



# Crib Bumpers Continue to Cause Infant Deaths: A Need for a New Preventive Approach

NJ Scheers, PhD<sup>1</sup>, Dean W. Woodard, MS<sup>2</sup>, and Bradley T. Thach, MD<sup>3</sup>

**Objectives** To assess whether clutter (comforters, blankets, pillows, toys) caused bumper deaths and provide an analysis of bumper-related incidents/injuries and their causal mechanisms.

**Study design** Bumper-related deaths (January 1, 1985, to October 31, 2012) and incidents/injuries (January 1, 1990, to October 31, 2012) were identified from the US Consumer Product Safety Commission (CPSC) databases and classified by mechanism. Statistical analyses include mean age, 95% CIs,  $\chi^2$  test for trend, and ANOVA with a paired-comparisons information-criterion post hoc test for age differences among injury mechanisms.

**Results** There were 3 times more bumper deaths reported in the last 7 years than the 3 previous time periods ( $\chi^2_{(3)} = 13.5$ ,  $P \leq .01$ ). This could be attributable to increased reporting by the states, diagnostic shift, or both, or possibly a true increase in deaths. Bumpers caused 48 suffocations, 67% by a bumper alone, not clutter, and 33% by wedgings between a bumper and another object. The number of CPSC-reported deaths was compared with those from the National Center for the Review and Prevention of Child Deaths, 2008-2011; the latter reported substantially more deaths than CPSC, increasing the total to 77 deaths. Injury mechanisms showed significant differences by age ( $F_{4,120} = 3.2$ ,  $P < .001$ ) and were caused by design, construction, and quality control problems. Eleven injuries were apparent life-threatening events.

**Conclusion** The effectiveness of public health recommendations, industry voluntary standard requirements, and the benefits of crib bumper use were not supported by the data. Study limitations include an undercount of CPSC-reported deaths, lack of denominator information, and voluntary incident reports. (*J Pediatr* 2016;169:93-7).

In 2007, Thach et al<sup>1</sup> published a case series of 27 deaths attributable to crib bumpers and concluded that bumpers should not be used. In January 2008<sup>2</sup> and again in 2011,<sup>3</sup> the American Academy of Pediatrics (AAP) recommended against their use. The Canadian Paediatric Society,<sup>4</sup> the National Institutes of Health,<sup>5</sup> and sudden infant death syndrome (SIDS) experts<sup>6</sup> also recommended against their use, and 2 jurisdictions banned their sale.<sup>7,8</sup> Others disagreed,<sup>9-11</sup> contending that factors such as clutter in the crib (comforters, blankets, pillows, toys) are the primary cause of the deaths and believe that eliminating crib bumpers may encourage caregivers to use products such as pillows as a substitute to protect infants from head injuries and limb entrapment.

There are no federal regulations for crib bumpers. There is a long-standing industry voluntary standard that was revised in 2012 to improve crib bumper safety.<sup>12</sup> In 2012, the US Consumer Product Safety Commission (CPSC) was petitioned to develop a mandatory standard to “distinguish and regulate pillow-like crib bumpers from non-hazardous traditional crib bumpers” and recommended the voluntary standard as a basis for such a rule.<sup>9</sup> In June 2013, the Commission directed CPSC staff to explore all rulemaking options in addition to those requested in the petition before making a decision. This could be as little as adopting the current voluntary standard to as much as banning the product.<sup>13</sup> To date, there has been no further public action.

The purpose of this study is to identify the extent to which clutter in the crib is the cause of infant deaths based on new information and an update of the study of Thach et al<sup>1</sup> and provide a new analysis of nonfatal bumper-related incidents to document the extent of the problem more fully.

## Methods

Four CPSC databases were searched by CPSC staff from January 1, 1985, to October 31, 2012, for bumper deaths and from January 1, 1990, to October 31, 2012, for incidents/injuries. To be complete, we included the years covered by the study of Thach et al<sup>1</sup> but limited to deaths in cribs. The Death Certificate

From the <sup>1</sup>BDS Data Analytics, Alexandria, VA (former CPSC project manager, Infant Suffocation Project); <sup>2</sup>US Department of Labor, Dallas, TX (former CPSC Corrective Actions Director); and <sup>3</sup>Department of Pediatrics, Washington University, St. Louis, MO

The views expressed in the article are the personal views of the authors and do not purport to reflect the views of the US Department of Labor. The authors declare no conflicts of interest.

0022-3476/\$ - see front matter. Copyright © 2016 Elsevier Inc. All rights reserved.

<http://dx.doi.org/10.1016/j.jpeds.2015.10.050>

AAP	American Academy of Pediatrics
ALTE	Apparent life-threatening event
CPSC	US Consumer Product Safety Commission
NCRPCD	National Center for the Review and Prevention of Child Deaths
SIDS	Sudden infant death syndrome

file contains death certificates purchased by CPSC from the 50 states and the District of Columbia and includes deaths for all suffocation codes except for “falling earth.” The Injury and Potential Injury Incidents file contains product-related incidents from sources such as consumer complaints, media articles, medical examiners, coroners, and police and fire departments. The In-Depth Investigations file contains CPSC follow-up investigations. The National Electronic Injury Surveillance System, a probability sample of US hospitals with emergency departments, contains reports of product-related injuries and some deaths.

Data analyses were conducted with SPSS version 17.0 (SPSS Inc, Chicago, Illinois). Statistical analyses included mean age and 95% CIs,  $\chi^2$  test for trend, and ANOVA test with a paired-comparisons information-criterion post hoc test<sup>14</sup> for mean age differences among injury mechanisms. *P* values  $\leq .05$  (2-sided) were judged to be statistically significant.

## Results

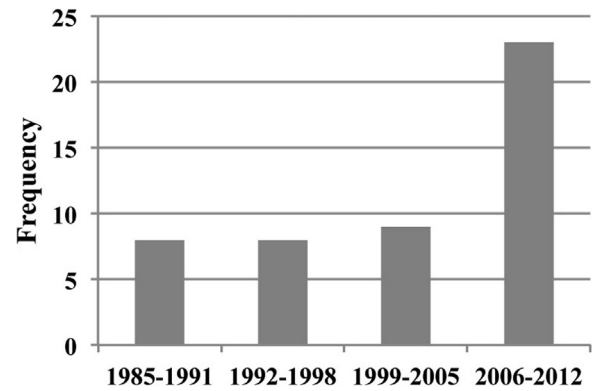
We identified 48 infant deaths; 42 were specifically attributed to crib bumpers on the death certificate, autopsy, or investigation and diagnosed by the medical examiners or pathologists as asphyxia or suffocation. We also included 6 additional deaths as likely bumper-related; 5 were originally diagnosed as SIDS and 1 as a sudden unexplained infant death. The documents available for review included autopsies (98%), death scenes and other investigations (98%), death certificates (75%), and photographs (62.5%), including 23 re-enactment photographs. The search also produced 182 nonfatal incidents. We classified these as 146 injuries and 36 “concerns” of caregivers who identified problems with bumpers, but with no injury. We further classified the injuries by mechanism.

### Deaths

Over time, there was a significant increase in the number of crib bumper deaths reported to CPSC, with 23 deaths reported from 2006 through 2012 and an average of 8 deaths reported in the previous 3 time periods ( $\chi^2_{(3)} = 13.5$ ,  $P \leq .01$ ; **Figure 1**).

The mean age at death was 4.6 months, with a range of 1-22 months (95% CI 3.5-5.8). Approximately 50% were  $\leq 3$  months and 90% were  $\leq 7$  months. Three infants were noticeably older than others (14, 19, and 22 months). Two had significant illnesses (cerebral palsy; chronic anoxic encephalopathy caused by meconium aspiration), and the 14-month-old infant was healthy with a recent history of cold symptoms.

Complete sleep position information was available for 34 infants and partial information for 9 infants. Placing infants prone to sleep was the most stable position. Of the 14 infants placed prone, 13 infants were found prone and 1 position found was unknown. Placing infants supine or on their sides was less stable. Of the 16 infants placed supine to sleep, 8 were found prone, 3 on their sides, and 5 supine. Of the 4 infants



**Figure 1.** Crib bumper deaths by year.

placed on their sides to sleep, 2 were found prone, 1 on its side, and 1 position found was unknown. Finally, of the 13 infants whose position placed to sleep was unknown, 7 were found prone, 2 on their sides, and 4 infants had no sleep position information available.

To identify whether clutter in the crib contributed to the deaths, we evaluated whether the deaths were caused by the bumper alone or occurred with another object. In the “bumper alone” category, approximately 67% of the total deaths ( $n = 32$ ) could have been prevented if a crib bumper had not been used in the crib: 13 deaths from infants wedged between a bumper and crib mattress; 12 deaths with the infant’s face against a bumper without wedging; 3 deaths with the infant’s arm caught between the bumper and the mattress/side rails found with their faces pressed against a bumper; 1 death where an infant likely climbed out of the crib using the bumper and was found wedged between a crib and bureau; and 3 strangulations from bumper ties wrapped around an infant’s neck. Strangulation deaths have not occurred since the 1980s.

In the “bumper and other object” category, approximately 33% of the total deaths ( $n = 16$ ) could have been prevented if either the bumper or other wedging surface had not been present in the crib. These were 9 deaths from wedgings between a pillow and a bumper; 5 deaths from infants wedged between a bumper and a recliner; 1 death in a crib depression where the bumper prevented the infant from turning her face to the side to breathe; and 1 wedging between a cosleeping twin and a bumper.

We also attempted to determine whether only thick or pillow-like bumpers were implicated in the deaths. Although most investigators did not measure the thickness of the bumpers involved, there were 3 investigations that reported a measured thickness of 1-2 inches uncompressed and several other scene photographs that showed apparently thin bumpers (**Figure 2**; available at [www.jpeds.com](http://www.jpeds.com)).

### Nonfatal Incidents/Injuries

We reviewed 146 nonfatal incident reports and classified them by the mechanism likely to have caused the infant’s

Download English Version:

<https://daneshyari.com/en/article/4164637>

Download Persian Version:

<https://daneshyari.com/article/4164637>

[Daneshyari.com](https://daneshyari.com)