Evaluations

Nursing Contact Hours, CME and CHES credits are available.

Please visit www.phlive.org to fill out your evaluation and complete the post-test.
Conflict of Interest and Disclosure Statements

The planners and presenters do not have any financial arrangements or affiliations with any commercial entities whose products, research or services may be discussed in this activity.

No commercial funding has been accepted for this activity.

Thank You To Our Sponsors

- University at Albany School of Public Health
- New York State Department of Health
Can We Prevent Infant Sleep-Related Deaths? What You Need to Know

November 19, 2015

Featured Speaker

Michael H. Goodstein, MD, FAAP
Attending Neonatologist, York Hospital
Clinical Associate Professor of Pediatrics, Penn State University
Medical Director of Research, Cribs for Kids ®
Learning Objectives

After participation in this broadcast, the learner will be able to:

▪ Explain the public health impact of sleep-related infant deaths in New York State and the nation
▪ Name the three A-B-C’s of infant safe sleep
▪ Identify at least two elements of a safe sleep environment

Leading Causes of U.S. Infant Mortality

24,000 deaths per year

<table>
<thead>
<tr>
<th>Cause</th>
<th>2005 Rate</th>
<th>2011 Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congenital Malformations</td>
<td>134.2</td>
<td>126.1</td>
</tr>
<tr>
<td>Short gestation low birthweight</td>
<td>113.9</td>
<td>104.1</td>
</tr>
<tr>
<td>SIDS</td>
<td>53.9</td>
<td>43.3</td>
</tr>
<tr>
<td>Maternal complications</td>
<td>42.9</td>
<td>39.9</td>
</tr>
<tr>
<td>Unintentional injuries</td>
<td>26.2</td>
<td>27.5</td>
</tr>
</tbody>
</table>
**NYS Sudden Unexpected Infant Death (SUID) 2008-2012**

**Race/Ethnicity**

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Rate per 1,000 live births</th>
</tr>
</thead>
<tbody>
<tr>
<td>White, non-Hispanic</td>
<td>0.41</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>0.77</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.27</td>
</tr>
<tr>
<td>Asian, non-Hispanic</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**NYS SUID, 2008-2012**

**Maternal Age**

<table>
<thead>
<tr>
<th>Maternal Age</th>
<th>Rate per 1,000 live births</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 25</td>
<td>0.78</td>
</tr>
<tr>
<td>25 - 29</td>
<td>0.45</td>
</tr>
<tr>
<td>30 - 34</td>
<td>0.19</td>
</tr>
<tr>
<td>35+</td>
<td>0.16</td>
</tr>
</tbody>
</table>
Infant Mortality

Fact: Over **3500** babies in the U.S. die suddenly and unexpectedly each year!

Causes of SUID

- SIDS
- Accidental Suffocation
- Unknown
- Poisoning
- Metabolic Disorders
- Hypothermia / Hyperthermia
- Neglect or homicide
Determining SIDS

- Performance of a complete autopsy
- Examination of the death scene
- Review of the case history

Distribution of SIDS by Age

US SIDS by Age at Death, 2005-2006

Percentage

<table>
<thead>
<tr>
<th>Age (in months)</th>
<th>0-1</th>
<th>1-2</th>
<th>2-3</th>
<th>3-4</th>
<th>4-5</th>
<th>5-6</th>
<th>6-7</th>
<th>7-8</th>
<th>8-9</th>
<th>9-10</th>
<th>10-11</th>
<th>11-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>9.1</td>
<td>21.9</td>
<td>23.3</td>
<td>13.6</td>
<td>6.8</td>
<td>3.9</td>
<td>2.2</td>
<td>1.5</td>
<td>0.9</td>
<td>0.6</td>
<td>0.5</td>
<td></td>
</tr>
</tbody>
</table>
SIDS Triple Risk Model

Intrinsic
- Smoking
- Prematurity
- Alcohol & Illicit drugs
- Hypoxia
- Growth restriction

Critical Developmental Period

Extrinsic
- Prone/side sleep position
- Soft bedding
- Overbundling/overheating
- Bed sharing, with or without smoking/alcohol

Vulnerable Infant (brainstem dysf)

Exogenous Stressors

SIDS: A Brainstem Abnormality

- Blood Pressure
- Temperature Control
- Respiratory Control
- Upper Airway Reflexes
- Arousal
SIDS Pathogenesis

Serotonin receptor binding density lower in SIDS cases compared to controls

SIDS Control

SIDS Pathogenesis

Head lifting or turning
## SIDS Pathogenesis

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Life threatening event</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Asphyxia and brain hypoperfusion</td>
</tr>
<tr>
<td>Step 2</td>
<td>Progressive Asphyxia</td>
</tr>
<tr>
<td></td>
<td>Failure of arousal</td>
</tr>
<tr>
<td>Step 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hypoxic coma</td>
</tr>
<tr>
<td>Step 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bradycardia and gasping</td>
</tr>
<tr>
<td>Step 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Failure of autoresuscitation, resulting in death</td>
</tr>
</tbody>
</table>

## Supine Sleep and Aspiration

Supine sleep and aspiration involve the orientation of the trachea to the esophagus, which can lead to aspiration of fluids into the lungs. This phenomenon is often associated with sudden infant death syndrome (SIDS).
SIDS Rate and Back Sleeping 1988-2006

CDC National Ctr for Health Statistics

Increasing the Risk

Chicago Infant Mortality Study

- Sleeping on soft bedding: 5x
- Sleeping on the stomach: 2.4x
- Shared a bed with other children: 5.4x
- Sleeping on the stomach on soft bedding: 21x
American Academy of Pediatrics (AAP) Policy Recommendations

- Level A
- Level B
- Level C

Policy recommendations and technical report issued by AAP SIDS Task Force in 2011

AAP Level A Recommendations

- Back to sleep for every sleep
- Use a firm sleep surface
- Room-sharing without bed-sharing
- Keep soft objects and loose bedding out of the crib
- Pregnant women should receive regular prenatal care
- Avoid smoke exposure during and after pregnancy
AAP Level A Recommendations

- Avoid alcohol and illicit drug use during pregnancy and after birth
- Breastfeeding is recommended
- Consider offering a pacifier at nap time and bedtime
- Avoid overheating
- Do not use home cardiorespiratory monitors as a strategy for reducing the risk of SIDS

AAP Level B Recommendations

- Infants should be immunized in accordance with recommendations
- Avoid commercial devices marketed to reduce the risk of SIDS
- Supervised, awake tummy time is recommended to facilitate development and to minimize development of flattening of skull
AAP Level C Recommendations

- Health care professionals should endorse recommendations from birth
- Media and manufacturers should follow safe-sleep guidelines in their messaging and advertising
- Continue research and surveillance with the ultimate goal of eliminating these deaths entirely

The ABC’s of Safe Sleep

- **A**lone
  Not with other people, pillows, blankets, or stuffed animals.

- **B**ack
  Not on the stomach or side.

- **C**rib
  Not on an adult bed, sofa, cushion, or other soft surface.
Overcoming Barriers To Change

What Parents Are Saying…
- Prone positioning: fear of choking
- Baby sleeps “better” on stomach
- Soft things are safer for the baby
- SIDS is “God’s will”
- Why bother? Recommendations keep changing anyway
- Vigilance: sleep with baby for protection

Urge Parents To Take Action

- Social learning theory and motivational interviewing encourages health care providers to:
  - Use a positive tone
  - Provide adequate information
  - Allow the parent to ask most of the questions
  - Promotes atmosphere of acceptance and compassion
Medical Exceptions in Hospital

- Conditions where baby may benefit from prone or side lying position
- Thermoregulation – may need extra bundling and/or hats when sleeping
- Any deviation from the AAP recommendations should prompt an explanation to the parents

TEACHABLE MOMENTS!

Overcoming Barriers

- Education in the media and advertising
- Think outside the box…
- Counteract idea that SIDS is not preventable/“It’s in God’s hands”
- Accidental sleep death, “I don’t want the baby to suffocate”
Bed Sharing With Overlay

SIMULATED RECONSTRUCTION

Bed Sharing With Overlay

SIMULATED RECONSTRUCTION
Things You Can Do …

- Tools to cope with fussy babies
- Sleep-deprived parents may make poor judgments
- Make use of 5 S’s: swaddling, side carrying, shushing, swinging, and sucking

Changes To Consider

- Discuss sleep safety instead of just SIDS
- Discuss aspiration and choking concerns with parents
- Discourage use of bumper pads and other soft bedding
- Encourage room sharing without bed sharing
Hospital-Based Programs

- Capture 100% of the birthing population for education
- Point of intersection for all the members of the health care team with family members
- Nurses are critical role models
- It is efficient and cost-effective

A Model Program

- Replicate Abusive Head Trauma Program
- 50% reduction in shaken baby injuries
- Program Components:
  - DVD presentation on infant sleep safety
  - Face to face review with nursing staff
  - Sign voluntary acknowledgement statement
Hospital Program Organization

Safe Sleep Program

Program Acceptance
- Hospital Administration
- Physicians
- Nursing Staff
- Other (RT, LC, aides)

Curriculum Development
- Initial Staff Education
- Maintenance of Education
- Family Education

Community Support
- Local Health Bureaus
- Safe Kids Coalition
- Cribs for Kids programs
- Child Death Review Teams

From Campaigns To Conversations

- Caregivers know the “message,” but are not changing behaviors
- Caregivers report a need to understand the reasons for safe sleep recommendations
- Behavior change requires two-way communication
Coordinated Education Works!

<table>
<thead>
<tr>
<th>Location</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tennessee</td>
<td>17% reduction in deaths in 1 year</td>
</tr>
<tr>
<td>South Dakota</td>
<td>Infant mortality rate decreased from 8.6 to 6.5 (2013)</td>
</tr>
<tr>
<td>South Carolina</td>
<td>41% drop in accidental sleep-related deaths</td>
</tr>
<tr>
<td>Baltimore, MD</td>
<td>Lowest infant mortality rate ever recorded, decreased 28%. Racial disparity decreased almost 40%</td>
</tr>
</tbody>
</table>

Cribs For Kids

- Originated in Pittsburgh in 1998
- Goal: Eliminate preventable unsafe sleep deaths
  - Disseminate information on SIDS and safe sleep
  - Distribute safe infant cribs to families in need
Crib Distribution

- Patients identified by local providers
- Confirmation of pregnancy
- Personal responsibility
- Education: PNP and sleep safety
- Provide brochures, Graco Pack ‘N Play (w/SKU number), crib sheet and Halo sleep sack

National Certification Program

Rationale for a National Certification Program
- Consistent messaging and modeling
- Road map for success
- Culture of sleep safety
- Monitor progress
- Reward for achieving goals
How It Works

Certification has three levels:

Eliminating Sleep-Related Deaths

90 children = four kindergarten classrooms
Evaluations & Continuing Education: Nursing Contact Hours, CME and CHES credits are available. Please visit www.phlive.org to fill out your evaluation and complete the post-test.

Conflict of Interest Disclosure Statement: The planners and presenters do not have any financial arrangements or affiliations with any commercial entities whose products, research or services may be discussed in this activity. No commercial funding has been accepted for this activity.

Thank you!