INTRODUCTION — Sudden unexpected infant death (SUID), or sudden unexpected death in infancy (SUDI),
describes all unexpected infant deaths and includes deaths caused by sudden infant death syndrome (SIDS).
SIDS is the leading cause of death in infants between one month and one year of age in the United States. SIDS
probably has more than one cause, although the final process appears to be similar in most cases [1].
The clinical management of an SUID including SIDS is discussed in this topic review. Mechanisms, risk factors,
and measures to reduce the risk of SIDS and other sleep-related infant deaths are discussed separately. (See
"Sudden infant death syndrome: Risk factors and risk reduction strategies").

DEFINITION — Sudden unexpected infant deaths (SUID) can be subdivided into explained SUID and unexplained
SUID:

- **Unexplained SUID** includes those deaths considered to be sudden infant death syndrome (SIDS) by the
  medical examiner. SIDS is defined as the sudden death of an infant younger than one year of age, which
  remains unexplained after a thorough case investigation [2,3]. Unexplained SUID also includes some cases
  that are not considered SIDS, but lack a clear explanation due to uncertain circumstances.

- **Explained SUID** includes deaths for which the medical examiner determines that there is a specific cause,
  including deaths caused by fatal child abuse or underlying medical disorders including metabolic disease. It
  also includes deaths that are deemed to be caused by accidental suffocation or entrapment during sleep.
  (See 'Differential diagnosis' below.)

These definitions emphasize the necessity of death scene investigation, autopsy, and review of the clinical history
when making the diagnosis of SIDS to exclude other causes of the SUID. Nonetheless, the distinction between
unexplained SUID and explained SUID is not always clear, and there is inconsistency and local variation in case
examinations and diagnostic terminology used by medical examiners. Moreover, SIDS has similar risk factors to
other sleep-related infant deaths, including those attributed to suffocation, asphyxia, and entrapment. Therefore,
SIDS and other sleep-related infant deaths are now addressed together in recommendations for a safe infant
sleeping environment [4]. (See "Sudden infant death syndrome: Risk factors and risk reduction strategies").

An apparent life-threatening event (ALTE) is not a specific diagnosis, but a description of an acute, unexpected
change in an infant’s breathing behavior that is frightening to the caretaker. An ALTE is no longer considered to be
a risk factor or precursor to SIDS. The management of an infant with an ALTE is discussed separately (see
"Apparent life-threatening event in infants"). A history of ALTEs in an infant dying of SIDS is unusual and calls for
specific evaluation, as discussed below. (See 'Differential diagnosis' below.)

CASE INVESTIGATION — Because unexplained sudden unexpected infant death (SUID) or sudden infant death
syndrome (SIDS) are diagnoses of exclusion, a thorough investigation is essential to exclude accidental,
environmental, and unnatural mechanisms of death [5-8]. Specific steps in the evaluation of unexpected infant
deaths have contributed to increased accuracy in the diagnosis of SIDS [9].

Standardized protocols for autopsy [10] and evaluation of the death scene [11] have been developed; in the United
States, reporting forms are available from the Centers for Disease Control and Prevention [12]. These initiatives
have led to increasingly standardized approaches to unexpected infant deaths and increasing use of the diagnosis of "accidental asphyxia". Nonetheless, the application of the guidelines and diagnosis assigned to a case remains inconsistent [13].

Death scene investigation — Personnel in emergency response teams should be trained to make observations at the scene, such as the position of the infant, marks on the body, body temperature and rigor, type of bed or crib and any defects, amount and position of clothing and bedding, room temperature, type of ventilation and heating, and reactions of the caretakers [5]. In the absence of evidence of injury or significant antecedent illness, the parents can be told that death appears to be due to SIDS. However, other causes can be excluded only after a thorough death scene investigation, postmortem examination, and review of the clinical history have been performed [5].

Autopsy — Some congenital abnormalities, injuries, infections, or metabolic defects can only be detected through an autopsy. A known cause of death is identified by the postmortem examination in approximately 15 percent of suspected SIDS cases, even when the clinical history and circumstances of death are consistent with SIDS [14].

The autopsy includes external and internal examination, radiology, histology, microbiology, toxicology, and electrolyte, metabolic, and genetic studies. SIDS is characterized by several gross and microscopic autopsy features, although typically none of these abnormalities is sufficiently grave to explain the infant's death (table 1) [9]. External findings consistent with SIDS include a well-developed, well-nourished child with frothy, blood-tinged fluid at the nares. Internal findings include intrathoracic petechiae, pulmonary congestion and edema, upper respiratory tract inflammation, and hepatic hematopoiesis.

Clinical and family history — Inquiry into the circumstances of the infant's death, using nonaccusatory, open-ended questions, can help to identify whether the death was associated with one or more of the known risk factors for SIDS. Risk factors that have consistently been identified in observational and case control studies include (table 2) [4]:

- Prone sleeping position
- Maternal smoking during pregnancy
- Preterm birth and/or low birth weight
- Sleeping on a soft surface and/or with loose soft objects such as pillows or stuffed animals
- Bed-sharing
- Young maternal age
- Late or no prenatal care
- Overheating
- Lack of breastfeeding

A detailed discussion of these risk factors can be found in a separate topic review. (See "Sudden infant death syndrome: Risk factors and risk reduction strategies", section on 'Risk factors'.)

The following features suggest a cause of death other than SIDS:

- A family history of a previous infant death attributed to SIDS, the presence of undiagnosed neurologic problems, or a past history of failure to thrive or hypotonia. Such findings warrant further investigation, particularly to exclude inherited metabolic diseases. (See 'Metabolic disease' below.)
- A prior history of multiple dramatic episodes of unexplained apnea, cyanosis, or seizure may suggest deliberate asphyxiation, so-called Munchausen syndrome by proxy, an insidious form of child abuse [15]. (See 'Fatal child abuse' below and "Medical child abuse (Munchausen syndrome by proxy)".)

DIFFERENTIAL DIAGNOSIS — Other causes of sudden unexpected death in infancy (SUDI) must be considered and excluded before a diagnosis of sudden infant death syndrome (SIDS) can be established (table 3). Among these, fatal child abuse and metabolic disease are particularly important because they have implications...
for other children in the family.

**Fatal child abuse** — Fatal child abuse (filicide) is fortunately uncommon, but should be considered when a child dies suddenly and unexpectedly. Although precise figures are lacking, estimates of the frequency of infanticide among cases designated as SIDS range from 1 to 5 percent of such deaths [6,8,16-18].

Most deaths related to child abuse can be distinguished from SIDS by a complete autopsy, death scene investigation, and a review of the medical history [5,19,20]. However, the autopsy alone cannot distinguish between accidental or deliberate asphyxiation with a soft object and SIDS [14]. Even when suspected, this form of child abuse is extraordinarily difficult to prove. Certain historical features, some of which overlap with inborn errors of metabolism, discussed below, should raise the suspicion of deliberate asphyxiation but do not confirm it. These include [5]:

- Previous recurrent cyanosis, apnea, or an apparent life-threatening event (ALTE) while in the care of the same person
- Age at death older than six months
- Previously unexpected or unexplained deaths of one or more siblings (as detailed below)
- Previous death of infants under the care of the same unrelated person [15]
- Simultaneous or near-simultaneous death of twins [19]
- Evidence of previous pulmonary hemorrhage (such as marked siderophages in the lung)

Clustering of two or more sudden unexpected infant deaths (SUID) in a family is explained by fatal child abuse in a significant minority of cases, as suggested by the following examples:

- Data from The Care of Next Infant programme (CONI) in the United Kingdom, which supports parents who have had an unexpected and apparently unexplained infant death, were used to estimate the probability that a second episode of sudden unexpected and unexplained infant death is natural versus unnatural [20]. The following results were noted:
  - Among 6373 infants who completed the program between 1988 and 1999, 46 families suffered an additional sudden unexpected infant death (44 families lost one child and two families lost two children).
  - Among 44 families who lost a second child, 40 deaths were considered to be natural (including SIDS), five were ultimately considered to be filicide, and one homicide (at the hands of a babysitter). Thus, 14 percent of the deaths in a second child were unnatural.
  - Recurrent unexpected deaths among siblings were more often natural (including SIDS) than unnatural (odds ratio 6.7, 95% CI 2.8-19.4).
  - The relative risk of recurrence of SIDS in siblings was 5.9, similar to that in other large epidemiologic studies [21-23]. (See "Sudden infant death syndrome: Risk factors and risk reduction strategies", section on 'Sibling of SIDS victim'.)

- In a separate study of 27 children who had been suffocated by their mothers (as determined by reliable observation or a court of law), there was a high rate of unexpected death in older siblings during infancy [15]. Of the 33 children previously born into these families, 18 had died suddenly and unexpectedly between 1 and 36 months of age, including 13 whose deaths had been classified as SIDS.

- In another study of 30 infants and toddlers who were the victims of attempted suffocation (as documented by covert video surveillance), one third had siblings who had died suddenly and unexpectedly, and their deaths had been classified as SIDS [17].

**Metabolic disease** — Inborn errors of metabolism often present in early infancy with life-threatening episodes of metabolic decompensation. Studies conducted before metabolic screening for these disorders estimated that they were responsible for 1 to 6 percent of SIDS [24-26]. However, a study from a population that had undergone
extensive newborn screening for inborn errors of metabolism (infants born in California between 2005 and 2008) concluded that the prevalence of these disorders was not increased among infants dying unexpectedly [27]. These findings suggest that including extensive screening for metabolic disease in the newborn screen has effectively reduced or eliminated the contribution of undiagnosed metabolic disorders presenting as SIDS [28,29].

Other genetic variants that have been associated with SIDS, including those involved in regulating the immune system, cardiac function, the serotonergic network, brain development, and neurotransmitter metabolism. Because these variants are not associated with recognizable diseases, they are thought to have the potential to contribute to an individual's vulnerability. (See "Sudden infant death syndrome: Risk factors and risk reduction strategies", section on 'Underlying vulnerability'.)

The following clinical features increase the probability of a metabolic disease as the cause of sudden infant death [30]:

- History of previous SIDS or unexpected death in a sibling (especially if the death occurred in the first weeks or after two years of life)
- Family history of a sibling or cousin with an ALTE, Reye's syndrome, or myopathy
- Symptoms or signs prior to death, such as neonatal hypoglycemia, an ALTE, muscular hypotonia, vomiting, failure to thrive, hyperventilation, severe infections, or elevated aminotransferase levels

The most common disorders that can cause sudden death are defects in the metabolism of fatty acids, including medium chain acyl-CoA dehydrogenase (MCAD) deficiency [31], and several other fatty acid oxidation disorders [32,33]. Some affected infants die during their first episode of fasting intolerance, or when subjected to increased metabolic stress by an intercurrent illness. Abnormal metabolites accumulate in the body tissues and can be identified in the liver, urine, or other body fluids. However, these deaths often meet the criteria for SIDS if appropriate investigations are not performed at the time of autopsy. The autopsy finding of a fatty liver should raise the suspicion of a fatty acid oxidation disorder. (See "Inborn errors of metabolism: Epidemiology, pathogenesis, and clinical features" and "Inborn errors of metabolism: Metabolic emergencies", section on 'SIDS and ALTE'.)

Other metabolic diseases associated with sudden death include those related to the degradation of branched chain amino acids, urea cycle disorders, and propionic and methylmalonic acidemias. (See "Overview of maple syrup urine disease" and "Urea cycle disorders: Clinical features and diagnosis" and "Organic acidemias".)

Experts recommend that appropriate metabolic investigations be undertaken in all infants who die suddenly and unexpectedly, even if the diagnosis is initially considered to be SIDS [34]. Identifying those infants who died of an inborn error of metabolism has important implications for future pregnancies [35]. The evaluation for metabolic disease in victims of SIDS is discussed separately. (See "Inborn errors of metabolism: Metabolic emergencies" and "Inborn errors of metabolism: Metabolic emergencies", section on 'SIDS or ALTE'.)

FAMILY COMMUNICATION AND SUPPORT

Emergency response — When an infant or young child is found unresponsive at home or in a childcare setting, a parent or caregiver typically calls the local emergency response system for assistance. Parents or caregivers may attempt resuscitation, often moving the child from the place where found. The infant may have blood-tinged, frothy fluid coming from the mouth and nose. Lividity and rigor mortis may be present. The parents and caregivers are in shock and a wide range of reactions can be expected.

When emergency responders, including police officers and emergency medical technicians, arrive on the scene, they may initiate cardiopulmonary resuscitation (CPR) based on local protocols or continue the resuscitation attempts that were initiated by the parents or caregivers. Emergency responders should observe the scene, document their observations, and provide emotional support for the family. They usually transport the child to the nearest emergency facility, with hope the infant will respond to resuscitation efforts. Emergency responders arrange transport for parents to the hospital and assist in arranging for the care of children remaining in the home.

If the infant/child is pronounced dead at home, the family should be offered the opportunity to see, touch, and hold
their child, or to perform other actions to express their feelings in keeping with their cultural beliefs, values, and practices [36].

By using a calm, direct, and professional approach with parents and caregivers, the emergency responder offers structure to a chaotic situation. Emergency responders provide leadership and protection for the family. Their role requires cultural sensitivity and an understanding of the scope of family grief reactions, which may range from numbness to hysteria [36,37].

Reactions of emergency responders toward families have significant impact on later adjustment of families to the death. Because of the unique and sensitive role they play, emergency responders require training about the many aspects of sudden unexpected infant and child death. The content of training should include possible grief reactions of parents at the scene. Training should also include the incidence, risk factors, typical history, and current proposed causes of sudden infant and child death [36]. As a matter of policy, emergency responders should receive training about the cultural beliefs, values, and practices of families in the communities they serve [36,37].

Many emergency responders are deeply affected as they process their work with the infant/child and family, and may experience an acute or delayed stress response to the event [36]. Cumulative incident stress can create negative consequences at work, home, and in relationships. Emergency responders should be encouraged to participate in the critical incident debriefing process (CISD). CISD supports the healthy resolution of this tragedy and creates opportunities to reduce and manage effects of cumulative stress among emergency responders [38].

Responding to a death in day care — Emergency responders are also called to a family day care home or center-based day care when an infant is found unresponsive. While the numbers of infants who die in day care are small, the setting presents unique challenges for the responder. In addition to the unresponsive infant, there are other children who may have witnessed chaos and confusion in the day care environment. They may have heard and seen sirens and lights and multiple people arriving in the home. The care provider may not be able to accompany the infant to the hospital in order to stay with the other children in her/his care. The day care provider must contact parents of the child to notify them of the emergency and inform them of which hospital to go to. They also need to notify parents of the other children in the day care program, and report the death to their day care licensing agency. Providers will be investigated by both law enforcement and by their state-licensing agency.

At a later time, the emergency responder can return to the day care setting to talk with children who were present during the emergency to assure them that the responder was there to help. This approach has been useful in reassuring children and reducing their fear of emergency professionals and emergency vehicles [39].

Hospital emergency department intervention

Medical care and data collection — When an infant or young child presents in the hospital emergency department (ED) in a lifeless or near-lifeless condition, the child is evaluated and emergency life-saving care provided if appropriate [1,36,40]. EDs should develop and utilize written policies, procedures, and checklists to ensure optimum care for both the child and family [41]. The physical examination, laboratory, or other evaluations performed in the ED are carefully documented. The medical and health history of the child will be obtained and documented.

A review of the emergency responders' report(s) provides information regarding the circumstances of death. Important observations include:

- Time last seen alive
- Time when found unresponsive and by whom
- The sleeping environment in which the infant/child was found, including the sleep surface and use of bed covers and other articles
- Presence of other individuals in the sleeping environment
- The sleeping position when the infant was put down to sleep and when found
Careful documentation of this event may provide valuable information to county and state child fatality review teams. The review of this information provides an opportunity for team members to make recommendations to prevent similar deaths in the future [41].

**Interactions with the family** — Hospital ED personnel should respond in a supportive manner to families. The parents should be allowed to be present during resuscitation if they wish. Otherwise, a private space for families should be provided and a medical staff member should consistently inform them of their child's condition. Once the child is pronounced dead, the attending physician should inform parents of the child's death. ED staff then notifies the medical examiner/coroner and the child's healthcare provider. Family members should be given explanations regarding the rationale for and timing of an autopsy and death scene investigation, and should be told where their child will be transported for autopsy. It may be helpful to explain that an autopsy is a medical procedure similar to surgery, that it is performed in a respectful manner, and that it will help to eliminate or confirm any unsuspected illness or congenital anomaly ("birth defect") as a cause of death [1]. (See 'Case investigation' above.)

Harvesting of certain organs and/or tissue is feasible in many cases of SIDS [42]. Trained professionals may also request permission for organ or tissue donation based on state/local protocol. (See "Assessment of the pediatric patient for potential organ donation", section on 'Family communication'.)

It is important to allow parents time to express their grief. Parents should be offered the opportunity to see, touch, and hold their child or perform family rituals in an unhurried and sensitive manner in keeping with their cultural beliefs, values, and practices [37]. Hospital staff should offer to notify other family members, spiritual advisors, social services, or other supportive individuals as identified by parents. Mementoes or keepsakes, such as footprints, handprints, a lock of hair, photograph, or hospital bracelet, can be prepared and offered to the family. These physical reminders of the child are often comforting to parents because they give them something tangible to look at, hold, and touch [40].

ED personnel should be prepared for difficult situations including extremes in the parents' behavior, including screaming, collapsing, or expressing no emotion. They should use the child's name and encourage parents to talk about him or her. Appropriate and adequate support during this time sets the tone for the grieving process [1]. The use of sedatives and tranquilizers should be carefully evaluated as they are often unnecessary [36]. Moreover, there is some evidence that benzodiazepines have no benefit for grief intensity or sleep during the bereavement process [43].

Hospital protocols should include critical incident stress debriefing for staff.

Other important steps that should be taken before the family leaves the ED include:

- Providing information regarding how to make funeral arrangements and a hospital contact number in the event they have further questions of hospital staff.
- Arranging transportation home for parents because they are often unable to drive safely.
- Confirming contact information for the family to allow communication. This is important because families may not return to their own homes.
- Offering a referral to a local sudden unexpected infant/child death program or to other local bereavement services (see 'Resources and information' below). This referral provides an opportunity for families to receive grief counseling and guidance concerning the multifaceted grief issues they will face [1,36]. The sudden death of an infant or young child presents an extraordinary crisis, particularly for parents, siblings, and extended family members. Families need a skilled healthcare professional to guide them through the grieving process [1].

**Resources and information** — Several organizations provide information about SUID and SIDS, and are good resources for finding support groups (table 4):
Sudden unexpected infant death including SIDS: Initial management

- United States:
  - Association of SIDS and Infant Mortality Programs: [www.asip1.org](http://www.asip1.org)
  - National Center for Education in Maternal and Child Health: SUID/SIDS Gateway: [www.ncemch.org/suid-sids](http://www.ncemch.org/suid-sids)
  - First Candle/SIDS Alliance (a national network of SIDS support groups): [www.firstcandle.org](http://www.firstcandle.org)

- United Kingdom:
  - Foundation for the Study of Infant Deaths: [www.fsid.org.uk](http://www.fsid.org.uk)

- Canada:
  - Canadian Foundation for the Study of Infant Deaths (CFSID): [www.sidscanada.org](http://www.sidscanada.org)

- Australia:
  - National SIDS Council of Australia: [www.sidsandkids.org](http://www.sidsandkids.org)

- Japan:
  - SIDS Family Association Japan (SIDSFAJ): [www.sids.gr.jp](http://www.sids.gr.jp)

INFORMATION FOR PATIENTS — UpToDate offers two types of patient education materials, "The Basics" and "Beyond the Basics." The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on "patient info" and the keyword(s) of interest.)

- Basics topics (see "Patient information: Sudden infant death syndrome (SIDS) (The Basics)"
- Beyond the Basics topics (see "Patient information: Sudden infant death syndrome (SIDS) (Beyond the Basics)"

SUMMARY AND RECOMMENDATIONS

- Sudden unexpected infant death (SUID), or sudden unexpected death in infancy (SUDI), describes all unexpected infant deaths, and includes deaths caused by sudden infant death syndrome (SIDS). SIDS is defined as the sudden death of an infant less than one year of age, which remains unexplained after a thorough case investigation including performance of a complete autopsy, examination of the death scene, and review of the clinical history. It is the leading cause of mortality in infants between one month and one year of age in the United States. (See 'Definition' above.)

- The appropriate professional response to the death of any infant is compassionate, empathic, supportive, and nonaccusatory. At the same time, it is essential to discover the cause of death, if possible. (See 'Family communication and support' above and 'Case investigation' above.)

- Development and implementation of protocols for evaluation of the death scene and autopsy have led to more standardized approaches to unexpected infant deaths and increasing use of the diagnosis of accidental asphyxia. Nonetheless, the application of the guidelines and diagnosis assigned to a case remains inconsistent. (See 'Death scene investigation' above and 'Autopsy' above.)
A number of risk factors for SIDS have been identified (table 2). These include exposure to cigarette smoke, maternal age <20 years, prematurity, prone sleeping position, bed-sharing, soft bedding, and overheating. (See 'Clinical and family history' above.)

The differential diagnosis of SUID includes fatal child abuse and inborn errors of metabolism, as well as a number of less common disorders (table 3). Identification of these causes may prevent morbidity and mortality in siblings of the index case. (See 'Differential diagnosis' above.)

Features that increase the possibility of fatal child abuse include (see 'Fatal child abuse' above):

- Previous recurrent cyanosis, apnea, or an apparent life-threatening event (ALTE) while in the care of the same person
- Age at death older than six months
- History of previous SIDS or unexpected death of a sibling (although most cases of recurrent SIDS in a family are not due to child abuse)
- Previous death of infants under the care of the same unrelated person
- Simultaneous or near-simultaneous death of twins
- Evidence of previous pulmonary hemorrhage (such as marked siderophages in the lung)

Features that increase the probability of a metabolic disease include (see 'Metabolic disease' above):

- History of previous SIDS or unexpected death in a sibling (especially if the death occurred in the first weeks or after two years of life)
- Family history of a sibling or cousin with an ALTE, Reye's syndrome, or myopathy
- Symptoms or signs prior to death, such as neonatal hypoglycemia, an ALTE, muscular hypotonia, vomiting, failure to thrive, hyperventilation, severe infections, or elevated aminotransferase levels

REFERENCES


38. Mitchell JT. When disaster strikes...the critical incident stress debriefing process. JEMS 1983; 8:36.


Topic 16845 Version 6.0
## Typical morphologic findings in a SIDS autopsy

<table>
<thead>
<tr>
<th><strong>External examination</strong></th>
<th></th>
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<tbody>
<tr>
<td>Well-developed, well-nourished baby</td>
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<tr>
<td>Frothy blood-tinged fluid around the nose (50 percent)</td>
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<tr>
<td>Cyanosis of the lips and nail beds</td>
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<td>Hypostatic staining anteriorly suggesting face down position</td>
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<table>
<thead>
<tr>
<th><strong>Internal examination</strong></th>
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<tbody>
<tr>
<td>Pulmonary congestion (89 versus 80 percent in controls)</td>
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<tr>
<td>Pulmonary edema (63 versus 51 percent in controls)</td>
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<tr>
<td>Thymic petechiae (44 versus 25 percent in controls)</td>
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<tr>
<td>Persistent hepatic erythropoiesis (23 versus 14 percent in controls)</td>
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<tr>
<td>&quot;Subacute&quot; inflammation of the upper respiratory tract</td>
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<tr>
<td>Focal fibrinoid necrosis of the larynx</td>
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<tr>
<td>Full expansion of the lungs</td>
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<tr>
<td>Liquid blood in the heart</td>
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<tr>
<td>Normal prominent lymphoid tissue</td>
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<tr>
<td>Empty urinary bladder (50 percent)</td>
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</tbody>
</table>
## Epidemiologic risk factors for SIDS

### General factors
- Low birth weight
- Racial/ethnic differences (increased risk in nonwhite races)
- Gender - male greater than female
- Climate - twofold increased risk in cold versus warm months

### Maternal and antenatal factors
- Smoking, illicit drugs
- Young, unmarried, no high school degree
- Late or no prenatal care
- Poor gestational weight gain
- Pregnancy complications (placenta previa, abruption, premature rupture of membranes)
- Anemia
- Urinary tract infection, sexually transmitted disease
- Short interpregnancy interval

### Neonatal factors
- Prematurity
- Small for gestational age
- Vital signs - **not** a risk
- Apnea of prematurity - **not** a risk

### Post neonatal factors
- Prone sleep position - 1.3-fold increased risk
- Sleep environment - soft sleep surfaces, loose bedding accessories, bed-sharing
- Recent gastrointestinal illness
- Listlessness
- Breast feeding - **reduces** risk
- Recent upper respiratory infection - **not** a risk
- Immunizations - **not** a risk

SIDS: sudden infant death syndrome.


Graphic 75379 Version 4.0
### Disorders that can mimic SIDS

<table>
<thead>
<tr>
<th>General</th>
<th>Gastrointestinal tract</th>
</tr>
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<tbody>
<tr>
<td>Sepsis (including meningococcemia)</td>
<td>Enterocolitis with Salmonella, Shigella, or pathogenic E. coli</td>
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<tr>
<td>Asphyxiation (accidental or deliberate)</td>
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<tr>
<td>Anaphylaxis</td>
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<tr>
<td>Metabolic decompensation</td>
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<td>Hyperthermia</td>
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<td>Poisoning (with toxic effects on kidney, liver and/or brain)</td>
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<tr>
<td>Inborn errors of metabolism (may affect liver, muscle, and/or brain)</td>
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<tr>
<td><strong>Blood</strong></td>
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<td>Sickle cell disease in crisis</td>
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<td><strong>Heart</strong></td>
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<tr>
<td>Subendocardial fibroelastosis</td>
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<tr>
<td>Congenital heart disease (especially aortic stenosis)</td>
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<tr>
<td>Myocarditis</td>
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<tr>
<td><strong>Lungs</strong></td>
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<tr>
<td>Pneumonia</td>
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<td>Bronchiolitis</td>
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<tr>
<td>Tracheobronchitis, severe</td>
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<td>Aspiration or airway obstruction</td>
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<tr>
<td>Idiopathic pulmonary hypertension</td>
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<tr>
<td><strong>Kidney</strong></td>
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<tr>
<td>Pyelonephritis</td>
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SIDS: sudden infant death syndrome.

Graphic 79550 Version 3.0
Sudden unexpected infant death/Sudden infant death syndrome resources

**Association of SIDS and Infant Mortality Programs**

<table>
<thead>
<tr>
<th>112 E. Allegan, suite 500</th>
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<tbody>
<tr>
<td>Lansing, MI 48933</td>
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<tr>
<td>1-800-930-7437</td>
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<tr>
<td>email: <a href="mailto:info@asip1.org">info@asip1.org</a></td>
</tr>
<tr>
<td>website: <a href="http://www.asip1.org">www.asip1.org</a></td>
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**First Candle/SIDS Alliance**

(a national network of SIDS support groups)

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<tr>
<th>1314 Bedford Avenue</th>
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<tbody>
<tr>
<td>Suite 210 Baltimore, MD 21208</td>
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<tr>
<td>1-800-221-7437 or 1-410-653-8226</td>
</tr>
<tr>
<td>email: <a href="mailto:info@firstcandle.org">info@firstcandle.org</a></td>
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<tr>
<td>website: <a href="http://www.firstcandle.org">www.firstcandle.org</a></td>
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**Foundation for the Study of Infant Deaths**

<table>
<thead>
<tr>
<th>Artillery House</th>
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<tbody>
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**Canadian Foundation for the Study of Infant Deaths (CFSID)**

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<tr>
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<tr>
<td>1-800-363-7437 (toll-free) or</td>
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<tr>
<td>1-416-488-3260 or</td>
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<tr>
<td>1-416-488-3864 (fax)</td>
</tr>
<tr>
<td>email: <a href="mailto:sidsinfo@sidscanada.org">sidsinfo@sidscanada.org</a></td>
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<td>website: <a href="http://www.sidscanada.org">www.sidscanada.org</a></td>
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**National SIDS Council of Australia, Ltd.**

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<td>98 Morang Road</td>
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Adapted from: the National Institute of Child Health & Human Development Fact Sheet: Sudden infant death syndrome (www.nichd.nih.gov/publications/pubs/sidsfact.htm).

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