



United States

**Consumer Product Safety Commission**

# Injuries and Deaths Associated with Nursery Products Among Children Younger than Age Five

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*This report was prepared by the CPSC staff.  
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# Executive Summary

In this report, the U.S. Consumer Product Safety Commission (CPSC) staff presents statistics regarding injuries and deaths associated with nursery products among children younger than the age of 5 years, based on the most recently available information.<sup>1</sup>

## Emergency Department-Treated Injuries:

- In 2022, there were an estimated 59,500 emergency department-treated injuries among children younger than 5 years of age that were associated with nursery products (*i.e.*, nursery products were in use at the time of incident, but were not necessarily the cause). This translates to an injury rate of an estimated 321 injuries per 100,000 children under the age of 5 years.<sup>2</sup> The increase from the total 2021 injury estimate is not statistically significant, in contrast to the increase from 2020 to 2021, which was presumed to reflect a reduction in emergency department avoidance due to COVID-19 that was apparent in 2020.<sup>3</sup>
- High chairs, cribs/mattresses, infant carriers, and strollers/carriages were associated with 63 percent of the total estimated injuries. Falls were the leading cause of injury; and the head, followed by the face, was the body part injured most frequently. A diagnosis of internal organ injury, contusion/abrasion, or laceration was associated with most of the injuries.
- A trend analysis based on the 3 years from 2020 through 2022 does not show any statistically significant trend in the injury estimates. A longer-term trend analysis over the period 2018 through 2022 does not show any statistically significant trend either.
- A review of the estimated injuries by victims' demographic characteristics shows that:
  - For 2020 through 2022, on average, race information is known in about 60 percent of the injuries while ethnicity information is known in about 54 percent of the injuries.
  - Where information is available, the injury and population distributions by race appear to be closely aligned for each year from 2020 through 2022.
  - Ethnicity data are insufficient to allow for presentation of any estimates.

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<sup>1</sup> All these incidents may not be addressable by an action the CPSC could take. The purpose of this report is to update estimates of emergency department-treated injuries and to quantify the number of fatalities reported to CPSC staff.

<sup>2</sup> The population data for the denominator is available at the U.S. Census Bureau website: <https://www.census.gov/data/datasets/time-series/demo/popest/2020s-national-detail.html>; Annual Estimates of the Resident Population by Single Year of Age and Sex for the United States: April 1, 2020 to July 1, 2022 (NC-EST2021-AGESEX-RES); last revised June 20, 2023.

<sup>3</sup> Schroeder, T. and Cowhig, M., "[Effect of Novel Coronavirus Pandemic on 2020 NEISS Estimates](#)", March-December, 2020

## Fatalities:

- CPSC staff has reports of 490 deaths during the 3-year period from 2018 to 2020—an annual average of 163 deaths among children younger than age 5—associated with (*i.e.*, in use at the time of incident), but not necessarily caused by, nursery products.
- Cribs/mattresses, playpens/play yards, bassinets/cradles, infant carriers, and inclined infant sleep products were associated with 77 percent of the fatalities reported.
- Causes of death included positional asphyxia, strangulation, and drowning, among others. In some instances, the fatalities were attributed to the product; in other cases, the fatalities resulted from a hazardous environment in or around the product, or a combination of contributions.

CPSC staff has evaluated the incidents characterized in the annual reports on nursery products for many durable infant and toddler products, along with other reported incidents. These evaluations have supported the staff's work with standards development organizations to refine these standards, and likewise, supported staff briefing packages for notices of proposed rulemaking (NPRs) and final rules under Section 104 of the Consumer Product Safety Improvement Act of 2008 (CPSIA).<sup>4</sup> Early in fiscal year (FY) 2022, the Commission issued a final rule establishing a new standard for Crib Mattresses, which took effect August 15, 2022. The final rule for Infant Sleep Products became effective on June 23, 2022. The Commission also issued revised rules for Infant Swings, Carriages and Strollers, High Chairs, Baby Changing Products, Infant Bath Tubs, Frame Carriers, Slings, and Bouncer Seats in FY 2022. Also, in FY 2023, the Commission has issued final rules including a ban on crib bumpers and a ban on inclined sleepers for infants as well as revised rules for Gates and Enclosures, Infant Walkers and Bedside Sleepers.

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<sup>4</sup> There is much overlap between the products covered by this report and the products subject to rules issued under Section 104 of the CPSIA. However, this report covers some nursery products that may not fall within Section 104 and some products that are not currently regulated under Section 104.

# Introduction

This report presents nursery product-related injury estimates for 2022,<sup>5</sup> as well as comparisons with historic injury estimates. Detailed information on deaths associated with nursery products that reportedly occurred during the 3-year period from 2018 to 2020, is also presented. Note that reporting is ongoing, and the number of reported fatalities for the period of time in this report may change as new reports are received.

## Nursery Product-Related Emergency Department-Treated Injury Estimates

An estimated 59,500 nursery product-related injuries among children younger than 5 years old were treated in U.S. hospital emergency departments (ED) in 2022. Table 1 shows the estimated injuries and the corresponding injury rates for the latest 3 years, as well as the annual averages for this 3-year period. Staff did not observe a trend in injury estimates over the 2020 through 2022 period (p-value = 0.548). The Appendix provides annual estimates for 2018 through 2022 as well as more detail about the data-selection processes.

### Table 1

**Estimated Emergency Department-Treated Injuries to Children Under Age Five: 2020–2022**

Calendar Year	Estimated Injuries	Estimated Injury Rates per 100,000 Children <sup>2</sup>
2020	44,600	234
2021	53,000	284
2022	59,500	321
2020 – 2022 Average	52,400	279

Source: NEISS, CPSC.

Note: Estimates rounded to the nearest 100. The average calculation is based on unrounded injury estimates.

Falls were the leading cause of all nursery product-related injuries reported through NEISS for 2022, like previous years. About 72 percent of the total injuries involved the head and the face, which were the body parts injured most frequently. Internal organ injuries, contusions/abrasions, or lacerations were the diagnoses in about 70 percent of the NEISS-reported injuries.<sup>6</sup> Approximately 91 percent of the injuries were treated and released; about 3 percent of the injuries required hospitalization; and 2 percent of the injuries were treated and transferred to a different hospital. These proportions have remained steady over the years; for example, both in 2021, as

<sup>5</sup> The source of the injury estimates is the National Electronic Injury Surveillance System (NEISS), a statistically valid surveillance system for collecting injury data. NEISS injury data are gathered from the emergency departments of hospitals selected as a probability sample of all the U.S. hospitals with emergency departments. The surveillance data gathered from the sample hospitals enable CPSC staff to make timely national estimates of the number of injuries associated with specific consumer products.

<sup>6</sup> Beginning in 2018, two diagnoses codes and two injured-body-parts codes became available in NEISS. To date, these newly introduced reporting options remain uncoded for more 80 percent of the injury reports. They were not used in this analysis.

well as in 2020, 93 percent of the estimated injuries were treated and released. Any deaths reported through NEISS are included in the fatality discussion that follows.

Table 2 shows the breakdown of injury estimates by different product categories for 2022 along with the injury estimates for 2020 and 2021, for comparison. As in 2021, there were more than 30 product codes associated with the injury estimates in 2022. The associated products have been aggregated into 13 product categories that align with standards development activities as in 2021. The top four categories—high chairs, cribs/mattresses, strollers/carriages, and infant carriers—were associated with 63 percent of the total estimated injuries.

There was no statistically significant increase from an estimated total of 53,000 ED-treated injuries in 2020 to 59,500 injuries in 2021. However, between 2021 and 2022, increases were observed in every product group except three. One of the increases, annotated with a “\*\*\*” in Table 2, was statistically significant (p-value < 0.05). The only product groups showing a decrease were the cribs/mattresses, infant carriers, and playpens/play yards categories.

## Table 2

### Estimated Emergency Department-Treated Injuries to Children Under Age Five By Type of Nursery Product: 2020–2022

PRODUCT CATEGORY	ESTIMATED EMERGENCY DEPARTMENT-TREATED INJURIES		
	2020	2021	2022
<b>TOTAL</b>	44,600	53,000	59,500
<b>High Chairs**</b>	10,200	10,100	14,500
<b>Cribs/Mattresses</b>	8,700	9,900	9,800
<b>Strollers/Carriages</b>	5,100	6,600	6,800
<b>Infant Carriers (Excludes Motor Vehicle Incidents)</b>	5,900	6,900	6,600
<b>Changing Tables</b>	2,600	3,800	5,400
<b>Baby Gates/Barriers</b>	2,500	3,400	3,700
<b>Baby Bouncer Seats</b>	1,300	2,500	2,700
<b>Portable Baby Swings</b>	1,200	2,100	2,400
<b>Playpens/Play Yards</b>	1,500	2,100	1,900
<b>Baby Walkers/Jumpers/Exercisers</b>	2,200	1,800	2,500
<b>Bassinets/Cradles</b>	---	1,200	1,200
<b>Baby Bottles/Warmers/Sterilizers</b>	---	---	---
<b>Baby Baths/Bath Seats/Bathinettes</b>	---	---	---
<b>Other<sup>7</sup></b>	1,400	1,500	1,300

Source: NEISS, CPSC. Estimates are rounded to the nearest 100. The injury estimates may not add up to the total due to rounding.

Note: “\*\*\*” indicates statistically significant increase from 2021 to 2022 (p-value < 0.05).

Note: “---” indicates the estimated number of injuries were less than minimum reporting criteria for NEISS of 1,200 incidents. According to NEISS publication criteria, an estimate must be 1,200 or greater, the sample size must be 20 or greater, and the coefficient of variation must be 33% or smaller.

<sup>7</sup> In both 2021 and 2022, the “Other” category included pacifiers/teething rings, diapers (excluding diaper rash cases), potty chairs/training seats, harnesses, and rattles. In 2021, the “Other” category also included night lights and plastic nipple guards.

Table 3 shows the breakout of injury estimates by ethnicity and race for each year from 2020 through 2022. Over the 3-year time frame, on average, the victim's ethnicity was unspecified for 45 percent of the estimated nursery product injuries. Limiting injuries to children of known ethnicities, Hispanic children made up 16 percent of victims under the age of 5 (compared to 26 percent of the population for that age), and non-Hispanic children made up 84 percent of victims under the age of 5 (compared to 74 percent of the population for that age). The victims's race was also unspecified for 40 percent of the estimated nursery product injuries. When considering only the injuries where race was known, on average, 75 percent were White (compared to 69 percent of the population for that age), 16 percent were Black (compared to 16 percent of the population for that age), and 3 percent were Asian (compared to 6 percent of the population for that age). As Table 3 shows, despite the change in percent of estimated injuries for Hispanic White and Hispanic Other victims from 2020 to 2021, the overall distribution of estimated injuries by race has not changed much year-over-year during the period 2020 through 2022. However, due to the high proportion of the data with ethnicity and race information unspecified, this finding should be interpreted with caution.

## Table 3

### Estimated Emergency Department-Treated Injuries by Ethnicity and Race<sup>8</sup> Among Children Under Age Five: 2020–2022

Ethnicity/Race	2020		2021		2022	
	Percent of		Percent of		Percent of	
	Estimated Injuries	Population <sup>2</sup>	Estimated Injuries	Population <sup>2</sup>	Estimated Injuries	Population <sup>2</sup>
Hispanic	18%	26%	15%	26%	16%	26%
White	81%	82%	69%	81%	68%	81%
Black/African American	2%	7%	2%	7%	2%	7%
Other <sup>9</sup>	12%	5%	28%	5%	30%	5%
Asian	2%	2%	1%	2%	<0.5%	2%
American Indian/Alaska Native	3%	4%	<0.5%	4%	0%	4%
Native Hawaiian/Pacific Islander	0%	1%	<0.5%	1%	0%	1%
Non-Hispanic	82%	72%	85%	74%	81%	74%
White	76%	70%	80%	69%	78%	65%

<sup>8</sup> Where information is available in NEISS. See notes below Table 3 for information on the percentage of unknown in each year.

<sup>9</sup> Other: By NEISS definition, this category includes any race not explicitly listed in Table 3, or when more than one race is indicated. It also includes instances where "Hispanic" was listed as the race.

<b>Black/African American</b>	17%	16%	13%	16%	17%	19%
<b>Other<sup>9</sup></b>	1%	6%	1%	6%	2%	7%
<b>Asian</b>	4%	6%	4%	6%	2%	7%
<b>American Indian/Alaska Native</b>	1%	2%	1%	2%	<0.5%	1%
<b>Native Hawaiian/Pacific Islander</b>	<0.5%	<0.5%	<0.5%	<0.5%	<0.5%	<0.5%
<b>All (Total)</b>	100% <sup>†</sup>	100%	100% <sup>‡</sup>	100%	100% <sup>§</sup>	100%
<b>White</b>	74%	70%	76%	69%	74%	69%
<b>Black/African American</b>	18%	16%	15%	16%	16%	16%
<b>Other<sup>9</sup></b>	3%	6%	6%	6%	7%	7%
<b>Asian</b>	4%	6%	3%	6%	2%	6%
<b>American Indian/Alaska Native</b>	1%	2%	1%	2%	1%	2%
<b>Native Hawaiian/Pacific Islander</b>	<0.5%	<0.5%	<0.5%	<0.5%	<0.5%	<0.5%

Source: NEISS, CPSC. Percentages may not add up to 100, due to rounding.

Note: <sup>†</sup>This accounts for 58 percent of total estimated ED-treated nursery product-related injuries in 2019 for children under 5.

<sup>‡</sup>This accounts for 60 percent of total estimated ED-treated nursery product-related injuries in 2020 for children under 5.

<sup>§</sup>This accounts for 60 percent of total estimated ED-treated nursery product-related injuries in 2021 for children under 5.



## Deaths Associated with Nursery Products

Although all the Commission's databases are used to identify nursery product-related deaths, death certificates are a major source of information for this analysis. At the time of the data extraction for this analysis, reporting to the Commission's death certificates database was at least 96 percent complete through 2020. The deaths reported here are from 2018 through 2020, the latest 3-year time frame with sufficiently available information, like previous annual reports.<sup>10</sup>

Table 4 provides a summary of nursery product-related reported deaths (total and average annual) for 2018 through 2020, along with data previously reported for 2017 through 2019, for comparison. Reporting is ongoing, and the number of reported fatalities may change. Moreover, these reports are anecdotal and do not constitute a statistical sample or a complete count of nursery product-related deaths. As such, CPSC staff strongly discourages drawing any inferences based on the year-to-year increase or decrease shown in the reported data.

CPSC staff has received reports of a total of 490 deaths associated with nursery products—an annual average of 163 deaths—during this period. About 26 percent (128 total, or an annual average of 43) were associated with cribs/mattresses. Bassinets/cradles accounted for 18 percent (89 total, or an annual average of 30) of the reported deaths. Playpens/play yards were associated with 17 percent (a total of 81 or an annual average of 27) of the reported deaths, while infant inclined sleep products were associated with 9 percent (a total of 46 or an annual average of 15) of the reported deaths. Infant carriers accounted for 7 percent (a total of 35 or an annual average of 12) of the reported deaths. The remaining 111 reported fatalities were associated with a range of products, including baby bath/bathinettes, baby bouncer seats, baby gates/barriers, infant portable swings, changing tables/pads, high chairs, infant strollers/carriages, baby walkers/jumpers/exercisers, and a variety of other sleep-products (e.g., in-bed sleepers and toddler beds), seating products (e.g., floor seats), and miscellaneous products.

For certain incident scenarios in which direct product involvement or failure was not evident, consultation with staff from the CPSC's Directorate for Engineering Sciences was necessary to determine the most appropriate product category in which to place the fatalities. Details of the methodology are provided in the attached Appendix.

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<sup>10</sup> These deaths do not constitute a statistical sample of known probability and do not necessarily include all nursery product-related deaths that occurred during the 2018–2020 period. However, they do provide at least a minimum number for deaths associated with nursery products during that time. Furthermore, the number of reported incidents may change should staff receive additional reports. In addition, the number of fatalities for each product/group of products presented in this and previous annual nursery product reports are not expected to match the number of fatalities presented in any rulemaking packages on the same product/group of products because of the difference in the data-inclusion criteria applied. See Methodology Section of the Appendix for the process used in this report.

**Table 4****Reported Deaths Among Children Under Age Five by Type of Nursery Product**

PRODUCT CATEGORY	TOTAL DEATHS		AVERAGE ANNUAL DEATHS	
	2017-2019	2018-2020	2017-2019	2018-2020
<b>TOTAL</b>	447	490	149	163
<b>Cribs/Mattresses<sup>11</sup></b>	137	128	46	43
<b>Bassinets/Cradles</b>	71	89	24	30
<b>Playpens/Play Yards</b>	71	81	24	27
<b>Infant Inclined Sleep Products<sup>12</sup></b>	48	46	16	15
<b>Infant Carriers (Excludes Motor Vehicle Incidents)</b>	38	35	13	12
<b>Baby Baths/Bath Seats/Bathinettes</b>	17	19	6	6
<b>Baby Bouncer Seats</b>	12	18	4	6
<b>Baby Gates/Barriers</b>	10	10	3	3
<b>Portable Baby Swings</b>	7	9	2	3
<b>Strollers/Carriages</b>	3	5	1	2
<b>High Chairs</b>	3	4	1	1
<b>Changing Tables</b>	3	0	1	0
<b>Baby Walkers/Jumpers/Exercisers</b>	1	0	<1	0
<b>Other<sup>13</sup></b>	26	46	9	15

Source: CPSC epidemiological databases: Consumer Product Safety Risk Management System (CPSRMS) and NEISS from 2017 to 2020, for reported deaths.

Deaths for 2017-2019, which are shown in italics, represent changes since publication of the previous annual report, due to availability of additional information.

Note: The average annual deaths do not add up to the total due to rounding.

A closer look at the top five product categories with the largest numbers of reported deaths provides some insight into the hazard patterns. Between 2018 and 2020, these product categories were associated with 77 percent of the reported fatalities; for the earlier period (2017 through 2019), they accounted for 82 percent of the total reported fatalities.

Between 2018 and 2020, 128 deaths were associated with cribs/mattresses. About 70 percent of these deaths were associated with a cluttered sleep environment (the presence of extra bedding in the crib, such as pillows, blankets, or comforters, among others) that led to asphyxiation of the infant. Approximately 9 percent of the 128 deaths resulted from a range of hazards associated

<sup>11</sup> Certain items, such as nursing pillows and lounger pillows, are usually placed within other products, such as cribs, bassinets, and play yards. Any report involving these items was categorized with the product in which they were located, to avoid double counting.

<sup>12</sup> Beginning with the annual report published in 2018, the Infant Inclined Sleep Products group is presented in a row of its own in Table 4. These products come with one or more inclined sleep surface adjustment positions for the seat back that are greater than 10 degrees, but do not exceed 30 degrees. Some specific examples are infant hammocks, recliner seats, and nappers. These products are subject to the safety standard for Infant Sleep Products that the Commission published on June 23, 2021, which became effective since June 23, 2022 (86 Fed. Reg. 33,022).

<sup>13</sup> Of the 46 deaths in this category from 2018 through 2020, 25 deaths were associated with products used in the sleep environment that are not among the product categories listed in Table 4. Among the 25, a toddler bed (product code 4082) was involved in 7 deaths; portable youth bedrails (product code 4075) were involved in 3 deaths; and in-bed sleepers were involved in the remaining 15 deaths. As of June 23, 2022, the in-bed sleepers are subject to the safety standard for Infant Sleep Products (86 Fed. Reg. 33,022).

In addition to the 25 deaths, there were 13 asphyxiation deaths—1 in an unspecified infant seat, 1 on an infant sleeping board, 1 from a chair harness strap, 1 in an infant sleep sack, 5 on a baby bottle nipple and 4 on a pacifier; 4 drowning deaths, where an infant was left unattended on a non-bathing infant floor seat (product code 4074) in a water-filled tub; and 3 deaths in a rocker, where two unrestrained infants were found rolled over in a prone/sideways position, and another infant was found “slumped” in a supine position. In a remaining incident involving a baby bottle warmer, a report did not specify the cause of death.

See <https://www.cpsc.gov/s3fs-public/Nursery-Products-Annual-Report-2022.pdf> p. 10, for a list of products associated with deaths in the “Other” category in 2017–2019.

with the crib, including incomplete assembly; missing, broken, or nonfunctioning components; ill-fitting mattress; or ineffective crib repairs. Some of these incidents occurred in, or on, older, reassembled, recalled, or secondhand cribs. The remaining crib fatalities involved the presence of hazardous crib surroundings. Examples include strangulations from nearby cords or strings; suffocations from small objects or a plastic bag located in/near the crib; asphyxiations due to co-sleeping with other children in the crib; entrapments between crib rail and a tied-down cover (e.g., a twin mattress); entrapments between crib rail and a picture frame; and in one case, an electrocution when the infant touched a power outlet from inside his crib.

Between 2018 and 2020, staff identified 89 deaths associated with bassinets/crib. Most of these deaths were associated with extra bedding, with pillows involved in many of the suffocation deaths. A few of the bassinet-related deaths involved product failure or the presence of hazardous surroundings around the bassinet.

Playpens/play yards were associated with 81 deaths between 2018 and 2020. Most of the deaths were due to asphyxiation, where the infant suffocated on a blanket/pillow/other soft bedding placed inside the play yard. The presence of a hazardous environment in or around the product, such as use of ill-fitting, non-original mattresses and sofa cushions in the play yards, or co-sleeping arrangements with other infants in the play yard, were associated with some of the deaths. A few of the fatalities involved faulty products.

Between 2018 and 2020, infant inclined sleep products were associated with 46 deaths. These products, currently banned, previously were sold with one or more inclined sleep surface adjustment positions for the seat back that are greater than 10 degrees but do not exceed 30 degrees. All but one of these 46 fatalities happened in recliner seats with rocking features; 1 fatality occurred in an inclined sleeper attachment that was placed in a crib. Some of the decedents were placed prone in the product, on soft bedding; some of the decedents were found to have rolled over, either completely or partially, ending up in a compromised position that resulted in asphyxiation deaths; a couple of the fatalities described the decedent as being found in a chin-to-chest position. These products are subject to the safety standard for infant sleep products that the Commission published on June 23, 2021, which became effective as of June 23, 2022 (86 Fed. Reg. 33,022) and are banned under the Safe Sleep for Babies Act and the rule based on this Act which the Commission published on August 16, 2023 (88 Fed. Reg. 55,554).

Finally, 35 deaths associated with infant carriers were identified during the period 2018 through 2020. Placing the infant in the carrier in a hazardous manner was the most common scenario. Examples include an infant partially restrained in the seat with shoulder straps only who slid forward in the seat and strangled at the chest clip; a fatality resulting from an unattended and unrestrained infant, sometimes sleeping on top of a soft blanket in the seat, who managed to get into a compromised position; a fatality resulting from an infant tipping a carrier over, causing it to hang the infant inside; an infant sleeping in a carrier with his head turned to the side and face directly pressed against the caregiver's body, which led to suffocation; and an infant left unsupervised in a carrier on a bed; the carrier was later found flipped over with the victim face down and cold to the touch.

Table 5 shows a breakdown of the number of nursery product-related deaths by race. Over the three year time frame from 2018 through 2020, the victim's race was unspecified for 21 percent of deaths. Conversely, the victim's ethnicity was unspecified for more than 64 percent of deaths. Due to the high percentage of deaths with unknown ethnicity, Table 5 is limited to the breakdown of nursery product-related deaths by race only. When focused solely on nursery product-related

deaths with known race, White children composed 62 percent of all deaths (compared to 70 percent of the population for that age, while Black children made up 29 percent of all deaths (compared to 16 percent of the population for that age).<sup>14</sup> Victims of other races made up the remaining 9 percent of all deaths.

## Table 5

**Reported Nursery Product Deaths Among Children Under Age Five by Race**

Race	ANNUAL DEATHS			
	2018	2019	2020	Average
Not stated	23	59	22	35
White	73	70	97	80
Black/African American	29	31	52	38
Asian	2	1	2	2
Other	10	9	3	8
American Indian/Alaska Native	2	2	1	2
Native Hawaiian/Pacific Islander	0	0	2	1
<b>Total</b>	<b>139</b>	<b>172</b>	<b>179</b>	<b>164</b>

Source: CPSC epidemiological databases: Consumer Product Safety Risk Management System (CPSRMS) and NEISS from 2018 to 2020, for reported deaths. Although the databases are also equipped to capture details on the ethnicity of the patient, the ethnicity was unspecified for most of the data.

Note: The average annual deaths do not add up to the total due to rounding.

<sup>14</sup> Demographic percentages are based on <https://www2.census.gov/programs-surveys/popest/datasets/2010-2020/national/asrh/NC-EST2020-ALLDATA-R-File18.csv>, <https://www2.census.gov/programs-surveys/popest/datasets/2010-2020/national/asrh/NC-EST2020-ALLDATA-R-File20.csv>, and <https://www2.census.gov/programs-surveys/popest/datasets/2010-2020/national/asrh/NC-EST2020-ALLDATA-R-File22.csv>.

# Appendix

## Methodology

### ED-Treated Injuries (In-Scope Data):

- Database: NEISS from 01/01/2022 through 12/31/2022 (2018 through 2021 NEISS analytical datasets from previous years were used for comparison); date of extraction was 06/21/2023.
- Product codes: 1500–1599, excluding 1550.<sup>15</sup> When multiple nursery products were coded as involved in an injury report, staff identified a “primary” product code based on the narrative description and used that for classification in this analysis.
- Age of victim: 0 through 4 years.
- Screened to ensure that no motor vehicle incidents were included.
- All cases of diaper rash (identified as side-effects of antibiotics use or exposure to prolonged moisture) were excluded.

Beginning with the 2016 report (using 2015 NEISS data), the injury estimates in annual reports on nursery products are based on non-incidental, emergency department-treated injuries. The association of an incident/injury with a nursery product is incidental if the occurrence of the incident/injury is considered *not dependent* on the presence of that nursery product in the incident scenario. The exclusion of incidental injury cases aligns more closely with the way CPSC staff has prepared the CPSIA Section 104 rulemaking packages for the Commission. Now that most of the nursery products discussed in this report have a mandatory rule in place, staff believes that annual estimates based on the non-incidental data will provide a better tool for gauging the efficacy of the various standards.

### Examples of Additional Screenings (Applied to In-Scope Data to Arrive at Non-Incidental Data):

- If the official diagnosis indicated that no injury had been sustained, the case was excluded.
- If the product’s involvement was incidental, such as a child being stung by a bee, or getting bitten by a dog while in an infant stroller, the case was excluded.
- If a child suffered a medical crisis while seated in a high chair (e.g., choking on food), or gained access to adult medication by climbing on a crib, the case was excluded.
- If a child was injured by other young children (e.g., pulled out of an infant swing by a young sibling), the case was excluded.

All ED-treated injury estimates/analyses in this report are based on non-incidental data.

### Deaths:

- Databases: CPSRMS and NEISS from 01/01/2018 through 12/31/2020; date of extraction was 07/24/2023.

Information available from CPSRMS and NEISS on incidents that have not been investigated is often incomplete or provides insufficient information on the hazard scenario. If these incident reports are investigated later, or as other associated reports come in, the

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<sup>15</sup> Product code 1550 (*Infant and Toddler Play Centers excluding Jumpers, Bouncers, and Exercisers*) represents a toy, not a nursery product.

initial information is corroborated or contradicted, and the fatality numbers reported may change.

- Product codes: 1500–1599, excluding 1550<sup>15</sup>; 4074 for *children's chairs*, 4075 for *portable youth bed rails*, and 4082 for *toddler beds*.
- Age of victim: 0 through 4 years.
- Screened to ensure no duplicates were included; all records of the same incident that were reported through different data sources were associated and included as a single report.
- Miscoded products were recoded correctly based on the detailed information collected. A common example was a play yard miscoded as a crib but was counted as a play yard for this report.
- As with the emergency department-treated injuries, deaths involving certain products were grouped together. For instance, baby baths and bathinettes were counted together with bath seats; exercisers were counted with baby walkers and jumpers; and, as noted earlier, any extra-bedding-in-crib incidents were counted with cribs while incidents with extra bedding in a play yard were counted with play yards.
- Staff carefully screened to determine whether fatalities were in scope or out of scope. An example of an out-of-scope fatality would be an incident where no direct or circumstantial information was available to determine *how* the death occurred, or if Sudden Infant Death Syndrome was the only information available from the official report(s). These criteria differ from the inclusion criteria used in various rulemaking packages prepared by CPSC staff. In the latter, *all* data are included, but such incidents may be classified differently; for example, the incidents could be classified into “non-product-related” or “no information” categories, as appropriate (and are excluded from the data-based evidence used for rulemaking purposes). As such, the number of fatalities for each product/group of products presented in this and previous annual nursery product reports are not expected to match the number of fatalities presented in any rulemaking packages on the same product/group of products.

In some cases that were considered in scope, the death was not associated directly with the nursery product. However, hazards in the vicinity of the product, often created inadvertently by caregivers, led to the deaths. For instance, extra bedding inside the crib, or plastic bags that were within easy reach of the crib, have led to some deaths. These deaths have been included with crib deaths. Similarly, clutter and extra bedding inside the play yard, or placement of the play yard within easy reach of a window blind cord, have led to some fatalities. These have been counted with play yard deaths. While these deaths may not be due to product failure only, they highlight some common misconceptions and oversights, poorly drafted instructions/warnings, or foreseeable use patterns for these products. Therefore, these deaths were included.

Staff excluded any report to the CPSC of a nursery product-related incident that occurred outside of the United States.

## Historical Data

Based on the non-incidental data only, trend analysis for 2020 through 2022 shows no statistically significant trend (p-value = 0.548). Additionally, when historical data from 2018 and 2019 are included, the 2018 through 2022 data do not show any statistically significant trend either (p-value = 0.808).

Table 5 and Figure 1 present the 5-year injury estimates covering 2018 through 2022, based on ED-treated, non-incidental data on nursery products. Figure 2 presents the corresponding 5-year estimated injury rates per 100,000 children under age 5.

## Table 6

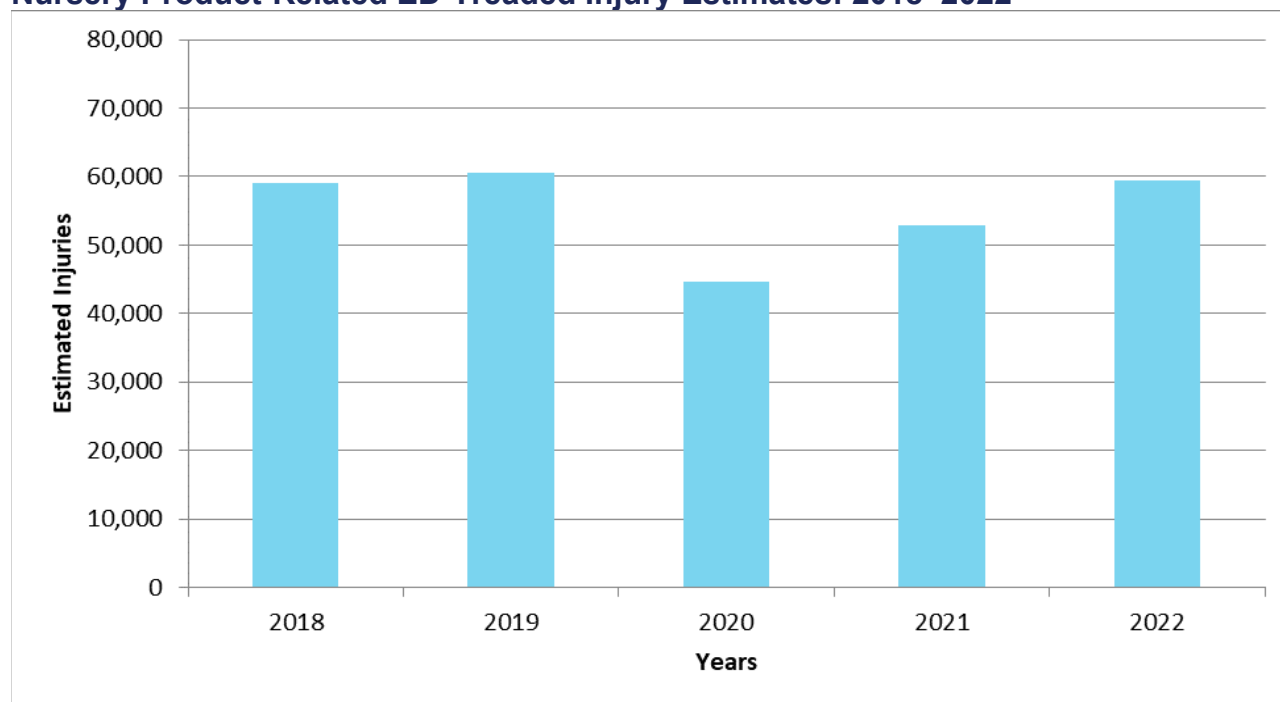
**Nursery Product-Related ED-Treated Injury Estimates: 2018–2022**

Calendar Year	Estimated Injuries	95% Confidence Interval
2018	59,000	38,400 – 79,600
2019	60,600	38,000 – 83,200
2020	44,600	26,800 – 62,300
2021	53,000	34,900 – 71,000
2022	59,500	34,500 – 84,500

Source: NEISS, CPSC. Estimates rounded to nearest 100.

## Figure 1

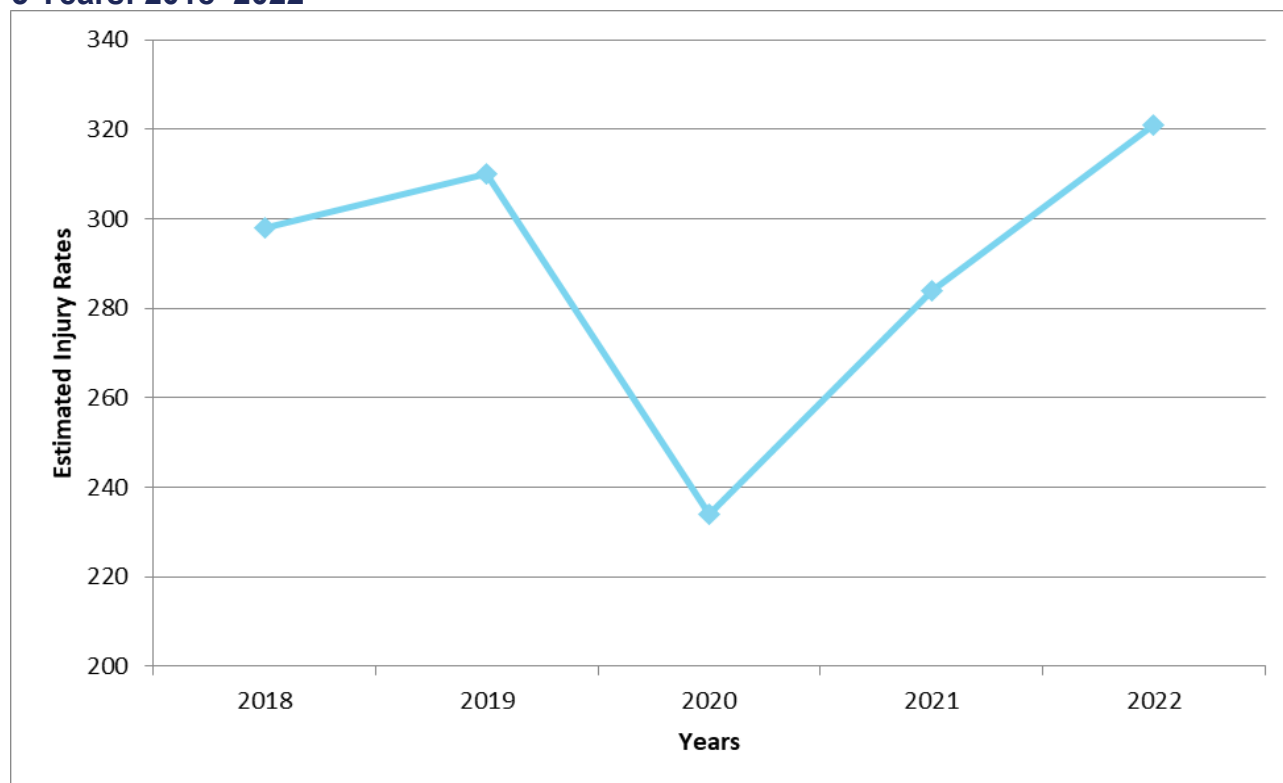
**Nursery Product-Related ED-Treated Injury Estimates: 2018–2022**



Source: NEISS, CPSC. Estimates are rounded to nearest 100.

## Figure 2

### Nursery Product-Related ED-Treated Estimated Injuries per 100,000 Children Under 5 Years: 2018–2022



Source: NEISS, CPSC. Estimates are rounded to nearest 100.

The population data for the denominator is from U.S. Census Bureau website (same as footnote 2):

<https://www.census.gov/data/datasets/time-series/demo/popest/2020s-national-detail.html>; Annual Estimates of the Resident Population by Single Year of Age and Sex for the United States: April 1, 2020 to July 1, 2022 (NC-EST2021-AGESEX-RES); last revised June 20, 2023.

With the completion of this report, analyses of non-incidental hospital ED-treated injury data are now available for the eight years, 2015 through 2022. As analyses are completed for additional years, staff anticipates presenting 10- and 15-year trends in the future.