to be more prone to SIDS than others. Some of the risk factors include:<sup>(11,12,13,14)</sup>

### **PRENATAL RISKS**

- Inadequate prenatal care
- Inadequate prenatal nutrition
- Smoking
- less than a one year interval between subsequent births

### **POST-NATAL RISKS**

- low birth weight (especially less than 1.5 kg)
- Exposure to tobacco smoke
- laying an infant to sleep on his or her stomach
- Failure to breastfeed
- Excess clothing and overheating
- Excess bedding, soft sleep surface and stuffed animals
- Sex (60% of deaths occur in males)
- Age (incidence is higher between 2-4 months)

### **PREVENTION AND RECOMMENDATIONS**

Though SIDS cannot be prevented absolutely, parents of infants are encouraged to take several precautions steps to help reduce the likelihood of SIDS

- Cut smoking in pregnancy
- No smoking in the same room of the baby
- Place the baby on the back to sleep
- Avoid overheating
- Keep baby's head uncovered – place the baby with their feet to the foot of the cot, ensuring that sheets and blankets are made up half way down the cot and tucked under the mattress to prevent wriggling down under the covers
- If the baby is unwell, seek medical advice promptly
- It's safest to sleep the baby in a cot in the parent's bedroom for the first six months.
- Use a pacifier: Although the mechanism is not

known, the reduced risk of SIDS associated with pacifier use during sleep is compelling. A 2005 study in the British Medical Journal indicated that use of a pacifier is associated with a 90% reduction in the risk of SIDS.

### **WHAT IS THE IMPACT OF A COT DEATH?**

The grief after losing a baby to cot death may show in a range of different ways in different people. Some parents feel intense guilt, wondering if they could have done something either to cause the death, or to have prevented it. Others may become angry at the unfairness of the loss of a baby. Some people have physical symptoms due to their grief, while others may become depressed. The worst possible nightmare for the parents is being wrongly accused for the baby death, furthermore they will have to deal with a postmortem examination of their baby and a police interview, both of which are required by law, and may be lead to put the bereaved parents in jail for years.

### **COPING WITH THE COT DEATH**

Bereaved families need support to face the fact that as a parent there is nothing they could have done to prevent the death of their child. They need professional support to protect them from false or inappropriate accusations. The parents in such cases should not treat like criminals before the real cause of death has been established. The Foundation for the Study of Infant Deaths (FSID) is the UK's leading baby charity working to prevent sudden infant deaths and promote baby health. FSID funds research supports bereaved families and suggests a standard protocol to improve professional responses to sudden infant deaths. The protocol has three key recommendations:<sup>(15)</sup>

- A pediatrician working in conjunction with the police should visit each family within 24 hours of the death to take a complete medical history and offer initial support to the family.
- All post mortem examinations should be carried out by a paediatric pathologist, a specialist in babies' disorders.
- A case discussion should be held with all the professionals who were involved with the family or the baby to review all available information, learn as much as possible about why that baby died, and plan future support for the family.

### CONCLUSION

It is now known that sudden infant deaths do not follow a random pattern. Substantial relations exist between unexplained death and social background, poverty, prematurity, parental smoking, and pre-existing symptoms of illness in the baby. The relation with prone sleeping position is still not fully explained, but the United Kingdom's Back to sleep campaign was associated with a large reduction in incidence. However, a completely satisfactory explanation is still elusive in many infant deaths.

There is need to rethink the approach to cases of unexplained infant death, particularly with families who have had more than one such tragedy, and families who are accused for the death of their babies. There is need to stress the importance of being alert to inconsistencies in the history, scene of death inquiries, collection of background data, and an autopsy by a paediatric or forensic pathologist with appropriate training, working to a standard protocol. In future this may sometimes need to include a search for genes that might be associated with conditions predisposing to sudden death.<sup>(16)</sup>

Parents have the right to expect that their baby's tragic unexplained death will be investigated as thoroughly as would be the case for any other situation, and what is needed is more research and less suspicion. Families who have suffered the sudden death of a baby should be treated with sensitivity, discretion, and respect.

### CORRESPONDENCE TO

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