

Cumulative Prevalence of Confirmed Maltreatment and Foster Care Placement for US Children by Race/Ethnicity, 2011–2016

Youngmin Yi, MA, Frank R. Edwards, PhD, and Christopher Wildeman, PhD

Objectives. To estimate the cumulative prevalence of confirmed child maltreatment and foster care placement for US children and changes in prevalence between 2011 and 2016.

Methods. We used synthetic cohort life tables and data from the Adoption and Foster Care Analysis and Reporting System and the National Child Abuse and Neglect Data System and population counts from the Centers for Disease Control and Prevention.

Results. US children's cumulative prevalence of confirmed maltreatment remained stable between 2011 and 2016 at about 11.7% (95% confidence interval [CI] = 11.6%, 11.7%) of the population and increased by roughly 11% for foster care placement from 4.8% (95% CI = 4.8%, 4.8%) to 5.3% (95% CI = 5.3%, 5.4%). American Indian/Alaska Native children experienced the largest change, an 18.0% increase in confirmed maltreatment risk from 13.4% (95% CI = 13.1%, 13.6%) to 15.8% (95% CI = 15.6%, 16.1%) and a 21% increase in foster care placement risk from 9.4% (95% CI = 9.2%, 9.6%) to 11.4% (95% CI = 11.2%, 11.6%).

Conclusions. Confirmed child maltreatment and foster care placement continued to be experienced at high rates in the United States in 2012 through 2016, with especially high risks for American Indian/Alaska Native children. Rates of foster care have increased, whereas rates of confirmed maltreatment have remained stable. (*Am J Public Health*. Published online ahead of print March 19, 2020; e1–e6. doi:10.2105/AJPH.2019.305554)

Children who suffer maltreatment and foster care placement are a vulnerable population at high risk of poor mental and physical health throughout the life course.^{1–3} The prevalence of confirmed maltreatment and foster care placement are traditionally calculated based on point-in-time estimates,⁴ which provide limited insight into the number of children who will ever experience these events. Earlier research also using synthetic cohort life tables⁵ and data from the National Child Abuse and Neglect Data System (NCANDS)⁶ and Adoption and Foster Care Analysis and Reporting System (AFCARS)⁷ demonstrated that the cumulative prevalence of confirmed maltreatment⁸ and foster care placement⁹ for US children tells a very different story than do annual estimates, with 12% of US children ever having a confirmed maltreatment case⁸ and 6% of US children ever being placed in foster

care.⁹ For Black and American Indian/Alaska Native children, these risks were higher. Black children had cumulative risks of approximately 20% for a case of substantiated or confirmed child maltreatment through the child welfare system⁸ and 10% for foster care placement.⁹ The cumulative prevalence of foster care placement for American Indian/Alaska Native children has been as high as 15%.⁹

Although more recent estimates of the cumulative prevalence of experiencing a maltreatment investigation are available,¹⁰ estimates of the cumulative prevalence of

confirmed maltreatment and foster care placement have not been produced since 2011. We sought to provide updated estimates of these risks for all children in the United States and to examine race/ethnicity-specific risks of these events from 2012 onward, using the most recent data available.

METHODS

We used 2004 to 2016 data from the NCANDS Child Files and AFCARS Foster Care Files, which allowed us to report on confirmed maltreatment and foster placements, respectively, and we used 2004 to 2016 total population counts from the Centers for Disease Control and Prevention's bridged-race population estimates. These data include information on all 47 732 097 investigated maltreatment reports and all 9 210 542 foster care child-years between 2004 and 2016. The AFCARS data include annual data on all children in state or local foster care systems, with national data available from 2000 to the present.

The NCANDS data records child case-level information on reports of child abuse or neglect that receive a response from a state or local child welfare agency. They do not include cases in which a report was filed but the agency did not respond (screened-out cases). Current NCANDS files include all states; however, reporting in the NCANDS system is voluntary, and some states failed to

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report data earlier in the time series (Table A [available as a supplement to the online version of this article at <http://www.ajph.org>]). We adjusted for the varying inclusion of states in the NCANDS file by adjusting joining state-level NCANDS data to state-level population data, ensuring that our population denominators adjusted for NCANDS nonreporting.

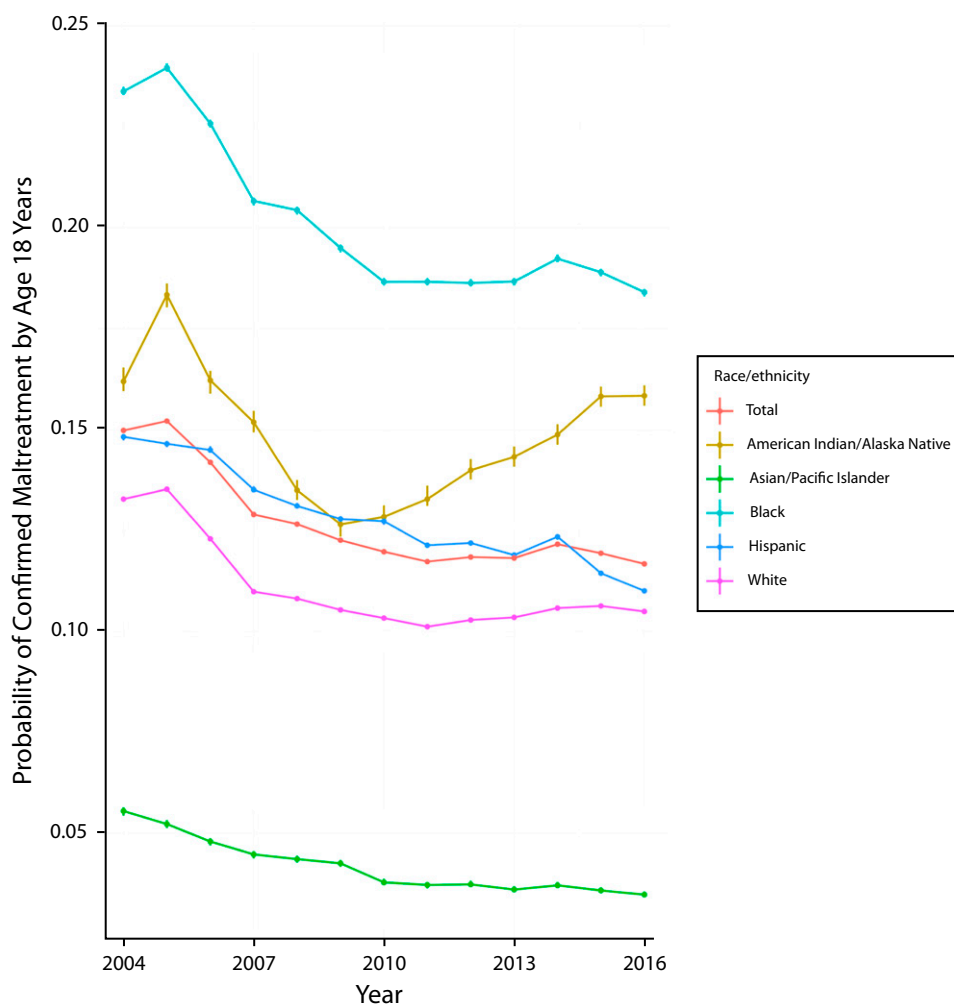
Our period life table method depended on 3 inputs: (1) counts of children who experienced a first report of child abuse or neglect that was confirmed by a child welfare agency by child age and reported race/ethnicity, (2) counts of children experiencing a first foster care placement by child age and reported race/ethnicity, and (3) the

state-level population of children by age and race/ethnicity. We defined confirmed maltreatment as a reported case of maltreatment that was received by child protective services; investigated; and, ultimately, confirmed, indicated, or directed to alternative response. We retained the first episode of confirmed maltreatment for each unique child identifier in NCANDS and then constructed state-year counts by child age and race/ethnicity.

We followed a parallel method for foster care: we obtained the first episode in which a child was removed from her or his home and placed in foster care by unique child ID and then constructed state-year counts by age and race/ethnicity. We preserved state-level

totals to ensure that we obtained the appropriate population denominator when joining to age- and race/ethnicity-specific population data provided in the US population data compiled by the Surveillance, Epidemiology and End-Results Program of the National Cancer Institute, as adapted from US Census Population Estimates Program data.

We defined a child's race/ethnicity with the following set of mutually exclusive categories: non-Hispanic White, non-Hispanic Black, Hispanic (and not American Indian or Alaska Native), non-Hispanic Asian or Pacific Islander, and American Indian or Alaska Native (Hispanic or non-Hispanic). Rates of missingness on



Note. Vertical lines indicate 95% confidence intervals.

FIGURE 1—Cumulative Risks of Confirmed Maltreatment by 18 Years, by Race/Ethnicity: National Child Abuse and Neglect Data System Data, United States, 2004–2016

children's racial/ethnic group are low in the AFCARS, with an average of 1.9% of cases missing race/ethnicity in each state-year file. In the NCANDS, missingness on racial/ethnic information is more variable. We relied on multiple imputations of missing race/ethnicity data estimated using multiple imputation via chained equations for both the AFCARS and NCANDS.¹¹ We adjusted reported SEs and confidence intervals (CIs) to include between-imputation variance.

We used synthetic cohort life table analysis to estimate US cumulative risks of confirmed maltreatment and foster care placement before age 18 years, the same method as previous research estimating these quantities through 2011.^{8,9} Briefly, synthetic

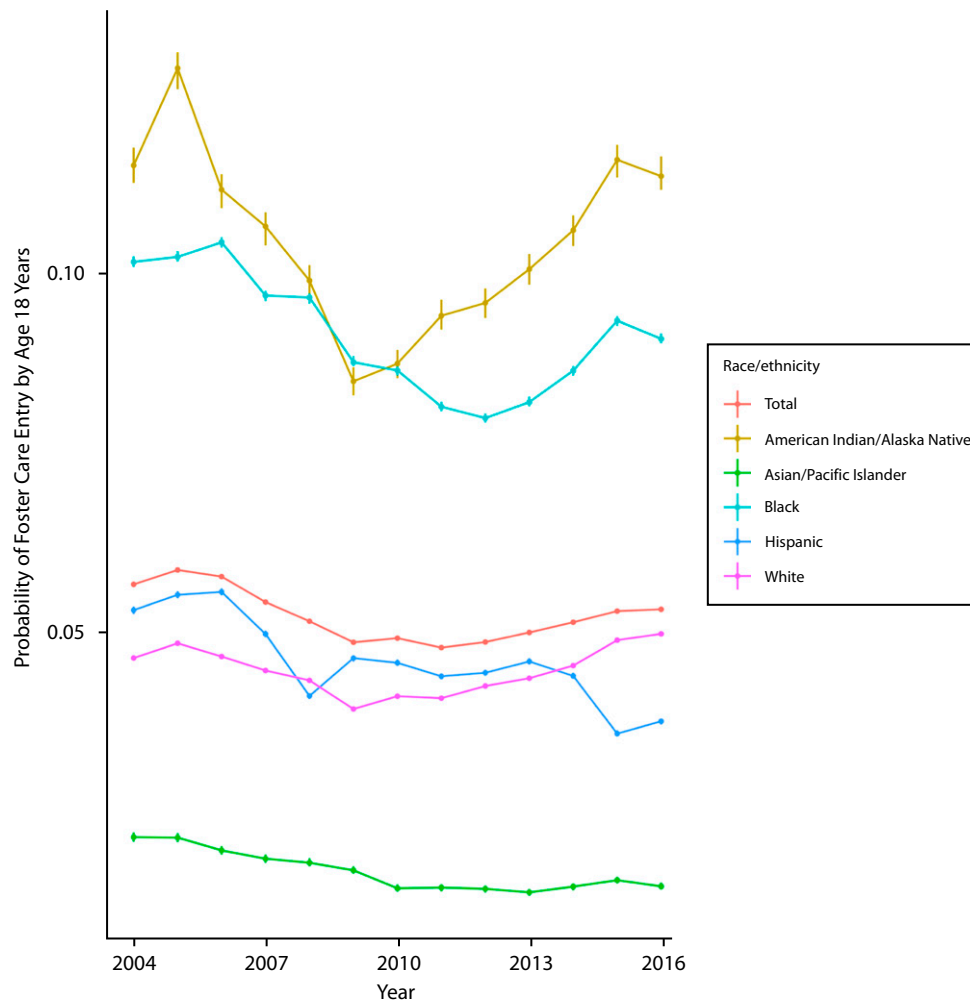
cohort life tables use aggregate counts of an age-specific incidence of an event of interest (in our study, confirmed maltreatment and foster care placement) to estimate risks of experiencing the event conditional on survival or nonevent to each age interval. The age interval we examined was 1-year age intervals spanning childhood, from age 0 through 17 years.

The synthetic cohort life table models what a hypothetical cohort would experience if it were to experience the age-specific risks of the 2 events of interest we calculated during the 2004 to 2016 period. In the absence of population-level longitudinal data on child welfare system involvement in the United States, the synthetic cohort life table serves as an appropriate tool for this

investigation. We focused on the cumulative risks of ever experiencing confirmed maltreatment and foster care placement by age 18 years rather than age-specific risks or cumulative risks at earlier points in the life course, as presented in Figures 1 and 2 and Tables 1 and 2. All risk estimates are accompanied by 95% CIs, and all code we used in the analysis is available in a replication repository.¹²

RESULTS

Figure 1 and Table 1 present the annual cumulative prevalence of confirmed maltreatment by age 18 years for 2004 to 2016. The 2004 to 2011 estimates confirmed that



Note. Vertical lines indicate 95% confidence intervals.

FIGURE 2—Cumulative Risks of Foster Care Placement by 18 Years, by Race/Ethnicity: Adoption and Foster Care Analysis and Reporting System Data, United States, 2004–2016

TABLE 1—Cumulative Risks of Confirmed Maltreatment by 18 Years, by Race/Ethnicity and Year: National Child Abuse and Neglect Data System Data, United States, 2004–2016

Year	Total, % (95% CI)	White, % (95% CI)	Black, % (95% CI)	Hispanic, % (95% CI)	Asian/Pacific Islander, % (95% CI)	American Indian/Alaska Native, % (95% CI)
2004	15.0 (14.9, 15.0)	13.3 (13.2, 13.3)	23.4 (23.3, 23.5)	14.8 (14.7, 14.9)	5.5 (5.4, 5.6)	16.2 (16.0, 16.5)
2005	15.2 (15.2, 15.2)	13.5 (13.5, 13.6)	24.0 (24.0, 24.1)	14.6 (14.6, 14.7)	5.2 (5.1, 5.3)	18.3 (18.0, 18.6)
2006	14.2 (14.2, 14.2)	12.3 (12.2, 12.3)	22.6 (22.5, 22.7)	14.5 (14.4, 14.6)	4.8 (4.7, 4.9)	16.2 (15.9, 16.5)
2007	12.9 (12.9, 12.9)	11.0 (10.9, 11.0)	20.7 (20.6, 20.7)	13.5 (13.4, 13.6)	4.5 (4.4, 4.6)	15.2 (14.9, 15.5)
2008	12.7 (12.6, 12.7)	10.8 (10.8, 10.9)	20.4 (20.3, 20.5)	13.1 (13.0, 13.2)	4.4 (4.3, 4.5)	13.5 (13.3, 13.8)
2009	12.3 (12.2, 12.3)	10.5 (10.5, 10.6)	19.5 (19.4, 19.6)	12.8 (12.7, 12.9)	4.3 (4.2, 4.4)	12.6 (12.3, 12.8)
2010	12.0 (11.9, 12.0)	10.3 (10.3, 10.4)	18.7 (18.6, 18.8)	12.7 (12.6, 12.8)	3.8 (3.8, 3.9)	12.9 (12.6, 13.1)
2011	11.7 (11.7, 11.8)	10.1 (10.1, 10.2)	18.7 (18.6, 18.8)	12.1 (12.1, 12.2)	3.8 (3.7, 3.8)	13.4 (13.1, 13.6)
2012	11.8 (11.8, 11.9)	10.3 (10.2, 10.3)	18.6 (18.5, 18.7)	12.2 (12.1, 12.3)	3.8 (3.7, 3.9)	14.0 (13.8, 14.3)
2013	11.8 (11.8, 11.8)	10.3 (10.3, 10.4)	18.7 (18.6, 18.8)	11.9 (11.8, 12.0)	3.7 (3.6, 3.8)	14.3 (14.1, 14.6)
2014	12.2 (12.1, 12.2)	10.6 (10.5, 10.6)	19.2 (19.2, 19.3)	12.3 (12.3, 12.4)	3.8 (3.7, 3.9)	14.9 (14.6, 15.1)
2015	11.9 (11.9, 12.0)	10.6 (10.6, 10.7)	18.9 (18.8, 19.0)	11.4 (11.4, 11.5)	3.7 (3.6, 3.7)	15.8 (15.6, 16.1)
2016	11.7 (11.6, 11.7)	10.5 (10.5, 10.5)	18.4 (18.3, 18.5)	11.0 (10.9, 11.1)	3.5 (3.5, 3.6)	15.8 (15.6, 16.1)
Percentage point change, 2011–2016	-0.0 (-0.1, -0.1)	0.4 (0.4, 0.4)	-0.2 (-0.3, -0.3)	-1.2 (-1.2, -1.1)	-0.2 (-0.2, -0.2)	2.4 (2.5, 2.5)

Note. CI = confidence interval.

maltreatment prevalence is slightly lower (~5%) than published estimates⁹ because of recent data updates. The most recent data before our estimates report a cumulative risk of confirmed maltreatment of 12% for all US

children. Since then, between 2011 and 2016, the cumulative prevalence of confirmed maltreatment for all children remained relatively stable. Meanwhile, as shown in Figure 2 and Table 2, the cumulative risk of foster care

placement increased: according to 2016 estimates, 5.3% (95% CI = 5.3%, 5.4%) of all children will ever be placed in foster care by age 18 years, a 10% higher risk than in 2011 (4.8%; 95% CI = 4.8%, 4.8%).

TABLE 2—Cumulative Risks of Foster Care Placement by 18 Years, by Race/Ethnicity and Year: Adoption and Foster Care Analysis and Reporting System Data; United States, 2004–2016

Year	Total, % (95% CI)	White, % (95% CI)	Black, % (95% CI)	Hispanic, % (95% CI)	Asian/Pacific Islander, % (95% CI)	American Indian/Alaska Native, % (95% CI)
2004	5.7 (5.7, 5.7)	4.7 (4.6, 4.7)	10.2 (10.1, 10.2)	5.3 (5.3, 5.4)	2.2 (2.1, 2.2)	11.5 (11.3, 11.8)
2005	5.9 (5.9, 5.9)	4.9 (4.8, 4.9)	10.2 (10.2, 10.3)	5.5 (5.5, 5.6)	2.2 (2.1, 2.2)	12.8 (12.6, 13.1)
2006	5.8 (5.8, 5.8)	4.7 (4.6, 4.7)	10.4 (10.4, 10.5)	5.6 (5.5, 5.6)	2.0 (1.9, 2.0)	11.1 (10.9, 11.4)
2007	5.4 (5.4, 5.5)	4.5 (4.5, 4.5)	9.7 (9.6, 9.8)	5.0 (4.9, 5.0)	1.9 (1.8, 1.9)	10.6 (10.4, 10.9)
2008	5.2 (5.1, 5.2)	4.3 (4.3, 4.4)	9.7 (9.6, 9.7)	4.1 (4.1, 4.2)	1.8 (1.8, 1.9)	9.9 (9.7, 10.1)
2009	4.9 (4.8, 4.9)	3.9 (3.9, 4.0)	8.8 (8.7, 8.9)	4.6 (4.6, 4.7)	1.7 (1.6, 1.8)	8.5 (8.3, 8.7)
2010	4.9 (4.9, 4.9)	4.1 (4.1, 4.1)	8.6 (8.6, 8.7)	4.6 (4.5, 4.6)	1.5 (1.4, 1.5)	8.7 (8.5, 8.9)
2011	4.8 (4.8, 4.8)	4.1 (4.1, 4.1)	8.2 (8.1, 8.2)	4.4 (4.4, 4.4)	1.5 (1.4, 1.5)	9.4 (9.2, 9.6)
2012	4.9 (4.9, 4.9)	4.3 (4.2, 4.3)	8.0 (7.9, 8.1)	4.4 (4.4, 4.5)	1.4 (1.4, 1.5)	9.6 (9.4, 9.8)
2013	5.0 (5.0, 5.0)	4.4 (4.3, 4.4)	8.2 (8.2, 8.3)	4.6 (4.6, 4.6)	1.4 (1.3, 1.4)	10.1 (9.8, 10.3)
2014	5.1 (5.1, 5.2)	4.5 (4.5, 4.6)	8.6 (8.6, 8.7)	4.4 (4.4, 4.4)	1.5 (1.4, 1.5)	10.6 (10.4, 10.8)
2015	5.3 (5.3, 5.3)	4.9 (4.9, 4.9)	9.3 (9.3, 9.4)	3.6 (3.6, 3.6)	1.6 (1.5, 1.6)	11.6 (11.3, 11.8)
2016	5.3 (5.3, 5.4)	5.0 (5.0, 5.0)	9.1 (9.0, 9.2)	3.8 (3.7, 3.8)	1.5 (1.4, 1.5)	11.4 (11.2, 11.6)
Percentage point change, 2011–2016	0.5 (0.5, 0.5)	0.9 (0.9, 0.9)	0.9 (0.9, 0.9)	-0.6 (-0.6, -0.6)	0.0 (0.0, 0.0)	2.0 (1.9, 2.0)

Note. CI = confidence interval.

There is substantial racial/ethnic variation in the risks of experiencing these events. Black children have the highest risk of confirmed maltreatment at 18.4% (95% CI = 18.3%, 18.5%). The second highest group-specific cumulative risk of this event is 15.8% (95% CI = 15.6%, 16.1%) for American Indian/Alaska Native children. Hispanic and White children have the next highest risks, at 11.0% (95% CI = 10.9%, 11.1%) and 10.5% (95% CI = 10.5%, 10.5%), respectively. Finally, children who are Asian/Pacific Islander are notable in their comparatively low risk of confirmed maltreatment (3.5%; 95% CI = 3.5%, 3.6%). Black children also have a high risk of foster care placement, at 9.1% (95% CI = 9.0%, 9.2%), but American Indian/Alaska Native children have the highest risk of experiencing this event at 11.4% (95% CI = 11.2%, 11.6%). Asian/Pacific Islander children have the lowest risk of foster care placement, with 1.5% (95% CI = 1.4%, 1.5%) of children in this group ever removed from the home. White and Hispanic children again fall between the 2 extremes.

The direction and magnitude of change in risks of confirmed maltreatment vary across racial/ethnic groups, as shown in Figure 1 and Table 1. Risks of confirmed maltreatment remained relatively stable from 2011 to 2016 for White (from 10.1% in 2011 [95% CI = 10.1%, 10.2%] to 10.5% in 2016 [95% CI = 10.5%, 10.5%]), Black (from 18.7% in 2011 [95% CI = 18.6%, 18.8%] to 18.4% in 2016 [95% CI = 18.3%, 18.5%]), and Asian/Pacific Islander children (from 3.8% in 2011 [95% CI = 3.7%, 3.8%] to 3.5% in 2016 [95% CI = 3.5%, 3.6%]). However, they changed more substantially and in opposite directions for children who are Hispanic (−1.1 percentage points; from 12.1% in 2011 [95% CI = 12.1%, 12.2%] to 11.0% in 2016 [95% CI = 10.9%, 11.1%]) or American Indian/Alaska Native (2.4 percentage points; from 13.4% in 2011 [95% CI = 13.1%, 13.6%] to 15.8% in 2016 [95% CI = 15.6%, 16.1%]).

American Indian/Alaska Native children also experienced the greatest percentage point increase in cumulative risk of foster care placement (2.0 percentage points; from 9.4% in 2011 [95% CI = 9.2%, 9.6%] to 11.4% [95% CI = 11.2%, 11.6%]; Figure 2 and Table 2). Changes in cumulative risks of foster care placement for all other racial/ethnic groups

were less than 1 percentage point in magnitude and positive for White and Black children and negative for children of Hispanic ethnicity (from 4.4% in 2011 [95% CI = 4.4%, 4.4%] to 3.8% in 2016 [95% CI = 3.7%, 3.8%]). The risk of foster care placement remained unchanged between 2011 and 2016 for Asian/Pacific Islander children (1.5% in 2011 [95% CI = 1.4%, 1.5%] and 2016 [95% CI = 1.4%, 1.5%]).

DISCUSSION

We used 2012 to 2016 data to update earlier estimates of the risk of confirmed maltreatment⁸ and foster care placement⁹ for US children. Our results support 5 key conclusions. First, since 2011, the cumulative prevalence of confirmed maltreatment has remained stable and increased modestly for foster care placement. Second, children of Hispanic ethnicity were the only group to experience a decline of greater than 1 percentage point in confirmed maltreatment risk. Third, American Indian/Alaska Native children experienced comparatively large increases in their risks of both confirmed maltreatment and foster care placement by age 18 years. Fourth, children of other racial/ethnic groups experienced smaller changes, with 2016 risks for other groups generally falling within 1 percentage point of risks in 2011. Fifth, trends in confirmed maltreatment and foster care placement risks did not necessarily move in parallel. For example, although for American Indian/Alaska Native children and those of Hispanic ethnicity cumulative risks of confirmed maltreatment and foster care placement both increased (among American Indian/Alaska Native children) or declined (among Hispanic children) over the period, among Black children, these trends diverged, with confirmed maltreatment risks declining and foster care placements increasing.

Limitations

Our analyses were limited in 4 ways. First, child identifiers in the NCANDS and AFCARS used to capture first events in our synthetic cohort analysis are unique within a state child welfare system but not across states.^{8,9} This may positively bias estimates if many children have experienced confirmed

maltreatment or foster care entry in multiple states.

Second, the NCANDS data include only cases of reported maltreatment; children are likely to experience maltreatment that goes unreported and undetected by child protective services, leading to underestimates of actual maltreatment. Child welfare systems may also confirm maltreatment in cases that may not meet thresholds accepted by medical or public health scholars. Because NCANDS records only child welfare system investigations and processes, caution should be exercised in interpreting these estimates as objective estimates of child maltreatment. Underreporting, overreporting, and bias in system processes may all affect estimates.

Third, as illustrated in Tables A and B (available as a supplement to the online version of this article at <http://www.ajph.org>), there is some missing racial/ethnic information in both data sets. Although multiple imputation may partially address this, it remains a concern.

Fourth, our descriptive analyses provide no insight into how policy shocks such as changes in immigrant detention and parental imprisonment, broader contexts such as the opioid crisis, and shifts in child maltreatment and the child welfare system shape the prevalence of child protective services contact.

Public Health Implications

Confirmed child maltreatment risks are similar and foster care placement risks slightly higher compared with 5 years ago.^{8,9} Since 2004, trends in these risks have moved in varying ways for different groups. Combined, these results highlight the importance of additional investigation of the mechanisms explaining these trends and their variation across racial/ethnic groups. They also highlight the need for broader public health and social service interventions for vulnerable populations, who disproportionately suffer from poor health in childhood and beyond, not restricted to confirmed maltreatment, which is itself a public health issue.^{1–3} **AJPH**

CONTRIBUTORS

Y. Yi contributed to the design and production of tables and figures and drafted the article. F. R. Edwards led the analysis and produced the figures. C. Wildeman conceptualized the study and coordinated data acquisition. All authors contributed to the analysis and revised the article.

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Note. Neither the collector of the original data, the funding agency, nor the NDACAN bears any responsibility for the analyses or interpretations we have presented.

CONFLICTS OF INTEREST

C. Wildeman is the director of the National Data Archive on Child Abuse and Neglect. The remaining authors have no conflicts of interest to report.

HUMAN PARTICIPANT PROTECTION

This research was considered exempt by Cornell University's institutional review board.

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