

Prevention of Abusive Head Trauma: A Literature Review

Bethany Stoll and Judy K. Anderson

Abusive head trauma (AHT), previously known as shaken baby syndrome, is a form of traumatic brain injury that was first recognized by neurosurgeons in the early 1970s (Barr, 2012). According to the American Academy of Pediatrics Committee of Child Abuse and Neglect, the violence leading to such injuries is so severe that “individuals observing it would recognize it as dangerous and likely to kill the child” (Gutierrez, Clements, & Averill, 2004, p. 24). Unfortunately, AHT is a significant problem in the United States, with estimates of incidence ranging from 14 to 32 cases per 100,000 live births for children under one year of age (Barr, 2012). The peak age of incidence is estimated to be three months (Barr, 2012). The consequences of AHT are extremely severe, with fatal results in 18% to 25% of hospitalizations and lifelong brain injury for another 80% (Barr, 2012). The damage caused by trauma to the head incurs not only cognitive damage, but also lifelong financial consequences, with conservative estimates suggesting an average cost of \$210,012 per infant for nonfatal injury and \$1,272,900 per fatal injury (Barr, 2012). Each year in the United States, an estimated financial burden of \$124 billion is accrued due to AHT (Barr, 2012).

Manifestations associated with AHT include vomiting, lethargy, irritability, tremors, fever, apnea, excessive crying, feeding difficulty, and developmental delay (Gutierrez et al., 2004). Little external evidence of injury is visible, but infants may occa-

Abusive head trauma, formerly known as shaken baby syndrome, is a condition with physical, psychosocial, and fiscal implications presenting opportunities for nurses to intervene with prevention strategies. This integrative review of the literature explored the empirical evidence to identify prevention strategies effective in decreasing abusive head trauma. Education, medical, and nursing databases yielded 14 quality research studies providing the basis for the review. Multiple facets of prevention strategies were identified with patterns in the literature of community involvement, early detection and involvement by health professionals, and parental education programming. A five-component model of prevention strategies is proposed to provide nurses with a comprehensive approach to the issue. These components consist of a) completion of personal inventory, b) involvement in multi-modal parental education, c) commitment to a prevention program, d) participation of the family and community, and e) connection to a spiritual element. Through these components, it is hoped there is enhancement of the quality of life for parents and infants, and a discouragement of situations that increase the risk of infant injury.

sionally manifest abdominal injuries, rib fractures, long-bone fractures, and patterned bruises. Laboratory findings may show mild-to-moderate anemia, mild-to-moderate hypocoagulation, high amylase levels due to pancreatic damage, and elevated markers for liver trauma (Gutierrez et al., 2004). Vision loss due to retinal tears, hearing impairments, seizure disorders, cerebral palsy, sucking and swallowing disorders, developmental disabilities, autism spectrum disorders, cognitive impairments, behavioral problems, and potentially persistently unaware states may all result from AHT (Gutierrez et al., 2004). Neurological imaging may reveal subdural hematoma, cerebral edema, retinal hemorrhage, and skull fractures (Barr, 2012). Such injuries result from a combination of “acceleration-deceleration injury, impact or blunt trauma, and secondary brain injury resulting from hypoxia, ischemia, and metabolic cascades” (Barr, 2012, p. 17, 295). Forces of rotation applied to the head cause the brain to abruptly turn on the brainstem-cerebral junction. The anatomy of a proportionately large head, weak neck muscles, soft and developing brain tissue, a thin skull

wall, and lack of muscle control create extremely vulnerable conditions for infants (Gutierrez et al., 2004).

According to Barr (2012), adults who cause AHT to infants are most likely to be boyfriends, stepfathers, mothers, temporary caregivers, and others, respectively. Environmental risk factors currently reported include households with adults who are not biological parents, and to a lesser degree of consistency, lower socioeconomic status, family stress, and households, including adults who have served in the military (Barr, 2012). Male infants are more likely than females to be victimized, as are premature infants, multiples, developmentally delayed infants, or children with a previous history of abuse (Barr, 2012). Inconsolable crying is consistently one of the most reported triggers for cases of AHT. A study in Vancouver found that 1.9% of mothers and 3.0% of the general public agreed that shaking is an appropriate and effective way to stop a child from crying (Barr et al., 2009, as cited in Barr, 2012). Until recently, inconsolable crying was considered communication that implied need and was not considered a part of normal devel-

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opment (Barr, 2012). Current research now suggests that crying is normal, but education of the public is necessary to direct the mind away from the teachings of the past.

Prevention of AHT has been of increased importance in current medical research. Education of parents, caregivers, health care professionals, teachers, and community members may prove to be the most effective method of reducing the incidence of future cases. Health care professionals, especially maternal-child nurses and emergency department personnel, are in critical positions for early recognition and implementation of prevention strategies. Current research has begun to study the effectiveness of various materials in providing caregiver education to prevent AHT. The focus has been to spread the understanding that crying is a natural part of development, not a problem that is resolved through violence. This review of the literature pertains to prevention and education strategies that have been reported during the past five years.

Purpose/Goal Of the Review

The purpose of this literature review was to evaluate past education and/or prevention strategies focused on consumers and health care professionals in reducing the occurrence of AHT in infants younger than two years of age. To evaluate past education or prevention measures, the research question addressed in this literature review is, "What prevention strategies have been effective in decreasing abusive head trauma?"

The goal of this literature review was to determine the effectiveness of past programs in reducing the occurrence of AHT. Gathered information can be used to support the development of a new multi-modal caregiver educational program to reduce the incidence of AHT.

Review of Literature

Search for Evidence

The databases CINAHL, MEDLINE, and Education Research Complete were searched to locate past studies or implementation of education and prevention strategies. The search phrases "abusive head injury," "prevention," and "Shaken Baby Syn-

drome" were used in the search process. Limitations to the search results included only English language articles and publication date within the past five years. The search yielded 52 results. Nine empirical sources were included in this review, with an additional five non-empirical sources summarized. Thirty-seven sources were discarded based on lack of relevance to the purpose of this literature review. The 14 sources that were reviewed were chosen for containing the word(s) "education," "prevention," "awareness," "facts," "advocacy," "fight," "intervention," "learning," or "opportunity" in content.

Polit and Beck (2012) provide a hierarchy for interventional literature ranging from expert panels/content authority (Level VII) to systematic review of randomized or non-randomized studies (Level I). Included in this review are Level II sources ($n = 4$), Level IV sources ($n = 1$), and Level VI sources ($n = 4$).

Also present in the literature were non-empirical sources reporting projects or other interventions relevant to the topic. Meskauskas, Beaton, and Mesurvey (2009) reported on a hospital-based education for parents, developed after training for the nursing staff. Similar to other reports, this program involved multiple educational strategies, including one-on-one instruction, videos, brochures, and parental signature verifying receipt of materials. A printed certificate was also included as a visual reminder of the education received. The literature also contains reports of programs resulting from or as a result of legislative action to require education for health care professions and/or parents of newborns (Altimier, 2008; Gibbs & Nevitt, 2011; Lewin, 2008; Meskauskas et al., 2009). Kentucky is an example of one state mandating continuing education for all nurses and other designated groups interacting with the population most vulnerable to this condition (Kentucky Board of Nursing, 2013). Sims and Hood (2010) reported on a project undertaken by nursing students using simulation to provide education to community personnel working with infants and to high school students.

Challenges in the literature were the use of convenience samples for most of the studies along with the use of self-reported data for outcomes. Many studies used only short-term measurements to support the inter-

vention. Finally, only one study provided insight to the effectiveness of the intervention in decreasing incidence of AHT (Altman et al., 2011). See Table 1 for a summary of the studies.

Findings

The conclusions drawn in the literature reviewed demonstrate three major themes in prevention of AHT (see Figure 1). These three themes include a) entire community involvement in prevention; b) early implementation of previous strategies and early detection; and c) caregiver education strategies that connect caregivers to community resources, teach safe and effective coping skills, and educate about normal childhood development.

Entire community involvement in prevention. Past research indicates that nationwide involvement and education of entire communities is critical in reducing abusive head injuries. Knowledge provided to all individuals of a community may promote earlier detection of at-risk infants, thus increasing early intervention. Hands-on education of community members is an important component of multi-modal prevention strategies. Community-wide efforts advocating for the development of new federal initiatives that increase awareness and knowledge about AHT is another strategy. This may reduce the incidence rate. Federal initiatives that require education of caregivers, teachers, daycare providers, foster families, and individuals working with children may also allow early intervention in suspected cases.

Early implementation of prevention strategies and early detection. Several reviewed articles conclude that health professionals, especially nurses, fill a critical role in reducing the incidence of AHT. Nurses who come into contact with potential at-risk children should be provided sufficient training in early recognition of abuse. Proper education of nursing personnel may allow for more successful recognition of warning signs and increase confidence in reporting suspected cases. With proper education of nurses, the provision of personalized, individual caregiver education (for example, following maternity care) may become an achievable goal. Intervention strategies that emphasize provision of engaging education for both mothers and fathers should be

Table 1.
Summary of Research

Citation/Level of Evidence	Purpose, Sample, and Setting	Design/Methodology	Findings	Implications
Barr et al. (2009) Level II	<p><i>Purpose:</i> To evaluate the effectiveness of the <i>PURPLE Crying</i> Educational Program in changing maternal knowledge and behaviors related to shaking.</p> <p><i>Sample:</i> Convenience; $N = 1,279$ new mothers.</p> <p><i>Setting:</i> Vancouver, British Columbia, Canada.</p>	<p>Randomized controlled.</p> <p>The control group received basic injury prevention materials, including 2 brochures and a DVD.</p> <p>The experimental group received the <i>Period of PURPLE Crying</i> material, including an 11-page book and a DVD.</p> <p>Five weeks after giving birth, the mothers were asked to complete a Baby's Day Diary.</p> <p>Three weeks later, independent researchers contacted each mother to complete a questionnaire regarding knowledge about the dangers of shaking an infant and appropriate reactions to calm an upset child.</p>	<p>Mothers who received the <i>PURPLE Crying</i> material scored 5% higher than the control group in measures of knowledge about crying. The same mothers were also more aware of advice about how to avoid acting dangerously and not shaking an infant (13% difference).</p> <p>Mothers who received the <i>PURPLE Crying</i> material were 1.7 times more likely to walk away from inconsolable crying than the control mothers.</p> <p>Effect size for change in knowledge = 0.46.</p>	<p>The <i>PURPLE Crying</i> material, which encourages caregivers to learn safe and healthy methods of reaction to crying infants, appears to be effective in reducing the occurrence of shaken baby syndrome.</p> <p>This suggests that educational materials are beneficial, and a combination of visual-auditory and reading material may be the most effective method of reinforcing healthy behaviors.</p>
Bechtel et al. (2011) Level II	<p><i>Purpose:</i> To determine what impact educational interventions have on caregiver beliefs about crying and knowledge of shaken baby syndrome.</p> <p><i>Sample:</i> Convenience; $N = 222$ ($n = 110$ historical; $n = 112$ intervention group).</p> <p><i>Setting:</i> Connecticut, United States.</p>	<p>Quasi-experimental post-test.</p> <p>The intervention group received the "Take 5 Safety Plan for Crying" delivered by resident physicians in either English or Spanish, and a refrigerator magnet with similar points. Following discharge, structured interviews were conducted with the first well-child visit.</p> <p>A historical (control) group was interviewed before the educational intervention.</p>	<p>Following education, the intervention group was much more likely to acknowledge that frustration with a crying infant leads to shaking. Caregivers in the intervention group were much more likely to take a break when frustrated with crying (OR = 3.10; 95% CI [1.62-5.93]) and less likely to continue soothing the infant if frustrated with crying (OR = 0.27; 95% CI [0.10-0.72]).</p>	<p>Educational interventions are critical in the prevention of abusive head trauma. Programs that focus on helping caregivers prevent harmful responses to crying children may reduce the risk of abusing head trauma.</p>
Fujiwara et al. (2012) Level II	<p><i>Purpose:</i> To replicate the effectiveness of the <i>PURPLE Crying</i> materials with Japanese mothers.</p> <p><i>Sample:</i> Convenience; $N = 201$ ($n = 106$ intervention group; $n = 96$ control group).</p> <p><i>Setting:</i> Japan</p>	<p>Randomized controlled study.</p> <p>Mailed materials consisting of the <i>PURPLE Crying</i> materials or control materials on infant safety sent 2 weeks after birth.</p> <p>Mothers completed a diary of behaviors at 6 weeks and at 2 months completed a structured telephone survey.</p>	<p>The intervention group scored significantly higher on crying knowledge ($p = 0.005$). Walking away behavior during unsoothable crying and sharing walk away behaviors with other caregivers also demonstrated to be higher in the intervention group.</p> <p>Effect size of knowledge change = 0.45.</p>	<p>Changes in knowledge and behaviors related to risk of abusive head trauma identified support for the <i>PURPLE Crying</i> materials in potential to reduce incidence of abusive head trauma.</p>

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**Table 1. (continued)
Summary of Research**

Citation/Level of Evidence	Purpose, Sample, and Setting	Design/Methodology	Findings	Implications
Russell, Trudeau, & Britner (2008) Level II	<p><i>Purpose:</i> To compare intervention strategies in raising caregiver and public awareness of practices related to incidence of abusive head trauma.</p> <p><i>Sample:</i> Convenience, snowball; $N = 264$ adults, mean age of 32, both parents and non-parents.</p> <p><i>Setting:</i> Connecticut, United States.</p>	<p>Randomized experimental.</p> <p>The sample was randomized into 3 case groups: brochure education only, brochure with <i>Portrait of Promise</i> education, and brochure with <i>Shaking, Hitting, or Spanking: What to Do Instead</i>.</p> <p>Respondents were administered the shaken baby syndrome Awareness Assessment prior to education and were assessed throughout the intervention time period at 2, 6, and 12 weeks from enrollment in the study.</p>	<p>Type of intervention was the only variable to have shown a significant pattern of prediction.</p> <p>The case group viewing <i>Shaking, Hitting, or Spanking: What to Do Instead</i> demonstrated the highest level of positive change in regard to appropriate soothing actions. <i>Portrait of Promise</i> demonstrated the next most significant level of change, followed by the educational brochure.</p> <p>Time limited the ability of recall for participants in the study.</p>	<p>Audio-visual educational materials that model appropriate emotional responses and healthy strategies to cope with frustration appear to target the primary factors that contribute to abusive head trauma injuries through a medium that is capable of positively influencing caregiver knowledge.</p>
Keenan & Leventhal (2010) Level IV	<p><i>Purpose:</i> To evaluate the effectiveness of informational videos with postpartum education in decreasing traumatic brain injuries in infants.</p> <p><i>Sample:</i> Purposive/matched; $N = 77$ mothers and infants under 2 years of age with abusive head injuries.</p> <p><i>Setting:</i> Utah, United States.</p>	<p>Case control.</p> <p>Case group: Education about prevention of shaken baby syndrome was provided through educational videos</p> <p>Alternative exposures: Education about proper use of car seats, education to prevent sudden infant death syndrome, and education to avoid infant scalds by hot water were provided.</p> <p>Follow-up interviews with mothers provided information recall assessment/comparison of control and case group.</p>	<p>Educational videos about shaken baby syndrome did not statistically reduce the occurrence of abusive head trauma in infants (OR 0.7; 95% CI [0.5-1.2]).</p> <p>The alternative exposure interventions all showed statistically significant reduction in prevention of the discussed conditions.</p>	<p>Educational videos alone do not provide enough intervention to significantly decrease the number of infants experiencing shaken baby syndrome.</p> <p>This may suggest the occurrence of shaken baby syndrome is different from other conditions in which lack of knowledge is the cause of injury.</p>
Goulet et al. (2009) Level VI	<p><i>Purpose:</i> To evaluate parental and nursing opinions about abusive head trauma educational practices.</p> <p><i>Sample:</i> Convenience; $n = 263$ parents and $n = 69$ nurses.</p> <p><i>Setting:</i> Montreal, Quebec, Canada.</p>	<p>Descriptive.</p> <p>Nursing professionals employed at 2 facilities were instructed on procedures for parental education about abusive head trauma.</p>	<p>Ninety-eight percent (98%) of the parents reported that the intervention was relevant and appreciated the information.</p>	<p>Implementation of in-hospital education for parents, especially education that provides information about how to respond appropriately to crying infants and how to cope in such situations, is an important component of the postnatal educational regimen.</p>

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Table 1. (continued)
Summary of Research

Citation/Level of Evidence	Purpose, Sample, and Setting	Design/Methodology	Findings	Implications
Goulet et al. (2009) Level VI (continued)		<p>The nurses provided new parents with an information card containing a variety of information regarding crying, anger, and knowledge of shaken baby syndrome. The parents were then asked to form a plan for handling inconsolable crying. The plan was discussed with nursing staff members and signed by the parents.</p> <p>Follow-up telephone questionnaires were administered to parents after 6 weeks to assess the adequacy of the education.</p>	<p>The nurses unanimously responded to the new educational strategy well; 80% of the parents reported having thought about the information cards used in the educational program but did not again look at the copy provided for them, while 98% of the parents thought the action plan was useful, although only 48% remembered any of the steps after 6 to 8 weeks. The signatures were well accepted but showed no convincing relevance.</p>	
Shanahan, Nocera, Zolotor, Sellers, & Runyan (2011) Level VI	<p><i>Purpose:</i> To describe the abusive head injury prevention education on maternity wards prior to statewide education programs.</p> <p><i>Sample:</i> Convenience; <i>N</i> = 89 hospital maternity wards.</p> <p><i>Setting:</i> North Carolina, United States.</p>	<p>Cross-sectional survey. Charge nurses or nurse managers were surveyed over the phone to seek information about present abusive head injury/shaken baby syndrome prevention, education, content, and format.</p>	<p>Sixty-two percent (62%) of the surveyed hospitals reported provision of abusive head injury prevention and/or educational programs. One-on-one bedside education was reported by 49% of the surveyed nurses. Materials provided to new parents in the educational programs included pamphlets (81.8%), books (18.2%), and DVDs (6.1%). Information about the dangers of shaking (81.8%), the normalcy of crying (81.8%), methods of coping (81.8%), the dangers of shaking an infant (75.8%), and physical effects of shaking (72.7%) were reported as components of the educational programs.</p>	<p>Mandatory state educational programs regarding shaken baby syndrome would increase the likelihood that every parent would receive the necessary information to help prevent injury to infants. A multi-modal approach reinforces the message of the education and may serve to protect infants from abusive injury.</p>

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**Table 1. (continued)
Summary of Research**

Citation/Level of Evidence	Purpose, Sample, and Setting	Design/Methodology	Findings	Implications
Stewart et al. (2011) Level VI	<p><i>Purpose:</i> To evaluate the impact of RN and parental education.</p> <p><i>Sample:</i> Convenience; <i>N</i> = 10,000 parents.</p> <p><i>Setting:</i> London, Ontario, Canada.</p>	<p>Quasi-experimental, pre- and post-test/survey.</p> <p>Education consisted of a three-pronged approach starting with RN education, followed by RN delivery of education to parents, public health/home visits for initial education or reinforcement, and a media campaign.</p> <p>In-house education consisted of <i>Period of PURPLE Crying</i> materials.</p>	<p>Post-training evaluations completed by nurses showed a 47% increase in knowledge</p> <p>Ninety-two percent (92%) overall education compliance rate.</p> <p>Ninety-two percent (92%) of parents receiving education signed commitment papers following the education</p> <p>Ninety-three percent (93%) of parents rated program as useful.</p>	<p>The triple-approach to education allowed for extending the education beyond the parents with an intent to create a culture shift regarding the perception of crying.</p> <p>The program was rated as useful by all constituents.</p>
Altman et al. (2011) Level VI	<p><i>Purpose:</i> To demonstrate evidence that low-cost prevention programs delivered by maternity nurses can statistically reduce the occurrence of abusive head injury in children younger than 1 year of age.</p> <p><i>Sample:</i> Random; <i>n</i> = 320 parents (interview); <i>n</i> = 16 infants with shaking injury during total period.</p> <p><i>Setting:</i> New York State, United States.</p>	<p>Quasi-experimental.</p> <p>Maternity nurses provided an educational program consisting of a leaflet, an 8-minute video, and signed statement of receiving the information, as well as a commitment statement to be signed by participants.</p> <p>Follow-up standardized telephone interviews were conducted as infants reached 6 months of age to measure recall of taught information.</p> <p>Comparison of 5-year historical control period to 3-year intervention period.</p>	<p>Within the first year of instituting the program, 84.5% of parents were exposed to the educational material, 88.1% within the second year, and 87.8% within three years. 97.8% of interviewed caregivers recalled watching the movie, and 55.6% claimed that the information had been helpful in stressful situations. Fewer males were involved and agreed to participate in the education.</p> <p>During the years of implementing the educational program, the frequency of abusive head injuries decreased from 2.8 cases per year to 0.7 cases per year, a 75% reduction.</p>	<p>Current research suggests that educational programs initiated in the hospital soon after delivery, while caregivers are focused on their new infant and have yet to experience inconsolable crying, are the most effective approach to prevention. Fewer males were compliant in completing the educational materials, suggesting that a priority in future research should include more effective methods of reaching males.</p> <p>Cost analysis of education materials (\$4.50) compared to lifetime cost of acute/chronic care for injuries supports program.</p>

initiated, as familial role changes now place more fathers in the position of primary caregiver.

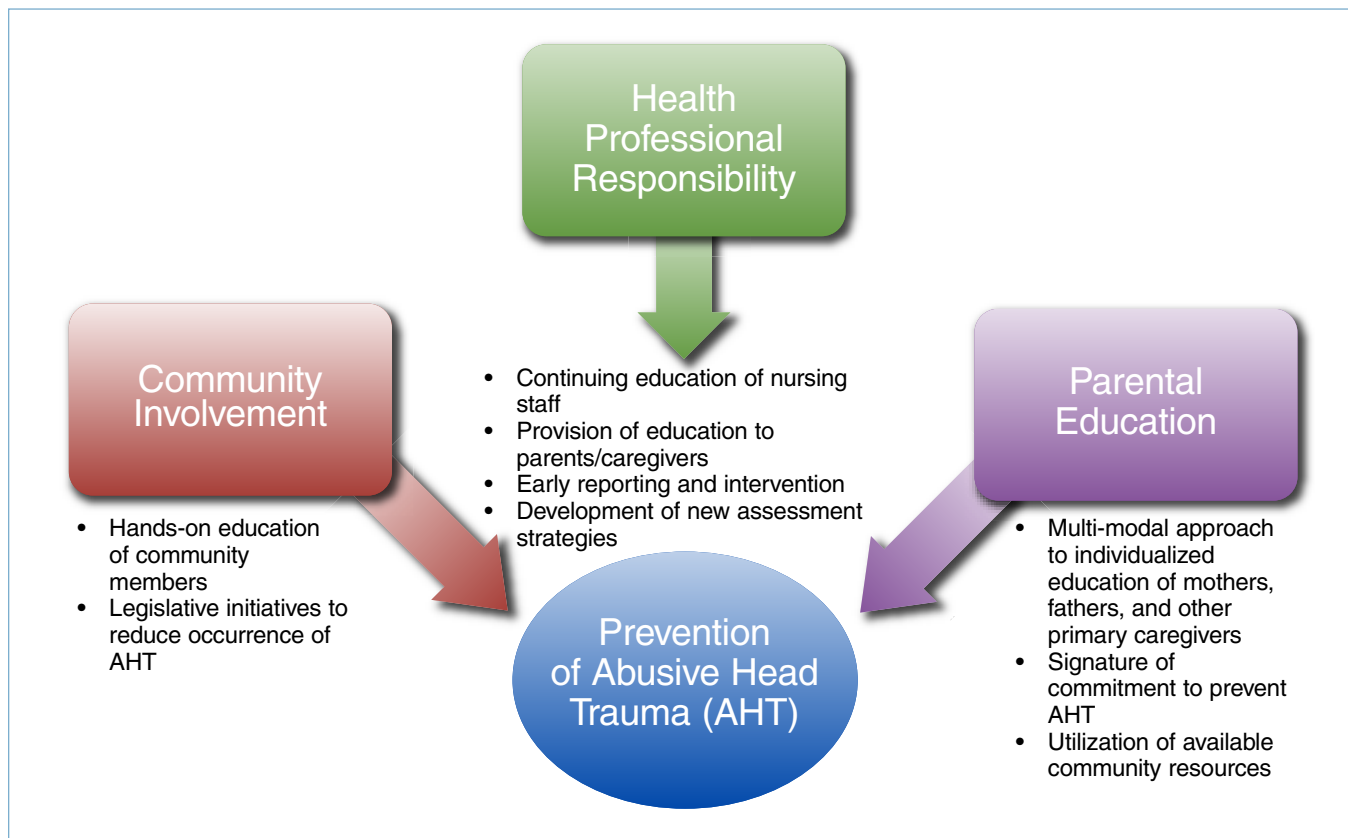
Caregiver education strategies that connect caregivers to community resources, teach safe and effective coping skills, and educate about normal childhood development. Supplying information to increase factual knowledge about AHT is only the first step in decreasing incidence rates. Emotions are often involved in the circumstances surrounding injury to the infant. The

educational intervention for caregivers who may cause AHTs, therefore, must be more involved than the sharing of information alone. The importance of caregiver education that teaches coping skills, provides available community resources, and describes the stages of normal childhood development in reducing the risk of AHT is apparent. Current methods of education use single mode strategies. It appears, however, that a multi-modal approach may be most effective in promoting healthy

infant-child relationships. The use of parental “commitment signatures” may prove to be a successful tool in encouraging caregiver accountability.

A limitation in this review of literature stems from the choice of restricted search terms. Using a narrow search strategy with only “abusive head trauma” or “shaken baby syndrome” provided the advantage of targeted intervention strategies. However, other sources may place abusive head trauma in a broader concept of child abuse. Including a broader

Figure 1.
Visual Representation of Findings Obtained from Literature Review



Note: Community involvement, health professional initiatives, and parental education are critical components of preventing the occurrence of abusive head injury.

search strategy for sources where AHT was considered one aspect of child abuse may have revealed additional data.

Discussion

Proposed New Model Of Prevention

Previous models of AHT prevention have not addressed all aspects of life that may contribute to caregiver abuse. Based on the findings of this literature review, the following model of AHT prevention has been developed (see Figure 2). This model seeks to use multiple modes of education that involve the community, maternal/paternal figures, other family figures, members, and/or other primary caregivers. The five components of the prevention strategy focus on continued intervention for those caregivers and infants deemed at risk of experiencing AHT. The personal inventory and multi-modal caregiver education by health professionals should be pro-

vided to all caregivers and new parents. The goal of the personal assessment is to determine what factors may influence a caregiver’s coping mechanisms, stress levels, strongest learning strategies, and level of involvement with the infant. By determining factors, such as socioeconomic status, income level, race/ethnicity, marital status, and highest education level, the multi-modal education that follows can be more personalized and directed toward the aspects most important for each individual. The commitment signature of those caregivers who enter the later steps of the program ensure consent, recognition of potential harm, and a true willingness to take the necessary steps in preventing AHT. Involvement of family and community members will help to ensure a support system and resources for caregivers and families to use, which may decrease the occurrence of situations that could endanger an infant. The accountability aspect of becoming involved in the prevention program may be influenced by the use

of community counselors, therapists, and other health professionals.

Finally, a spiritual component is added to provide a holistic approach not seen in the current literature to help caregivers realize the importance of forces greater than the individual, including connections with others, personal morality, responsibilities as caregivers, and matters affecting the soul. Through these components, prevention strategies for AHT can truly have an impact on the aspects of life that either promote quality or discourage situations that increase risk of infant injury.

Future Research

Future research in the prevention of AHT should seek to further understand what modes of education are most effective in reducing the occurrence. Many past studies have implemented a single strategy and considered whether any intervention was more beneficial than none. Future research should investigate what sin-

Figure 2.
Visual Representation of Newly Proposed Prevention Strategy
for Abusive Head Trauma (AHT)

Personal Inventory

- Provides assessment of how to best serve each individual based on personal needs, culture, relationship with the infant, education, socioeconomic status, etc.

Multi-Modal Parental Education

- Provides education by health professionals that is personalized to the needs of every individual involved
- Provides various modes of education, including pamphlets, videos, conference meetings, books, audio sessions, etc.
- Assesses the need for continued intervention with those caregivers and infants assessed as being “at risk for AHT”

Commitment to Prevention Program

- Provides signature of commitment to the program
- Ensures consent and willingness to partake

Involvement of Family and Community

- Demonstrates need for education of all individuals contacting children due to changing family structure
- Demonstrates involvement of support systems, including family
- Demonstrates accountability and willingness to use resources
- Demonstrates continued renewal of commitment and willingness to admit faults
- Demonstrates willingness to utilize available resources to prevent risk of injury to the infant

Spiritual Component

- Demonstrates acceptance of need for support greater than individual strength

Note: The components of this model address various aspects of causation of AHT that previous models of intervention have not addressed.

gle medium of education is most effective in teaching caregivers how to effectively and safely respond to crying infants.

Research regarding prevention of AHT should also seek to understand how various types and combination of education for fathers, mothers, siblings, childcare providers, and other caregivers affect the incidence. Changing family structure and the likelihood of more than a single caregiver necessitate research to establish what individuals cause AHTs. Current assess-

ment tools for risk have been successful thus far, but newly developed assessments may more clearly identify needs for intervention by addressing areas of life that most strongly correlate to occurrence of AHTs.

In addition, research regarding the prevention of abusive head injuries should begin to address the differences in occurrence rates among various socioeconomic and racial statuses. The research discussed in this review studied very few of the differences in occurrence among racial mi-

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Prevention of Abusive Head Trauma: A Literature Review

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Goal

To provide an overview of abusive head trauma (previously known as shaken baby syndrome) in infants.

Objectives

1. Define abusive head trauma (AHT).
2. Discuss the model of prevention strategies proposed by this literature review to provide nurses with a comprehensive approach to assessing for and treating AHT.

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norities and the dominant races. Further research should seek to understand what classes or racial groups are at highest risk for an AHT, thus determining the greatest need for parental education. In addition, difference in parental response to various educational mediums should be considered in providing educational programs for caregivers of all statuses. ■■■

References

- Altimier, L. (2008). Shaken baby syndrome. *Journal of Perinatal and Neonatal Nursing, 22*(1), 68-76.
- Altman, R.L., Canter, J., Patrick, P.A., Daley, N., Butt, N.K., & Brand, D.A. (2011). Parent education by maternity nurses and prevention of abusive head trauma. *Pediatrics, 128*, 1164-1172. doi:10.1542/peds.2010-3260
- Barr, R.G. (2012). Preventing abusive head trauma resulting from a failure of normal interaction between infants and their caregivers. *Proceedings of the National Academy of Sciences of the United States of America, 109*, 17294-17301. doi:10.1073/pnas.1121267109
- Barr, R.G., Barr, M., Fujiwara, T., Conway, J., Catherine, N., & Brant, R. (2009). Do educational materials change knowledge and behaviour about crying and shaken baby syndrome? A randomized controlled trial. *Canadian Medical Association Journal, 180*(7), 727-733. doi:10.1503/cmaj
- Bechtel, K., Le, K., Martin, K.D., Shah, N., Leventhal, J.M., & Colson, E. (2011). Impact of an educational intervention on caregivers' beliefs about infant crying and knowledge of shaken baby syndrome. *Academic Pediatrics, 11*(6), 481-486.
- Fujiwara, T., Yamada, F., Okuyama, M., Kamimaki, I., Shikoro, N., & Barr, R.G. (2012). Effectiveness of educational materials designed to change knowledge and behavior about crying and shaken baby syndrome: A replication of a randomized controlled trial in Japan. *Child Abuse & Neglect, 36*, 613-620. doi.org/10.1016/j.chiabu.2012.07.003
- Gibbs, J.D., & Nevitt, L.A. (2011). Strategies to reduce pediatric abusive head trauma in Kentucky: Is parental education the key. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 40*(Suppl. 1), S27.
- Goulet, C., Frappier, J., Fortin, S., Deziel, L., Lampron, A., & Boulanger, M. (2009). Development and evaluation of a shaken baby syndrome prevention program. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 38*(1), 7-21. doi:10.1111/j.1552-6909.2008.00301.x
- Gutierrez, F.L., Clements, P.T., & Averill, J. (2004). Shaken baby syndrome: Assessment, intervention, & prevention. *Journal of Psychosocial Nursing, 42*(12), 22-29.
- Keenan, H.T., & Leventhal, J.M. (2010). A case-control study to evaluate Utah's shaken baby syndrome prevention program. *Academic Pediatrics, 10*, 389-394.
- Kentucky Board of Nursing. (2013). *New CE requirement: Pediatric abusive head trauma ("shaken baby syndrome")*. Retrieved from http://kbn.ky.gov/ce/ce_courses.htm#paht
- Lewin, L. (2008). Shaken baby syndrome: Facts, education, and advocacy. *Nursing for Women's Health, 12*, 235-239. doi:0.1111/j.1751-486X.2008.00328.x
- Meskauskas, L., Beaton, K., & Meservey, M. (2009). Preventing Shaken baby syndrome: A multidisciplinary response to six tragedies. *Nursing for Women's Health, 13*, 325-330.
- Polit, D.F., & Beck, C.T. (2012). *Nursing research: Generating and assessing evidence for nursing practice* (9th ed.). Philadelphia: Lippincott.
- Russell, B.S., Trudeau, J., & Britner, P.A. (2008). Intervention type matters in primary prevention of abusive head injury: Event history analysis results. *Child Abuse and Neglect, 32*, 949-957. doi:10.1016/j.chiabu.2008.05.002
- Shanahan, M.E., Nocera, M., Zolotor, A.J., Sellers, C.J., & Runyan, D.K. (2011). Education on abusive head trauma in North Carolina hospitals. *Child Abuse Review, 20*, 290-297. doi:10.1002/car.1195
- Sims, T., & Hood, D.G. (2010). Community connection through simulation: Implementation of service learning to prevent shaken baby syndrome in a pediatric nursing course. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 39*(Suppl. 1), S77.
- Stewart, T.C., Polgar, D., Gilliland, J., Tanner, D., Girotti, M.J., Parry, N., & Fraser, D.D. (2011). Shaken baby syndrome and a triple-dose strategy for its prevention. *Journal of Trauma, Injury, Infection and Critical Care, 71*, 1801-1807. doi:10.1097/TA.0b013e31823c484a

Additional Reading

- Keenan, H.T., & Bratton, S.L. (2006). Epidemiology and outcomes of pediatric traumatic brain injury. *Developmental Neuroscience, 28*, 256-263. doi:10.1159/000094152

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