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Teaching Child Care Providers to Reduce the Risk of SIDS (Sudden Infant Death Syndrome)

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Abstract: Keeping children safe and healthy is one of the main concerns of parents and child care providers. SIDS (Sudden Infant Death Syndrome) is the leading cause of death in infants 1 month to 12 months of age. Over 2,000 infants die from SIDS every year in the United States, and almost 15% of these deaths occur in child care settings. A targeted educational training was developed to teach child care providers about SIDS and the importance of safe sleep environments in child care. Statistical analyses indicated significant differences in participant knowledge and self-reported practices on pre- and post-tests.

Sudden Infant Death Syndrome (SIDS)

Keeping children safe and healthy is one of the main concerns of parents and child care providers. Sudden Infant Death Syndrome (SIDS) is the leading cause of death for infants from 1 to 12 months of age. Over 2,000 infants die from SIDS every year in the United States (National Vital Statistics Reports, 2008), and approximately 20% of SIDS deaths occurred while an infant was in non-parental care (Moon, Calabrese, & Aird, 2008; American Academy of Pediatrics Policy Statement, 2005; Moon, Patel, & Shaefer, 2000).

The number of deaths occurring in child care is disproportionately high. Two thirds of U.S. infants younger than 12 months spend an average of 22 hours each week in child care (Macomber, 2001). Based on the number of hours infants spent in non-parental care, approximately 7% of SIDS deaths should occur during this type of care; however, the rate is much higher at 20% (American Academy of Pediatrics Policy Statement, 2005; Moon, Patel, & Shaefer, 2000). Therefore, helping child care providers reduce the risk of SIDS in child care settings is a significant goal for Extension professionals.

This article provides a brief history of SIDS, describes an Extension training on reduction the risk of SIDS in child care, and reports on the effectiveness of the training in increasing child care providers' awareness and knowledge about SIDS.

Unfortunately, the exact reasons why infants die of SIDS are still unknown. The current definition for SIDS is "the sudden death of an infant under 1 year of age, which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of death scene, and review of the clinical history" (Willinger, James, & Catz, 1991, p. 681). Thus, SIDS is only identified as the cause of death when all other possible causes have been ruled out. Factors associated with an increased risk of SIDS include: soft sleep surfaces, use of pillows, covering an infant's head or face with bedding, and not using a pacifier (Hauck et al., 2003).

There is currently no known way to prevent SIDS; however, there are accepted strategies to reduce the risk of SIDS. One of the most successful risk-reduction strategies is to create a safe sleep environment, which includes always placing infants to sleep on their backs. The "Back to Sleep" (BTS) campaign, launched in 1994, aimed to educate the public about the importance of placing infants to sleep on their backs. Overall the BTS campaign has had a high rate of success in changing infant sleep practices. In 1992, 70% of infants were sleeping on their stomachs, compared to 14.5% in 2008 (National Infant Sleep Position [NISP], 2008). Nationally, the number of SIDS deaths decreased by over 50% during this same time period (National Center for Health Statistics, n.d.).

However, the decline was less for African-American babies, who are more than two times as likely to die of SIDS as Caucasian babies, and for American-Indian/Alaska Native babies, who are nearly three times as likely to die of SIDS as Caucasian babies (Center for Disease Control and Prevention, 2009). Therefore, education efforts are still needed especially targeting higher risk populations.

Although educational efforts such as the BTS campaign have targeted non-parental infant child care providers (such as child care providers), many of these child care providers still place infants on their stomachs to sleep. A 1996 study of licensed child care providers found 43% were unaware that placing infants to sleep on their stomachs was related to a higher risk for SIDS deaths (Gershon & Moon, 1997). More recent studies have shown 20 to 28% of child care providers still place infants on their stomachs to sleep (Moon & Biliter, 2000; Moon & Oden, 2003). Reasons commonly stated included: fear of chocking, fear of suffocation, infant comfort, infant sleeps longer, and parent request (Moon, Calabrese, & Aird, 2008; Moon & Oden, 2003).

Developing Training for Child Care Providers on SIDS

Given the high occurrence of SIDS in child care settings, child care providers are an important target audience for SIDS risk-reduction education. Some studies have shown that training about SIDS is effective in improving the knowledge and practices of child care providers (Malley, 2002; Moon et al., 2008; Moon & Oden, 2003). Providers' awareness of the importance of placing infants on their backs to sleep increased, as did in the exclusive use of back sleeping in the child care program (Moon et al., 2008). Teaching child care providers about SIDS statistics, safe sleeping practices, and ways to overcome barriers or fears related to

back sleeping (i.e., fear of choking, infant sleep better/longer, parent request) contributed to improving child care providers' knowledge of SIDS (Moon et al., 2008).

In 2006, the Nevada Bureau of Services for Child Care was in the process of implementing a new state child care licensing requirement that would require all child care providers caring for infants and toddlers to complete two hours of training on SIDS. The Bureau requested that the University of Nevada Cooperative Extension develop and present a two-hour child care provider training on Reducing the Risk of SIDS in Child Care throughout the state. The training was developed by a team of Extension faculty using the latest research and information on SIDS.

Prior to statewide implementation, the training was presented to a group of early childhood professionals for their critique and suggestions. Based on their feedback, the training was revised, and then local Extension staffs were trained on the curriculum by the Extension early childhood specialist. The training included participating in an actual SIDS training and then covered additional information on SIDS and effective teaching strategies. The Extension staffs received a kit that included the curricula, PowerPoint, handouts, evaluations, certificates, and resource materials. The goals of the statewide training on SIDS were to help child care providers:

1. Understand SIDS

2. Know the facts and fiction about SIDS

3. Identify and understand how to implement safe sleep practices

4. Recognize ways to lower the risk of SIDS

5. Identify and share SIDS-related resources

The intended long-term outcomes were that all infants in child care would be placed on their backs to sleep and thus reduce the risk of SIDS in Nevada. During the training, the importance of safe sleep environments was stressed. Participants were given a poster outlining sleep policies to adopt and post in their child care centers and also share with parents. Safe sleep policies include:

- Place all healthy infants on their backs to sleep.

- A doctor's note is required if an infant needs to sleep in a position other than on its back.

- Infants are placed on safety-approved cribs and firm mattresses.

- Cribs are free of toys, stuffed animals, and extra bedding.

- The room is kept at a temperature that is comfortable for a lightly clothed adult.

- Smoking is not allowed around infants. (Adapted from American Academy of Pediatrics: Healthy Child Care America Back to Sleep Campaign. (2008). A child care provider's guide to safe sleep.)

During the training, child care providers were given sample resources and ordering information from the National Institute of Child Health and Human Development (2009), American Academy of Pediatrics: Healthy Child Care America Back to Sleep Campaign (2008), and the CJ Foundation for SIDS (2009). The resources can help participants share information on SIDS with parents, co-workers, families, and friends about how to reduce the risk of SIDS.

Evaluation Methods

Procedure

Reducing the Risk of SIDS in Child Care training was presented and evaluated across Nevada between November 2006 and May 2007. During the evaluation period, the training was presented to 297 child care providers in 14 different communities. All participants were asked to complete a questionnaire/test before the training began and after the training was concluded. The purpose of the pre-post questionnaire/test was to gather demographic information and assess knowledge gain and intended behavior change.

On the pre-questionnaire/test child care providers were asked for demographic information and asked about their current perceived level of knowledge about SIDS (0 = no knowledge and 10 = a lot of knowledge). They were asked to indicate how often (always, sometimes, or never) they placed a baby on their back, side, and stomach to sleep. Eighteen true/false questions assessed their knowledge of facts related to SIDS. Additional information requested on the post included rating of the training and trainer. Child care providers were also asked to indicate how they would place babies to sleep in the future (back, side, or stomach).

Data Analysis

Descriptive statistics (means, percentages, and standard deviation) were used to analyze the demographic data and individual responses to questions. Two-tailed paired sampled t-tests were conducted to determine significance between pre- and posttest knowledge gain (95% Confidence Interval).

Findings

Seventy-four percent of the participants in the study stated they currently cared for infants. The average number of years participants had cared for children professionally was 8.2 years (Range 0 to 44 years). Table 1 lists the ethnicity and current employment positions of participants.

Table 1.
Respondent Characteristics

Characteristic	Number of Responses	Percentage
Ethnicity (n=270)		
Caucasian/White	177	65%

Hispanic/Latino	42	16%
Asian/Pacific Islander	24	9%
African American/Black	21	8%
American Indian/Native American	6	2%
Employment Position (n=290)		
Assistant teacher in a child care center	144	39%
Lead/head teacher in a child care center	65	22%
Family or group home care provider	39	14%
Director/assistant director or administrator	36	12.5%
Other (i.e. home visitor, family advocate, curriculum specialist, parent)	36	12.5%

Before the training, participants were asked to report their current perceived level of knowledge about SIDS. The average knowledge level before the training was 4.32 (SD=2.50). After the training, participants reported a level of knowledge averaging 9.04 (SD=1.21). Paired t-tests indicated a statistically significant ($p < .001$) improvement in participants' self-rated knowledge regarding SIDS and related issues.

Several items tapped participants' knowledge about SIDS. True/False questions focused on safe sleep practices, SIDS facts, and risk factors for SIDS (Table 2). A paired t-test was conducted using a 95% confidence interval (n=293). The differences between the pre-test (M=11.27, SD 3.11) and post-test (M=16.93, SD=2.08) indicated a statistically significant increase in participant's overall knowledge score ($p < .001$).

Table 2
SIDS Knowledge Increase from Pre- to Post-test (n = 293)

Item	**Pre-Test % Correct**	**Post-Test % Correct**	**Percent Increase from Pre- to Post-test***
Nationally, 20% of SIDS deaths happened while the baby was in the care of a child care provider or relative. (True)	25	92	+67
SIDS is caused by suffocation. (False)	34	95	+61
There is no increase in choking problems in babies sleeping on their backs. (True)	31	90	+59

More baby girls die of SIDS than baby boys. (False)	40	95	+55
More SIDS deaths occur in warmer months. (False)	31	83	+52
Babies who have a mother who smokes during pregnancy are at a higher risk for SIDS. (True)	48	99	+51
Premature or low birth weight babies are at greater risk for SIDS. (True)	46	92	+46
SIDS can be caused by immunizations. (False)	62	97	+35
Doctors used to tell mothers to place babies on their stomachs to sleep. (True)	63	89	+26
SIDS is caused by sleeping in a crib. (False)	75	95	+20
SIDS cannot be prevented, but the risk can be reduced. (True)	81	99	+18
There is no way to know which babies might die of SIDS. (True)	80	97	+17
Babies who usually sleep on their backs, and are then placed to sleep on their stomachs, are at greater risk of SIDS. (True)	75	90	+15
SIDS is the leading cause of death for babies one month to one year. (True)	77	92	+15
When awake, babies need time on their tummies to strengthen neck and shoulder muscles. (True).	86	99	+13
SIDS is contagious. (False)	88	99	+11
It is safe for babies to sleep on soft mattresses, sofas, and waterbeds. (False)	91	96	+5
Cribs should be free of toys, stuffed animals, and excess bedding to reduce the risk of SIDS. (True)	92	97	+5
* p<.01 for each item			

As documented in Table 2, the pre-test data indicates that many participants lacked accurate information. For example, on the pre-test 79% of the participants believed there is an increase in choking problems when

infants sleep on their backs. They also believed that SIDS is caused by suffocation (66%) or immunizations (38%). A moderate number of participants had knowledge of factors that increase the risk of SIDS. Forty-eight percent correctly identified smoking as a risk for SIDS on the pre-test. Most of the participants already understood that it is not safe for infants to sleep on soft mattresses, sofas, or waterbeds (91%) and that cribs should be free of toys and excess bedding (92%). Overall, the level of misinformation related to SIDS was greatly reduced from pre- to post-test (Table 2).

To assess possible impact on behavior, participants were asked about how they placed infants to sleep (pre-test) and how they would position infants in the future (post-test). Participants could indicate if, before the workshop, they placed infants to sleep on their stomachs, sides, or backs (always, sometimes, or never). On the pre-test, 46% of participants reported that they placed infants to sleep on their stomach some or all of the time. Sixty-five percent stated they placed infants on their sides some or all of the time, and 71% on their backs all of the time. The number of participants reporting placing infants to sleep on their stomachs or backs (some or all of the time) was much higher than anticipated. After the training, 98% of the participants reported that, in the future, they would place infants to sleep on their backs. It would be beneficial to conduct a follow-up evaluation to determine the exact percentage of child care providers who actually made a behavior change as a result of this training.

Implications for Extension

Infants in child care continue to be at risk for SIDS because many child care providers lack knowledge about how to reduce this risk. Extension has great potential for providing training that could save lives and reduce the emotional distress that occurs when a baby dies.

Workshops conducted by Extension staff in Nevada were effective in increasing participants' knowledge about how to reduce the risk of SIDS. In addition, participants who had previously reported that they sometimes or always put infants to sleep on their sides or stomachs indicated that, in the future, they would put infants to sleep on their backs. This is especially important because infants who are put to sleep on their backs by parents and then placed on their stomachs by child care providers are at an elevated risk for SIDS (Moon, Patel, & Shaefer, 2000). Child care providers were given a poster of safe sleep policies that they were encourage to adopt and post in all infant rooms (American Academy of Pediatrics: Healthy Child Care America Back to Sleep Campaign, 2008).

Many of the myths associated with SIDS (e.g., caused by immunizations) were refuted. Child care providers were also given resources to give to parents to expand the information on SIDS into the community. The University of Nevada Cooperative Extension also began a train-the-trainer program in 2010 to increase the reach of the SIDS training to both child care providers and parents. In March 2010, 60 individuals from across the state were trained on presenting the SIDS training. Thus far, 39 trainers have presented the SIDS training 114 times to 1,456 child care providers and parents in twelve communities across the state.

Jouridine and Green (2001) offered specific suggestions on how Extension professionals could influence education, intervention, and public policy efforts aimed at reducing the incidence of SIDS. These suggestions included incorporating SIDS risk-reduction messages into existing programming, involving the media, and expanding the use of information technology. Messages on SIDS can be shared through news releases, radio PSA's, list serves, organizational newsletters, and Web pages. It is recommended that brochures and posters on SIDS be distributed to hospitals and pediatricians to target new parents.

Our experience providing training and a review of research indicate a few additional recommendations. Extension personnel can:

1. Encourage child care providers and parents to advocate for including safe sleep practices in state child care licensing regulations if they are not currently included. Current regulations in Nevada state, "Ensure that each infant under 12 months of age is placed on his back on a firm mattress, mat, or pad manufactured for use by an infant when the infant is napping or sleeping (NAC 432A.416, 3a)" [Nevada Division of Child Care, n.d., p.50]. Additional regulations prevent the use of waterbeds, sofas, soft mattresses, pillows, or other soft surfaces as location for infants to nap or sleep (Nevada Division of Child Care, n.d.).

2. Offer training for child care providers, parents, grandparents, and other non-parental caregivers of infants and toddlers on reducing the risk of SIDS. Training should be ongoing and specifically target high-risk audiences.

3. Create public awareness campaigns to spread the word to parents, grandparents, and other child care providers about the importance of following safe sleep practices which includes always placing infants to sleep on their backs. Target culturally diverse families and the child care providers that serve them.

It is important to remember that SIDS is not preventable at this time, but the potential risk can be reduced. SIDS is not caused by abuse or neglect, suffocation, immunizations, choking, or sleeping in a crib. However, Extension professionals can be involved in educating child care providers to increase safe sleeping practices of infants and toddlers to help reduce the risk of SIDS.

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