

*Revised July 2009*

Thanks to years of research, experts have been able to develop risk reduction recommendations that can help parents and caregivers provide the best possible chance for their baby to survive and thrive. We hope the following information will help you understand why removing these challenges from your baby's environment is so important.

While the recommendations cover many of the challenges faced by our babies, most of them revolve around providing a safe place for your baby to sleep. So we would like to spend some time talking about this in relation to rebreathing carbon dioxide - felt to be one of the leading causes of Sudden Infant Death Syndrome or SIDS. This will also help explain some of the concerns and questions about suffocation that come up from time to time.

Creating a safe sleep zone for your baby, every time he or she is placed down to sleep, is one of the most important things you can do to protect against SIDS, suffocation and accidents during sleep. To eliminate as much risk as possible, babies should be placed to sleep on his or her back, in a crib that meets current safety standards with a firm mattress covered with only a tight-fitting crib sheet. There should be nothing soft, loose or fluffy in the sleep space. On the other hand, we also know that there are times, either by choice or circumstance, when babies sleep in an area besides a crib. It is important to note that this vision of a safe sleep space must be duplicated no matter where your baby sleeps.

Now let's talk about why this is so important. As human beings, when we exhale we exhale carbon dioxide or "bad air." This is normal - we all do it! But when a baby sleeps on its tummy, or there is soft, fluffy or loose bedding or other objects in their sleep space, that carbon dioxide can build up around the baby's head and face. So, rather than breathing fresh air, the baby breathes the bad air. To a normal, healthy baby breathing the bad air would not cause a problem. Their brain would tell them that they are breathing too much carbon dioxide and they would cough, cry, turn their head or do something to get themselves out of the challenging situation. To a baby predisposed to SIDS (see Triple Risk Model), their brain does not tell them there is a problem, so they continue to breath the bad air, which can then cause them to die suddenly and unexpectedly. The same holds true for overheating, another risk factor - when a healthy baby becomes overheated their brain recognizes the problem and attempts to correct it. When a baby predisposed to SIDS overheats, nothing happens to correct the situation.

This underscores the importance of removing everything from a baby's sleep area that could cause this dangerous rebreathing of carbon dioxide. As we know, it is only a very short time before most babies begin wiggling, scooting and rolling around the sleep area and can get their face near a blanket, bumper, stuffed toy or other object. The primary goal that we are trying to teach parents and caregivers is to keep the air around their sleeping baby as clear and fresh as possible.

I think it's important to note once again, that at this time we have no way to identify which babies are a higher risk with the brainstem abnormality - so it is important that all babies be cared for according to the risk reduction recommendations.

Now let's take our understanding of rebreathing carbon dioxide and apply that to our concerns about suffocation. When we think of suffocation, we automatically think of something blocking the mouth and or nose (either intentionally or accidentally) and not letting any air go in or out – obviously resulting in death if the blockage is not removed. This type of suffocation death would most likely result in more obvious signs of struggle upon autopsy – indicating that the baby was fighting against what was causing the suffocation.

The hemorrhages commonly found in SIDS victims are petechial hemorrhages, which are very small pinpoint hemorrhages that experts feel are most likely a result of the suddenness of the death and sudden shutdown of the organs rather than those that are a result of a struggle. As experts have noted, studies are ongoing in this area to determine the various processes that may be going on when a baby dies of SIDS to cause these pinpoint hemorrhages.

Many SIDS parents share stories about finding their baby with a blanket or other object covering or near their head. A simple test will tell us that a blanket placed loosely over our face would not keep us from breathing – and if it did get to that point we would do something (move the blanket, fight against it or call for help) to get out of the situation. Most likely what happened with these babies is that the covering or other object caused a buildup of carbon dioxide around their head and face that triggered a SIDS death as a result of the defect in their brainstem (see Triple Risk Model.) From our experience with investigating SIDS deaths, counseling parents, and other means of collecting data – we know that these babies do not struggle or suffer. It truly appears that they either peacefully fall asleep or continue peacefully sleeping through this life-threatening event.

I hope this helps explain why there is some confusion about SIDS and suffocation. Depending on an individual's interpretation of rebreathing carbon dioxide, it could be considered a type of suffocation – just not in the traditional sense that first comes to mind. It is also important to note that a buildup of carbon dioxide that could have been present in a baby's system is not detectable upon autopsy. And, unfortunately, because the equipment required is so elaborate and not available to the average medical examiner or coroner, it is also not possible to determine if a baby thought to have died of SIDS has the abnormality in their brainstem. It is only with elaborate (costly) equipment that scientists have been able to closely examine the brainstems of SIDS victims to determine this abnormality that makes certain babies at greater risk to die of SIDS.

In closing, again what this information tells us is that there is much work to be done. First Candle/SIDS Alliance, along with grassroots groups around the country, have been strong advocates for legislating the use of mandatory autopsies, death scene investigations performed according to specific criteria and a review of the medical history for every baby dying suddenly and unexpectedly. This is the only way that we can continue to make progress at sorting out the mystery of SIDS.