

Rail Safety Fact Sheet

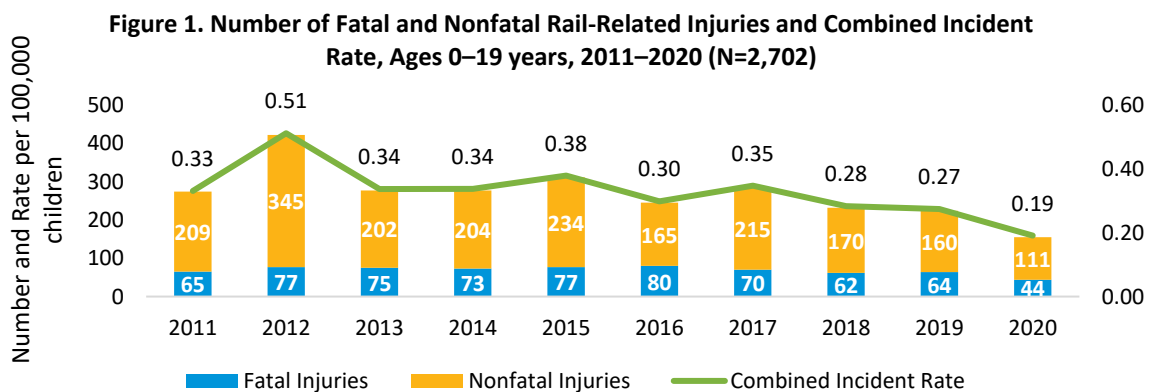
LAST UPDATED DECEMBER 2021

There were 687 fatal and 2,015 nonfatal rail-related injuries among children ages 0 to 19 years in the U.S. between 2011 and 2020.

This fact sheet focuses on fatal and nonfatal rail-related injuries among children ages 0 to 19 years old that were reported to the U.S. Federal Railroad Administration (FRA) between 2011 and 2020. For the purposes of this fact sheet, “incident” is used when referring to fatal and nonfatal injuries combined, each incident representing a single injury or death. Rail-related incidents are further broken down into railroad crossing-related and trespassing-related incidents (definitions below).

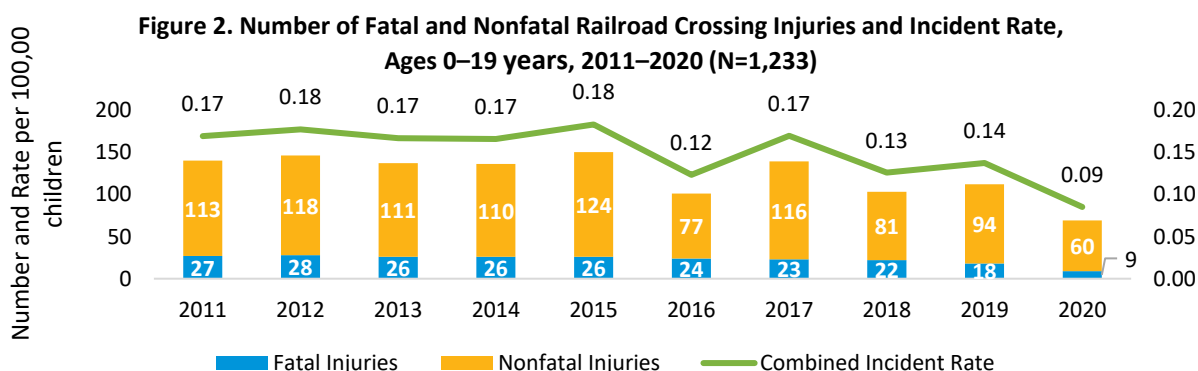
Overall Rail-Related Incidents¹⁻³

- In 2020, 44 children died of rail-related injuries and another 111 were nonfatally injured. This corresponds to a ratio of 2.5 nonfatal injuries per death.
- The rate of rail-related incidents among children decreased by 42 percent between 2011 and 2020 (0.33 and 0.19 per 100,000 children, respectively) (Figure 1).
 - For fatal injuries alone, the rate was fairly stable between 2011 and 2019 (about 0.08 per 100,000 children), before it decreased by 38 percent between 2019 and 2020 (0.05 per 100,000 children).
 - For nonfatal injuries alone, the rate decreased by 44 percent between 2011 and 2020 (0.25 and 0.14 per 100,000 children, respectively).
- While rail-related incidents are more common among adults, children accounted for about 9 percent of both fatal and nonfatal rail-related injuries between 2011 and 2020.



Railroad Crossing-Related Incidents¹⁻³

- In 2020, 9 children died as a result of railroad crossing injuries* and another 60 were nonfatally injured. This corresponds to a ratio of 6.7 nonfatal injuries per death.
- Between 2011 and 2020, the rate for railroad crossing-related incidents among children decreased by 47 percent (0.17 and 0.09 per 100,000 children, respectively) (Figure 2).
 - For fatal railroad crossing-related injuries alone, the rate was stable between 2011 and 2018 (0.03 per 100,000 children), before it decreased by 67 percent between 2019 and 2020 (0.03 and 0.01 per 100,000 children, respectively).
 - For nonfatal railroad crossing-related injuries alone, the rate decreased by 50 percent between 2011 and 2020 (0.14 and 0.07 per 100,000 children, respectively).
- Children accounted for 9 percent of all fatal and 14 percent of all nonfatal injuries at railroad crossings between 2011 and 2020.



Trespassing-related Incidents¹⁻³

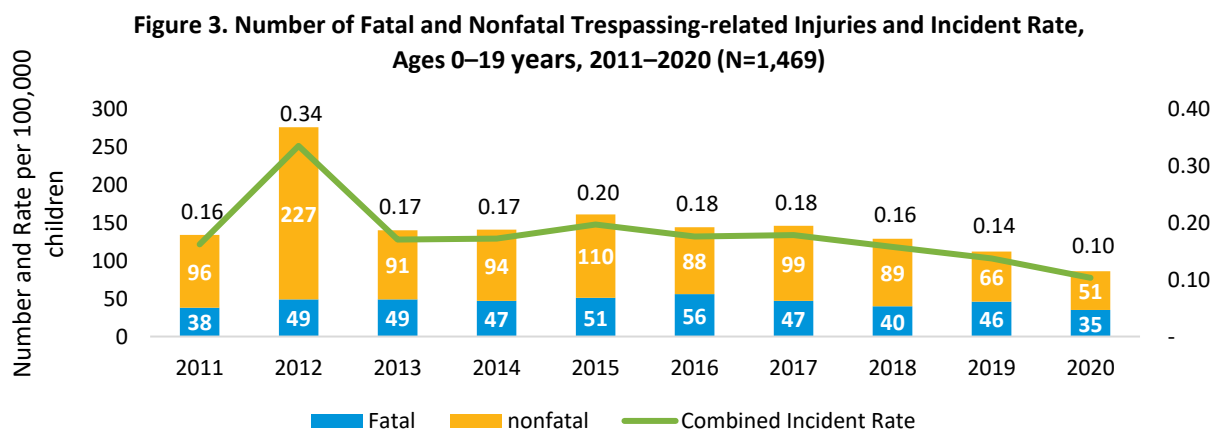
- In 2020, 35 children died as a result of trespassing-related injuries† and another 51 were nonfatally injured. This corresponds to a ratio of 1.5 nonfatal injuries per death.
- The rate of trespassing-related incidents among children decreased by 38 percent between 2011 and 2020 (0.16 and 0.10 per 100,000 children, respectively) and was at its highest in 2012 (0.34 per 100,000 children) (Figure 3).

* Railroad crossing-related injuries occur when a person or road user is struck by a train while attempting to cross at a designated crossing where tracks intersect a roadway or walkway at the same level.

† Trespassing-related injuries occur when a person is injured while on private railroad property without permission. Those injured are most often pedestrians taking a shortcut across or along tracks, but also include loiterers and those engaging in recreational activities on or around tracks such as hunting or jogging



- Over this period, the fatality rate of trespassing-related injuries among children was relatively unchanged (about 0.06 per 100,000 children) and was only slightly lower in 2020 than in 2011 (0.04 and 0.05 per 100,000 children, respectively).
- A greater change over the period was seen in the rate of nonfatal trespassing-related injuries among children, which decreased by 50 percent between 2011 and 2020 (0.12 and 0.06 per 100,000 children, respectively) and was at its highest in 2012 (0.28 per 100,000 children).
- Children accounted for 9 percent of all fatal and 7 percent of all nonfatal trespassing injuries between 2011 and 2020.



Risk Factors¹

- **Age:**
 - Children ages 15 to 19 years accounted for the largest proportion (55 percent) of nonfatal rail-related injuries among children between 2011 and 2020, followed by children ages 10 to 14 years (20 percent), 5 to 9 years (13 percent) and 0 to 4 years (12 percent) (Figure 4).
 - The distribution of fatal rail-related injuries by age group among children between 2011 and 2020 was slightly different, with children ages 15 to 19 years and 10 to 14 years accounting for the largest proportions of fatal injuries (76 percent and 14 percent, respectively), followed by children ages 0 to 4 years and 5 to 9 years (12 percent and 5 percent, respectively).
 - Children ages 15 to 19 years accounted for nearly 6 in 10 (57 percent) railroad crossing-related incidents and more than 6 in 10 (63 percent) trespassing-related incidents among children between 2011 and 2020 (Figure 5).



Figure 4. Fatal and Nonfatal Rail-related Injuries by 5-Year Age Groups, Ages 0-19 years, Year 2011 to 2020 (N=2,702)

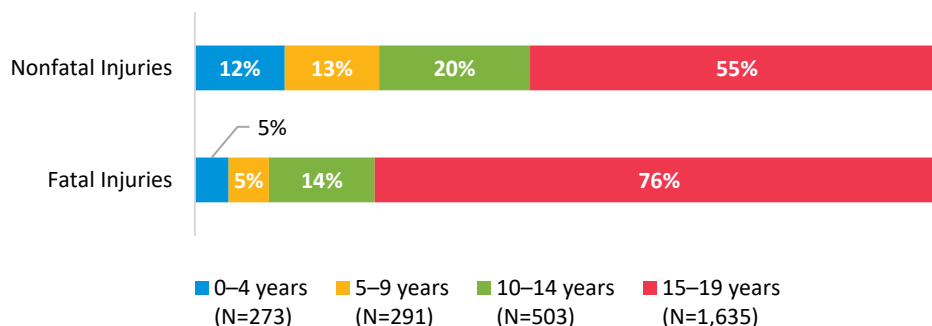
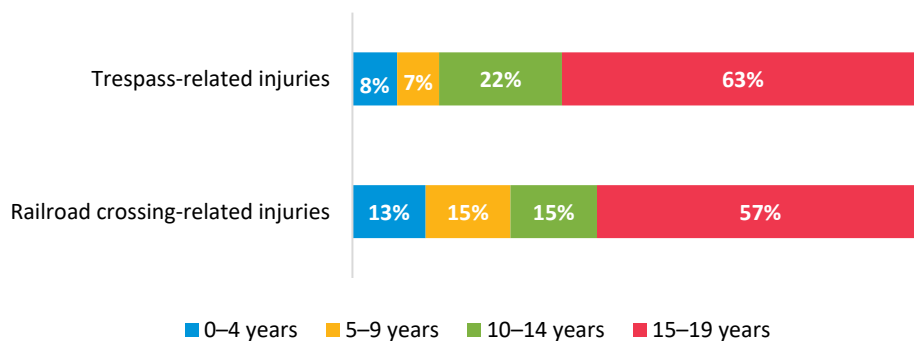


Figure 5. Rail-related Incidents by Event Type, 5-Year Age Groups, Ages 0-19 years, Year 2011 to 2020 (N=2,702)



- **Sex**
 - According to data from the CDC, males accounted for 74 percent of fatal rail-related injuries among children between 2010 and 2019 (the latest years for which data on sex are available).^{‡4}
- **Month:**
 - Between 2011 and 2020, railroad crossing-related incidents among children were slightly more frequent in the months of June, July, and August (31 percent combined) (Figure 7), while trespassing-related incidents were more frequent in November (15 percent) (Figure 8).

[‡] Data on sex were sourced from CDC’s WONDER Underlying Cause of Death Database, as FRA rail casualty data do not include a variable for sex.



Figure 6. Percent Distribution of Railroad Crossing Incidents by Month, Ages 0–19 years, Years 2011–2020 (N=1,233)*

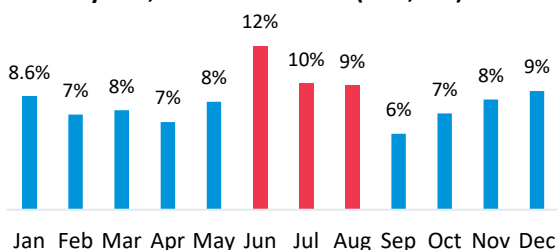
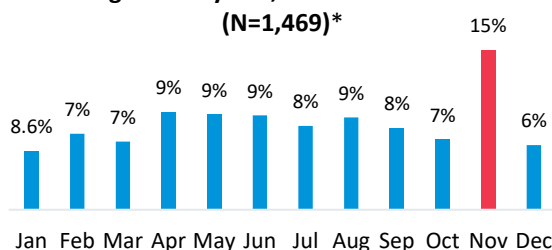


Figure 7. Percent Distribution of Trespassing-related Incidents by Month, Ages 0–19 years, Years 2011–2020 (N=1,469)*



*Red indicates the highest percentage categories

- **Day of Week:**

- Railroad crossing-related incidents occurred most frequently on Fridays (17 percent) and least frequently on Wednesdays and Sundays (13 percent and 12 percent, respectively).
- Trespassing-related incidents occurred most frequently on Fridays (24 percent) and least frequently on Tuesdays (11 percent).

- **Time of Day**

- About 6 in 10 railroad crossing-related incidents (63 percent) and about half of trespassing-related incidents (52 percent) occurred between 12:00 PM and 8:59 PM. Both types of incidents occurred most frequently in the hours that typically follow school dismissal (3:00 PM to 5:59 PM) (19 percent and 19 percent, respectively).

- **Event Type:**

- Of children involved in rail-related incidents between 2011 and 2020, 50 percent were vehicle passengers, 32 percent were driving, and the remaining 18 percent were either running, walking, sitting or standing on or near the railroad crossing at the time of the event.
- Of children involved in trespassing-related incidents between 2011 and 2020, 34 percent were on the tracks when injured and 23 percent were either beside, between or alongside the tracks at the time of the event. §
- Nearly half (49 percent) of trespassing-related incidents involved children being struck by on-track equipment. Of those, more than half (55 percent) were walking; 10 percent were standing; 7 percent were running; and 7 percent were lying down on, beside, or between the tracks when struck.

- **Geography:**

§ The remaining 43 percent were positioned at other or unspecified locations.



- While **Texas, California, and Indiana** were the states with the highest numbers of rail-related incidents among children between 2011 and 2020, the rail-related incident rate per 100,000 children was highest in **Alaska and North Dakota** (Table 1) (states with suppressed numbers/rates excluded from ranking).
 - Railroad crossing-related incidents among children between 2011 and 2020 most frequently occurred in **Texas, Indiana and Alabama**.
 - Trespassing-related incidents among children between 2011 and 2020 most frequently occurred in **New Jersey, California and New York**.
- **Idaho and Indiana** ranked the highest in terms of children as a proportion of all rail-related incidents between 2011 and 2020 (where age was recorded).

Table 1. Rail-Related Incidents by State, 2011–2020

State	No. of Children Fatally Injured	No. of Children Nonfatally Injured	Rail-related Incident Rate per 100,000 Children (fatal + nonfatal)**	No. of Railroad Crossing-Related Incidents Among Children	No. of Trespassing-Related Incidents Among Children	Children as Proportion of Total No. of Rail-Related Incidents (adult + children) **
AL	14	83	0.79	75	22	16.6%
AK	--	--	--	--	--	--
AZ	--	15	0.13	--	20	7.5%
AR	14	46	0.76	44	16	16.4%
CA	90	105	0.19	65	130	7.5%
CO	--	22	0.22	11	20	11.0%
CT	--	--	--	--	--	--
DE	--	--	--	--	--	--
DC	--	--	--	--	--	--
FL	24	60	0.18	34	50	7.6%
GA	25	73	0.35	61	37	12.9%
ID	--	16	0.48	14	--	21.1%
IL	45	102	0.45	63	84	8.9%
IN	42	107	0.84	101	48	21.3%
IA	11	39	0.61	34	16	16.1%
KS	11	25	0.45	14	22	11.7%
KY	16	54	0.62	38	32	17.4%
LA	15	86	0.83	58	43	15.0%
ME	--	--	--	--	--	--
MD	--	19	0.17	--	21	7.7%
MA	--	15	0.13	--	13	8.9%
MI	18	30	0.19	33	15	14.0%
MN	10	34	0.31	24	20	13.5%



State	No. of Children Fatally Injured	No. of Children Nonfatally Injured	Rail-related Incident Rate per 100,000 Children (fatal + nonfatal)**	No. of Railroad Crossing-Related Incidents Among Children	No. of Trespassing-Related Incidents Among Children	Children as Proportion of Total No. of Rail-Related Incidents (adult + children) **
MS	--	27	0.43	23	12	9.8%
MO	15	46	0.39	36	25	13.1%
MT	--	--	--	--	--	--
NE	--	33	0.74	32	--	16.2%
NV	--	10	0.16*	--	12	10.1%
NH	--	--	--	--	--	--
NJ	16	184	0.91	10	190	10.4%
NM	--	--	0.18*	--	10	6.8%
NY	21	108	0.28	--	121	3.7%
NC	18	22	0.16	17	23	7.6%
ND	--	20	1.19	20	--	15.9%
OH	27	64	0.31	50	41	14.5%
OK	15	46	0.58	40	21	16.2%
OR	19	16	0.36	--	27	11.4%
PA	32	87	0.39	35	84	10.2%
RI	--	--	--	--	--	--
SC	--	30	0.29	18	18	9.7%
SD	--	--	--	--	--	--
TN	17	43	0.36	34	26	10.0%
TX	46	186	0.29	129	103	11.2%
UT	--	16	0.21	16	--	13.0%
VT	--	--	--	--	--	--
VA	20	25	0.22	10	35	12.9%
WA	12	32	0.24	16	28	10.9%
WV	--	14	0.41*	--	12	8.9%
WI	--	32	0.26	24	13	13.0%
WY	--	--	--	--	--	--

*Rates based on small numbers (≤20 fatal injuries) may be unstable and should be interpreted with caution.

--- State-level counts and rates based on fewer than 10 deaths have been suppressed.

** Data on age missing for 6,623 cases. Proportion calculated using available age data.

For more information or questions regarding the information contained in this fact sheet, please contact the SKW Research Department at: mchandler@safekids.org



Methodology

This Fact Sheet excludes injuries to rail workers/contractors or rail passengers. Person types selected from the FRA Railroad Casualties Reports database were D (non-trespassers-on railroad property), E (trespassers), and J (non-trespassers-off railroad property) from FRA rail casualty data.¹ Data do not differentiate between intentional and unintentional injuries. Rates were calculated using population estimates from the U.S. Census Bureau; 2020 population estimates are preliminary^{2,3}

References

1. Federal Railroad Administration. Railroad Casualties Reports (6180.54). Selections: years 2011–2020. https://safetydata.fra.dot.gov/OfficeofSafety/publicsite/on_the_fly_download.aspx. Accessed August 13, 2021.
2. U.S. Census Bureau. 2011-2019 population source for rates: ACS 1-Year Estimates 1-Year Estimates - Puerto Rico Public Use Microdata Sample, Years 2011-2019.
3. U.S. Census Bureau. 2020 population source for rates: Annual Estimates of the Resident Population for the United States, Regions, States, the District of Columbia, and Puerto Rico: April 1, 2010 to July 1, 2019; April 1, 2020; and July 1, 2020 (NST-EST2020). <https://www.census.gov/programs-surveys/popest/technical-documentation/research/evaluation-estimates/2020-evaluation-estimates/2010s-state-total.html>. Published 2021. Accessed October 15, 2021.
4. Centers for Disease Control and Prevention (CDC). WONDER Underlying Cause of Death Database. Selection criteria: Ages 0-19, ICD-10 codes V05, V15, V25, V35, V45, V55, V65, V75, V80.6, V87.6, select years 2010–2019. <https://wonder.cdc.gov/controller/datarequest/D76>. Accessed September 24, 2021.

