

THE ECONOMIC COSTS OF CHILD ABUSE AND NEGLECT IN TENNESSEE

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CONTENTS

- Executive Summary 1
- Introduction 2
- Patterns of First-Time Substantiated Cases of Child Abuse in Tennessee 5
 - Child Mortality from Maltreatment*11
 - Premature Adult Mortality*11
- The Economic Costs of Child Abuse.....11
 - Decreased Wages and Productivity Among Survivors* 12
 - Increased Medical Care Costs in Childhood*..... 12
 - Increased Medical Care Costs in Adulthood* 13
 - Increased Demands on Special Education*..... 13
 - Residential Care Costs of Dependency and Juvenile Delinquency* 14
 - Costs of Criminality in Adulthood*..... 14
- Where Do We Go From Here..... 15
- References 16

EXECUTIVE SUMMARY

Statistically, there is a one-in-eight chance that a child in Tennessee is a substantiated victim of child abuse by the time they reach adulthood.

We estimate the economic impact of substantiated claims of child abuse and neglect in Tennessee to be between \$3.33 and \$4.97 billion per year. We consider substantiated claims of four types of maltreatment: physical abuse, sexual abuse, drug exposure, and neglect. We use a prevalence-based approach, calculating the lifetime costs per victim. Throughout this report, we apply widely accepted figures for several specific costs of abuse (including mortality, decreased earnings in the workforce, increased costs of medical care, etc.). Many of these costs are incurred over the balance of the victim’s life. We use discounting to convert these future costs into current-year dollars; however, we must take into account how much we value costs in the future relative to the present.

We therefore present two scenarios of the annual statewide economic impact of child abuse and neglect: one for a three-percent discount rate, which is most often used in the child maltreatment literature, and one for a five-percent discount rate, more commonly used in economics.

For reasons we detail in the report, we emphasize

that even the \$4.97 billion approach is extremely conservative and likely represents a considerable understatement of the economic costs of child maltreatment. In current terms, \$4.97 billion is approximately 1.3 percent of the GDP of Tennessee. However, given that substantiated claims of child abuse affect 12.5 percent of children, this estimate is unfortunately reasonable. Efforts to prevent child maltreatment (and to help young victims recover) will yield a literal lifetime of benefits stemming from greater labor force participation, improved population health, decreased rates of substance use disorders, lower incarceration rates, reduced demand for state services, and greater life expectancy. These efforts can include economic supports for families, education efforts for parents, and greater access to mental health and counseling services for both parents and children. The purpose of this report is not to provide recommended action steps, but to illustrate the potential gains from any steps our state may take to increase prevention efforts and remediate the damage that the trauma of maltreatment causes children.

Table 1: Economic Impact of Child Maltreatment in Tennessee

Category	3% Discounting	5% Discounting
Child Mortality	\$38,925,282	\$38,925,282
Special Education	\$23,039,790	\$20,856,146
Residential Care	\$148,089,256	\$148,089,256
Juvenile Detention	\$7,873,866	\$7,873,866
Childhood Medical Care Costs	\$606,276,077	\$536,214,507
Adult Medical Costs	\$173,813,368	\$101,077,749
Lower Productivity	\$2,755,328,224	\$2,047,707,259
Adult Criminality	\$91,445,958	\$68,311,011
Premature Adult Mortality	\$1,124,753,232	\$361,736,821
Total	\$4,969,545,053	\$3,330,791,897
Lifetime Costs, Per Victim	\$425,912	\$285,464

INTRODUCTION

The economic costs of child abuse and neglect in Tennessee exceed \$3 billion per year.

Tennessee ranks in the bottom quartile of states for child well-being in terms of health and family/community factors. The prevalence and economic costs of child abuse, in both Tennessee and the U.S. as a whole, almost defy belief. In 2022, the Tennessee Department of Children’s Services fielded 163,465 reports of child abuse and neglect, both online and over the phone. This equates to one report for approximately every 10 children in the state. From those reports, Child Protective Services (CPS) opened 70,718 investigations and assessments of allegations of child maltreatment. From 2019-2022, data from Department of Children’s Services indicate there were an average of 11,668 children per year who were first-time substantiated victims of abuse or severe neglect. From ages 0-17, a child in Tennessee has a one-in-eight chance of being a substantiated victim of child abuse. Tennessee ranks in the bottom rung of states for child well-being in terms of health and family/community factors.¹ Child abuse and neglect is a component of both rankings.

As advocates, policymakers, and scholars continue to better understand the long-run consequences of child maltreatment (encompassing abuse and neglect), the magnitude of the economic cost of mistreating children is staggering. Child abuse and neglect have been linked to many adverse economic outcomes later in life, including substance use disorder (Herrenkohl et al., 2013; Halpern et al., 2018; Guastaferrero et al., 2023), lower educational attainment (Chiyito, 2019), reduced labor force participation and earnings (Currie and Widom, 2010), obesity (Hemmingsson et al., 2014), worse

In 2022, the Tennessee Department of Children’s Services fielded 163,465 reports of child abuse and neglect, both online and over the phone. This equates to one report for approximately every 10 children in the state.

health in adulthood (Felitti et al., 1998; Florence et al., 2013), increased demand for special education services (Jonson-Reid et al., 2004), and increased probability of criminal behavior in adolescence and adulthood (Widom and Maxfield, 2001). However, because the costs of child abuse and neglect can be difficult to quantify, estimates of lifetime costs per child may vary substantially depending on methodology. A 2012 CDC estimate indicates that child abuse and severe neglect

¹ <https://assets.aecf.org/m/resourcedoc/aecf-2022kidscountdatabook-2022.pdf>

impose economic costs exceeding \$210,000 per child using a more conservative approach called human capital-based valuation. A 2018 revision used the more aggressive contingency valuation/value of statistical life (VSL) approach and placed the lifetime costs per child as high as \$800,000 (Fang et al., 2012; Peterson et al., 2018).²

In this study, we use a human capital-based approach to place a value on the lifetime cost of the average first-time substantiation, and data on the number of first-time reports to estimate the annual statewide economic impact. Following a similar methodology as other recent state reports³, we focus on first-time substantiated victims so that there is no “double counting” children who are victims in multiple years. The human capital approach only includes costs that can be traced to a tangible economic outcome (e.g., labor force participation, medical care costs, incarceration). Using a five-percent discount rate, we calculate the lifetime cost per victim at \$285,464 and the economic impact of child abuse to be \$3.3 billion. However, these figures almost certainly underestimate the full and complete (but unmeasurable) economic impact of child abuse and neglect for two reasons.

First, the tangible economic costs do not capture the full personal and emotional costs of child abuse. Methods taking a broader perspective estimate the economic toll per survivor at \$760,000 per person (Peterson et al., 2018). More pointedly,

if being a victim of child abuse causes individuals to earn less money on average and also face more difficulties managing interpersonal relationships and struggle with self-esteem, our approach will only capture decreased earnings. Second, the estimated prevalence in this paper only applies to cases of child maltreatment that are both *reported* and *substantiated*. It is well known that child abuse often goes unobserved or unreported (Sedlak et al., 2010). For reported cases, CPS case workers must determine whether the report meets minimal criteria for allegations of abuse or neglect to be accepted by CPS for investigation or assessment. When capacity constraints prevent all such cases from being investigated, CPS investigators must prioritize the most urgent and critical cases. In 2022, there were 163,465 hotline reports (both phone and internet). From those hotline reports, 70,718 assessments and or investigations were opened. CPS has the budget for 832 investigative Case Managers at the present. However, state statues limit case managers to 20 open cases at one time, meaning those caseworkers have a maximum capacity of 16,640 investigations at once. As these assessments and investigations are not spread uniformly over the state or the calendar year, budgetary considerations mean that case managers may at times be well over capacity. Finally, when child maltreatment is alleged and there are reasonable indications that abuse is occurring, time and resource constraints might make it more difficult for case managers to collect sufficient evidence to satisfy the burden of proof. All

² The VSL approach uses individuals' willingness to pay to reduce risk of death – and extrapolates from that the subjective valuation of a life. An extremely basic example would be that if a person is willing to pay \$10,000 to avoid a situation with a 1 percent chance of death, they value their life at $\$10,000/0.01=\$1,000,000$.

³ Usdan, S., Kendrick, A., Addy, S., Ijaz, A., Black, N., and Robichaux, S. (2019) “The Cost of Child Maltreatment to the Alabama Economy 2018” *Center for Business and Economic Research Technical Report, University of Alabama*

The U.S. Department of Health and Human Services estimates the true incidence of child maltreatment to be approximately 3 times the number of substantiated cases.

initial investigations must be classified within 30 days and concluded within 60 days.⁴ For these reasons, the U.S. Department of Health and Human Services estimates the true incidence of child maltreatment to be approximately 3 times the number of substantiated cases.

Suppose we double—rather than triple, as USDHHS suggests—Tennessee’s number of first-time substantiated cases to get at the true number of new victims. Suppose further that we took the median value of the CDC studies on the per-victim lifetime costs. The economic cost of child maltreatment in Tennessee would be far greater than our estimate – it would approximate \$10 billion per year. Estimates of this magnitude have been shared in the literature. A recent study using the VSL method estimated the annual costs of substantiated cases of child maltreatment and deaths in Tennessee at \$8.4 billion (Klika et al., 2020). Nevertheless, our relatively conservative value of \$3.3 billion is still striking. To put the magnitude of the problem in perspective, we estimate that child maltreatment imposes costs of

approximately six percent of the state’s total budget.

To the state’s credit, Tennessee appropriates \$562 million to DCS. Additional funding from federal and other sources brings the total budget for DCS to \$1.35 billion. However, most of that budget goes toward crisis management, residential placements, and foster care; the latter of which has been shown to be highly unstable. The State of Tennessee currently does not have earmarked funding for providing therapy to victims of child abuse and maltreatment.⁵ However, federal funding through VOCA (victims of crime act) provided \$5.5 million to Children’s Advocacy Centers of Tennessee (which does provide therapy). However, that budget is being cut to \$4.0 million in 2024. Foster care and residential placement are essential, but additional funding and programs for comprehensive treatment and therapy for victims will be critical for reducing the long-run economic and personal harm inflicted upon mistreated children. While those programs will be costly, they stand to earn significant long-run gains for the state if successful.

⁴ <https://files.dcs.tn.gov/policies/chap14/14.7.pdf>

⁵ The ‘earmarked’ is a key distinction because some victims may be receiving treatment through TennCare, of which the state pays a 1/3 share, but the state does not designate funds for that specific purpose. Additionally, Family Justice Centers are funded through grants from the Office of Justice and Criminal Programs (including VOCA). In total, the funding for OJCP is 90% from federal sources. The state awarded \$8,724,549 to OJCP programs in FY22. However, FJCs are but one component of that. Further, while FJCs provide invaluable wraparound support services for victims of domestic violence, any counseling is a small part of that suite of services.

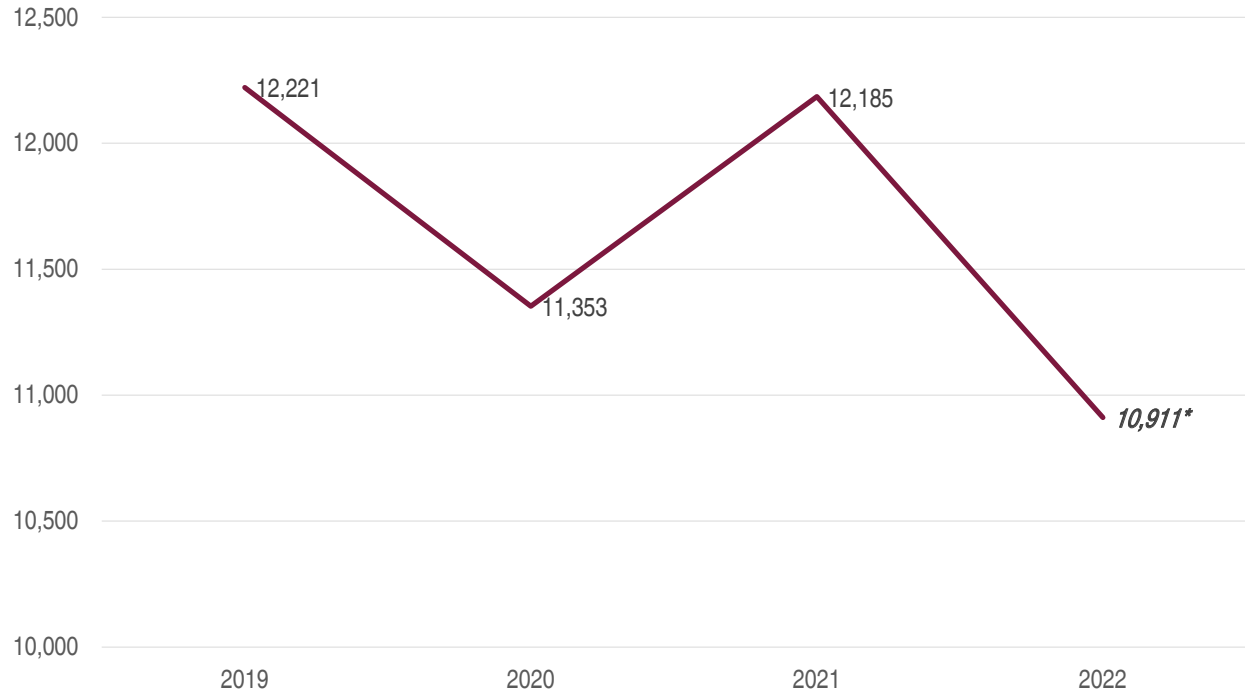
PATTERNS OF FIRST-TIME SUBSTANTIATED CASES OF CHILD ABUSE IN TENNESSEE

■ Data on the incidence of child abuse and neglect are provided by Tennessee Commission on Children and Youth (TCCY).

These data are aggregated from reports from County, Metropolitan, and Regional agencies of DCS. Figure 1 presents the total number of children for whom allegations of maltreatment were substantiated for the first time for 2019-2022. Initially, it appears that substantiated allegations in 2022 are fewer than in previous years. However, because substantiated allegations are classified by the date of the report, the 2022 data do not represent a complete year. There are open investigations still pending or underway from 2022 reports that have not yet been counted in 2022 numbers. Additionally, because of shelter-in-place policies and school closures due to the COVID-19 pandemic, 2020 was a singular year when abuse and

neglect were dramatically underreported compared to other years. Over the four years of data, there is an average of 11,668 children per year in Tennessee for whom there is a substantiated allegation of child maltreatment for the *first time*. The number of “first time” substantiations does not capture the total incidence of child maltreatment for a number of reasons. However, this is the appropriate measure to estimate the economic impact using costs over the life course in an incidence-based framework. Because we are using per-person long-run costs for each affected child, we would be “double counting” if we included multiple substantiations for the same child in different years. Because of that distinction, the figure

Figure 1: Substantiated First-time Victims of Child Abuse, by Year



If an average of 11,668 new children are substantiated as victims out of a population of 1.5 million children, then from birth to age 18, one out of every eight children will be a confirmed victim of child abuse at least once.

for 2021 (for example) does not include any children who were substantiated victims in previous years (e.g., 2019). Second, when claims of maltreatment are substantiated, there are usually multiple substantiated claims. In all four years of these data, the average number of substantiated claims per case was 1.83 and 1.91. Finally, even if there is only one substantiated case per child, it would be naïve to assume there is only one *incident* per child.

Figure 2 depicts the number of children for whom an allegation of maltreatment is substantiated for the first time – specifically for cases where the abuse is deemed to be “severe.”

Counts of substantiations for severe allegations have fortunately decreased over the data collection period but have unfortunately been offset at least partially by increases in “non-severe” substantiations of the same type. It is unclear whether the trend is driven by the true underlying severity of the abuse, or whether cases are being administrated differently. Figure 3 shows that sexual abuse increased from 2019-2021, and the drop in 2022 cannot be treated as a true decrease because the data are incomplete. Figure 4 illustrates the different trends between severe and non-severe characterizations for physical abuse; while first-time substantiations for cases involving severe physical abuse have decreased, the total number of substantiations (including non-severe physical abuse) has increased. Figure 5 shows that substantiations for severe drug exposure have also decreased. Pending the final results from 2022,

that decrease may be completely offset by increases in substantiations for “non-severe” drug exposure.

In 2019, approximately 33 percent of first-time substantiations of severe child abuse involved sexual abuse; physical abuse was involved in 14 percent of cases, drug exposure was involved in 43 percent of cases, and 20 percent of cases involved some sort of severe neglect (medical, educational, etc., or psychological harm). For 2021, the last year we have complete data, 43 percent of first-time substantiations involved sexual abuse, 12 percent involved physical abuse, 39 percent involved drug exposure, and 14 percent involved some sort of severe neglect.⁶

If an average of 11,668 new children are substantiated as victims out of a population of 1.5 million children, then from birth to age 18, **one out of every eight children will be a confirmed victim of child abuse at least once.**⁷ Unfortunately, the prevalence of child abuse and neglect is greater than as these counts indicate because these are per-year figures. Periodically, the U.S. Department of Health and Human Services surveys community professionals, including teachers, first responders, social workers, probation officers, medical personnel, and CPS case managers. The consistent implication from these efforts is that the incidence of child maltreatment is approximately three times as great as the number of substantiated cases. If that is true, these figures indicate that over 35 percent of children in Tennessee suffer abuse and neglect at some point during their formative years.

⁶ These numbers add up to more than 100 percent because a substantiated case may (and often does) include more than one incident or type of maltreatment.

⁷ An alternative way of calculating the expected incidence rate of substantiated abuse and neglect is to take the number of first-time substantiations per year and divide by the number of births per year. Using this approach, the incidence rate over the course of childhood increases from one-in-eight (12.5 percent) to 15 percent.

Figure 2: Substantiated First-time Victims of Severe Child Abuse, by Year

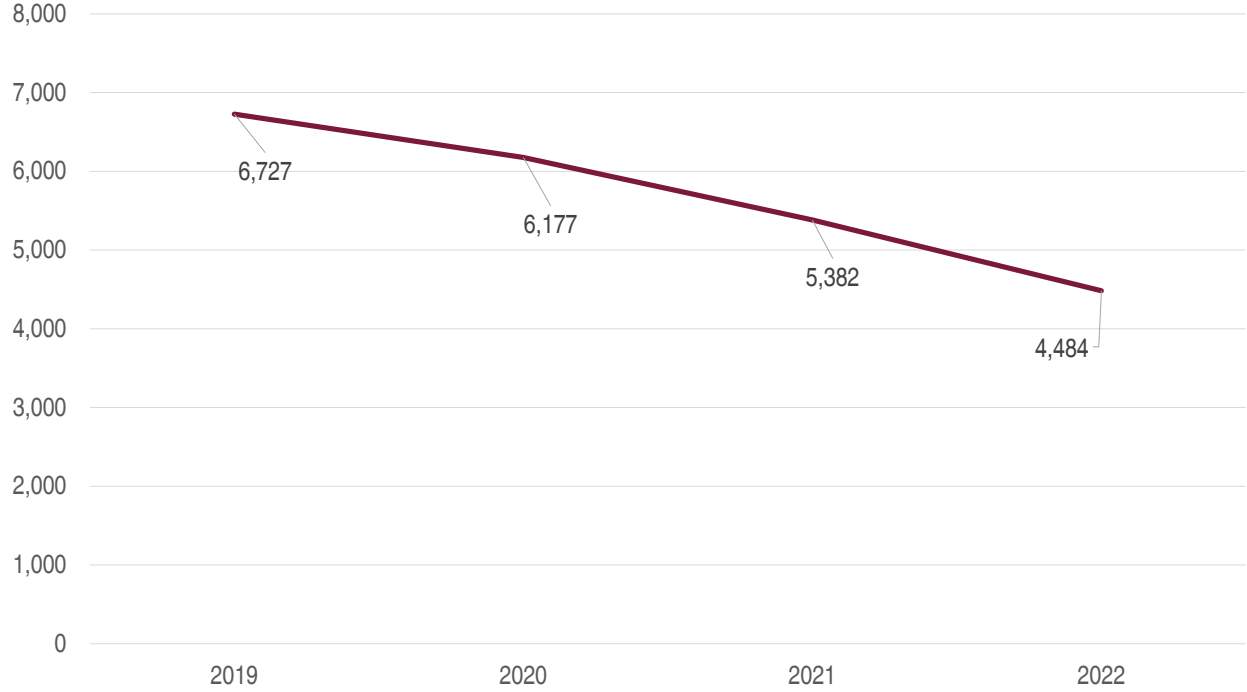


Figure 3: Substantiated First-time Victims: Cases Involving Sexual Abuse

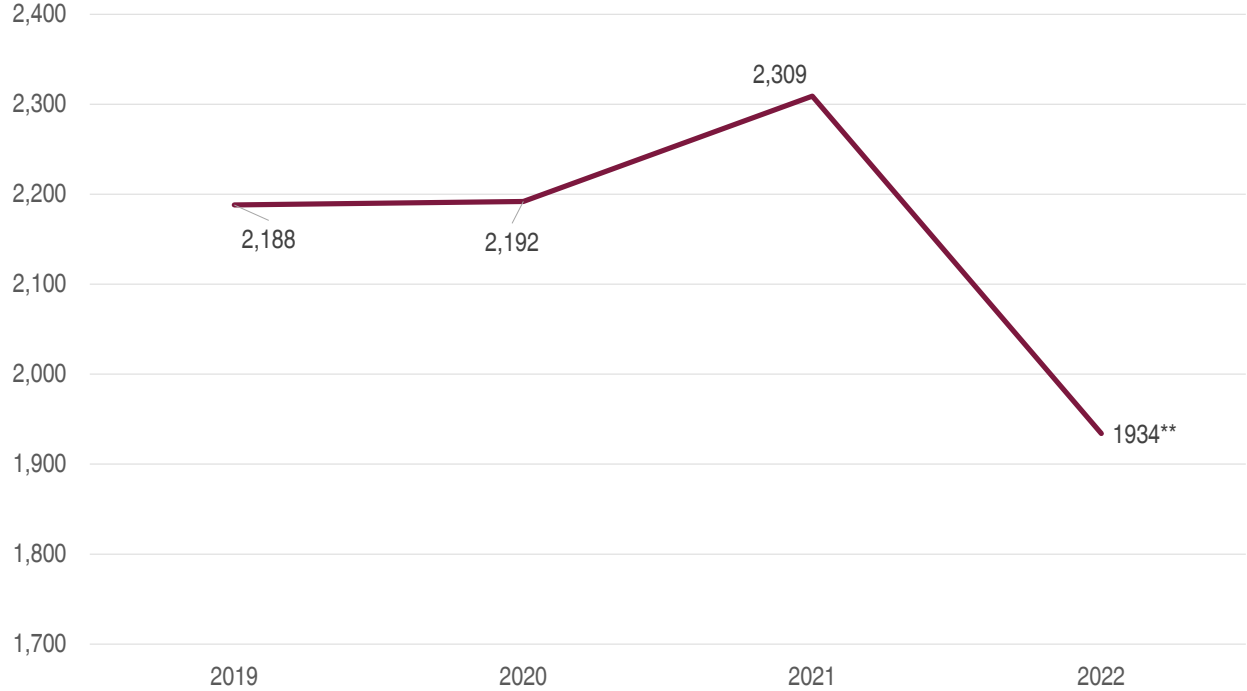


Figure 4: Substantiated First-Time Victims: Cases Involving Physical Abuse

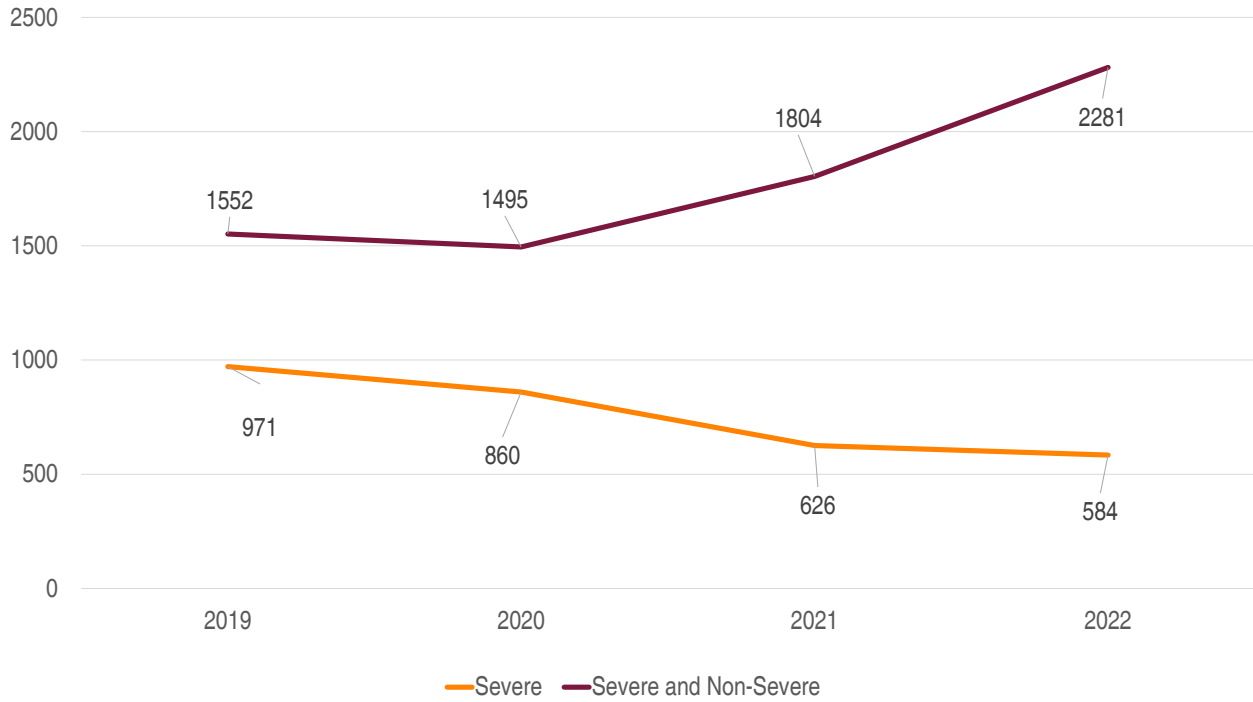
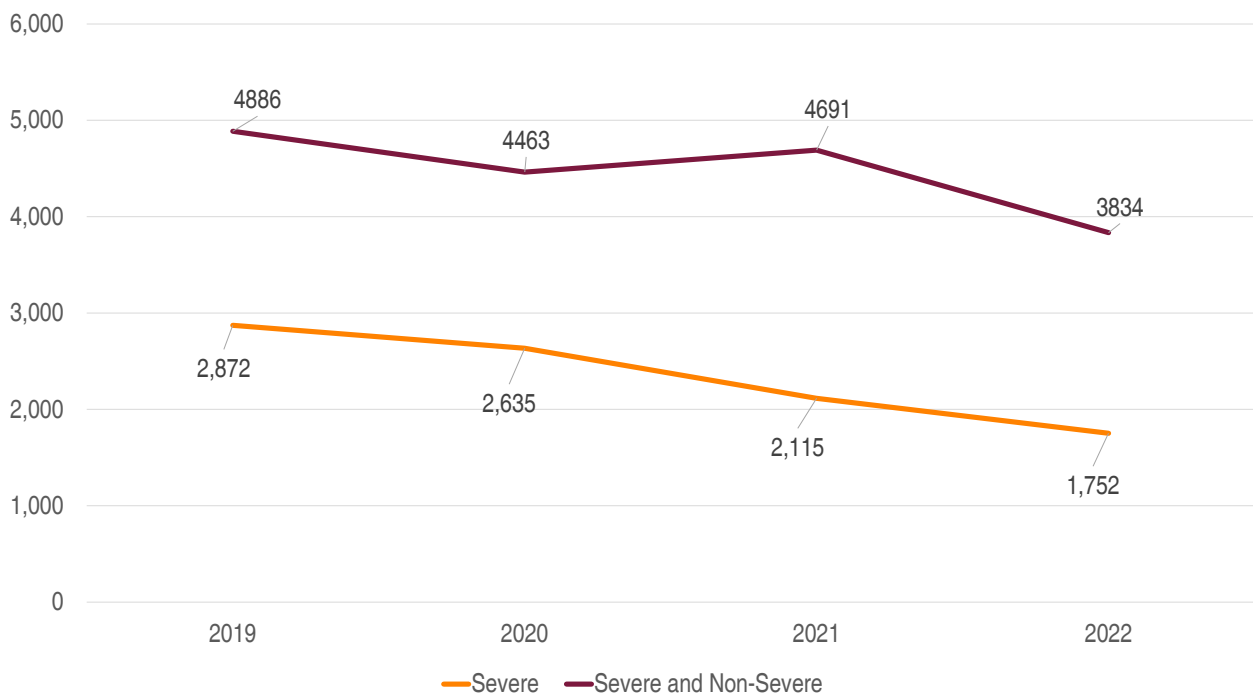


Figure 5: Substantiated First-Time Victims: Cases Involving Drug Exposure



The incidence of substantiated maltreatment varies widely across the state. Figure 6 depicts the number of substantiated cases per 1,000 children per year from 2019-2022. Each color represents a quintile (20 percent) of counties in Tennessee, sorted by the number of children per 1,000 with first-time substantiated cases of child maltreatment. Half of the counties in Tennessee have over one percent of its children become substantiated victims of child maltreatment each year. Figure 7 repeats the analysis but focuses solely on severe cases of abuse and neglect. For both severe and total substantiations, the problem is most pronounced in rural counties.

Figure 8 shows the average number per 1,000 children per year in our sample, for each county, who are substantiated first-time victims in cases involving drug exposure. Not too surprisingly, incidence rates tend to be higher in East Tennessee where the opioid and meth crises have been more severe. Figure 9 contains a similar depiction, but for physical abuse. For this aspect, the pattern is worse in rural counties in Middle and West Tennessee. Finally, Figure 10 depicts the same statistics, but for sexual abuse. There tend to be higher rates of sexual abuse in rural areas, but especially in border counties. This raises concerns about human trafficking in our state.

Figure 6: Heatmap - Substantiated First-time Victims per 1,000 Children per Year, by County

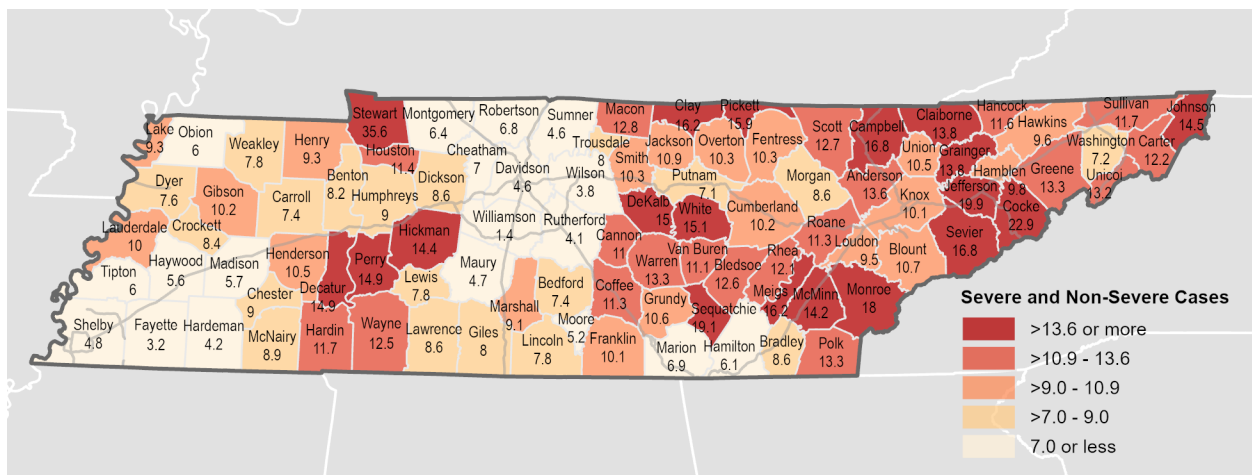


Figure 7: Heatmap - Substantiated First-time Victims of Severe Abuse per 1,000 Children per Year, by County

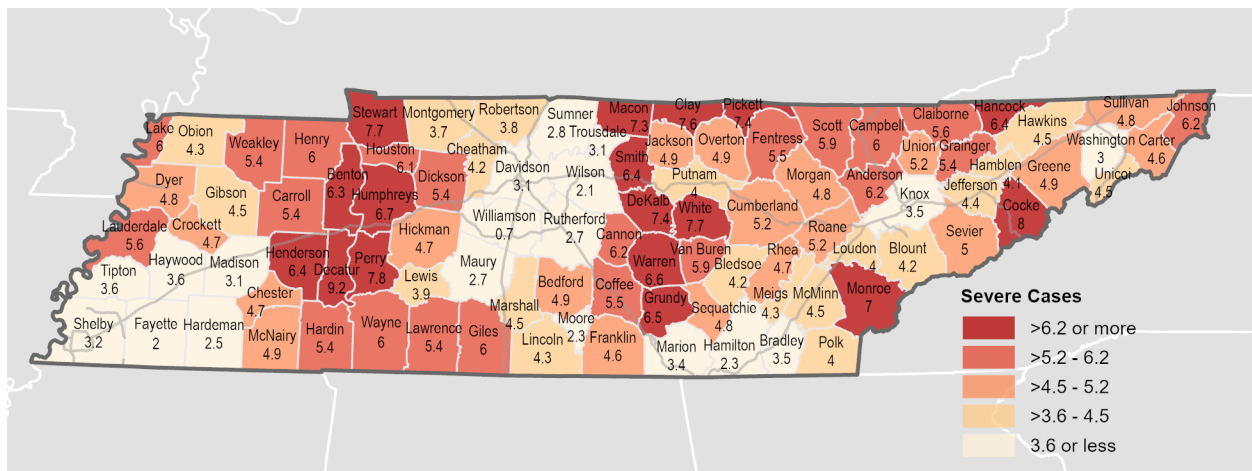


Figure 8: Heatmap - Substantiated First-time Victims of Drug Exposure per 1,000 Children per Year, by County

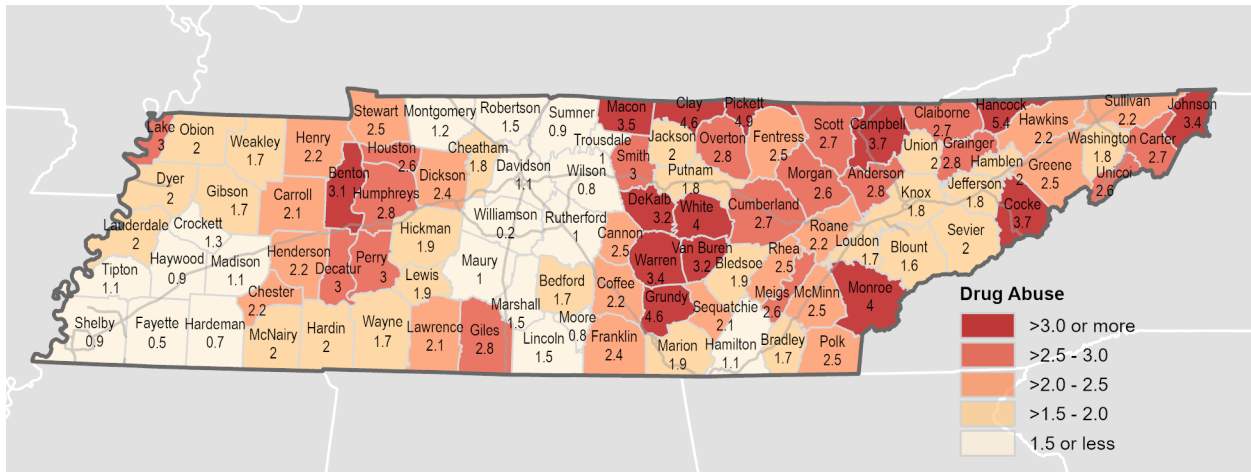


Figure 9: Heatmap - Substantiated First-time Victims of Physical Abuse per 1,000 Children per Year, by County

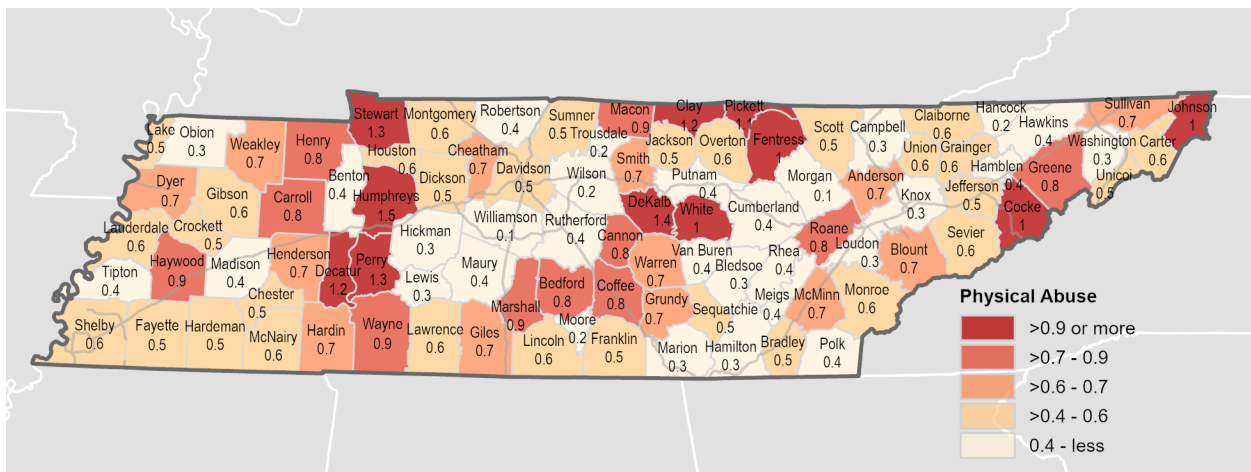
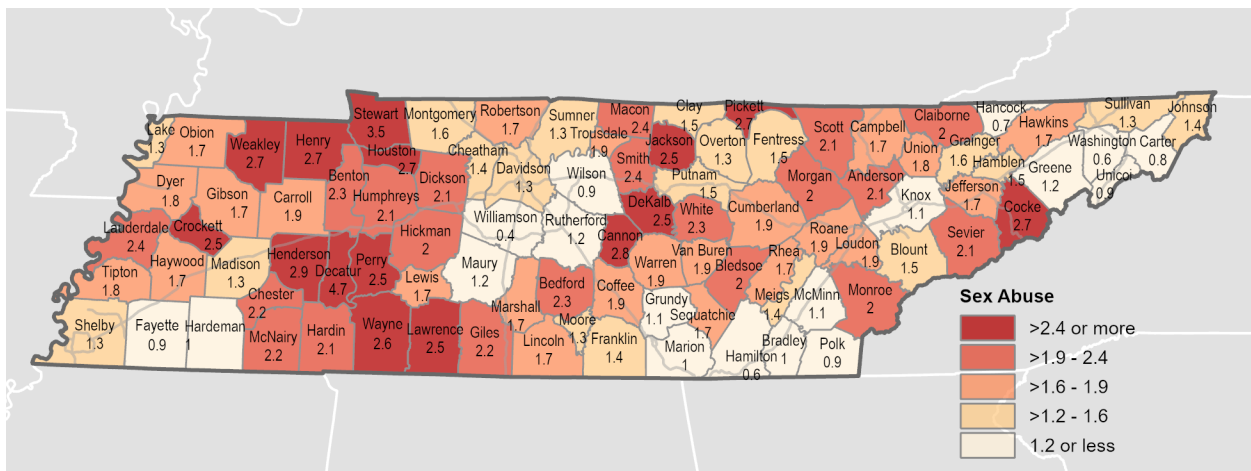


Figure 10: Heatmap - Substantiated First-time Victims of Sexual Abuse per 1,000 Children per Year, by County



THE ECONOMIC COSTS OF CHILD ABUSE

The lifetime cost per victim is calculated at \$284,975 and the economic impact of child abuse is \$3.3 billion each year.

We employ what is likely a very conservative approach, using the first-time substantiated victim cohorts and secondary evidence from the literature on expected lifetime costs. As discussed above, the two main methods for evaluating the economic impact of health conditions are the human capital-based approach (focused on lifetime earnings, workforce productivity, and measurable expenses) and the VSL approach, which considers how health conditions affect an individual's quality of life from a more holistic perspective. For the purposes of this report, the former is more appropriate as the latter includes very large estimates of emotional costs. While those costs are real and important, this report focuses on the costs that are likely to hit the *state's* ledgers in some way. Additionally, while we use evidence from the literature on mechanisms, we use expenditure data from Tennessee agencies (Tennessee Department of Children's Services, Tennessee Department of Corrections, Tennessee Department of Education) to make the results as specific to our state as possible.

CHILD MORTALITY FROM MALTREATMENT

From 2019 to 2022, an average of 22 children per year in Tennessee died from the direct consequences of child abuse. We follow Fang et al. (2012) and Corso et al. (2007) who calculate the economic cost of each death solely using the immediate medical costs and subsequent productivity losses. Fang et al. (2012) calculate the cost per death at \$1,272,900 in 2010 dollars. Using the consumer price index (CPI) adjustment tool from

the Bureau of Labor Statistics to convert that cost per death estimate, in 2023 dollars that raises to \$1,769,331. Multiplying the cost per death by the average number of deaths from 2019-2022 yields an estimate of \$38,925,282 per year from deaths directly from abuse.⁸

PREMATURE ADULT MORTALITY

Survivors of abuse and neglect, particularly when the severity of abuse is sufficient to be substantiated by a state agency, are statistically more likely to struggle over their lifetime in many ways. Survivors of child maltreatment are more likely to smoke (Anda et al., 1999; Spratt et al., 2009), develop alcohol use disorders (Brady et al., 2012), substance use disorders (Herrenkohl et al., 2013; Halpern et al., 2018; Guastaferrero et al., 2023), experience anxiety and depression (Negele et al., 2015; Humphreys et al., 2020), and become obese (Hemmingsson et al., 2014). These pathways lead to increased economic costs and worse outcomes along several dimensions, not least of which is reduced life expectancy.

Relatively few studies exist linking child abuse to life expectancy because of long lag times, concerns about measurement error with long-term recall survey questions, and problems linking respondents' answers to mortality data. However, the first of three definitive studies, Brown et al. (2009), finds that individuals with six or more adverse childhood experiences (which are either forms of abuse or correlated with household factors that often accompany abuse) on average lose 20 years of life expectancy. In the second study, Rogers et

⁸ Contingent valuation/value-of-statistical-life approaches yield estimates that are an order of magnitude larger at approximately \$8.7 million in 2018 dollars, or \$10.5 million per year in 2023 dollars. Using this method would place the economic costs of child mortality from abuse and neglect at \$231,594,000 per year.

al. (2021) find that survivors of child abuse, controlling for socioeconomic factors, are 73 percent more likely to die between ages 44 and 58 than individuals who were not victims of child abuse. Finally, Jia et al (2020) find that survivors of abuse are expected to lose 10 quality-adjusted life years compared to non-victims.

For this analysis, some assumptions are necessary to convert years of lost life to years of lost earnings. Premature death between ages 44 and 58 would certainly affect labor force participation. Even if someone loses 10 years of life expectancy, individuals generally taper their labor market engagement as their health deteriorates. For this analysis, we assume that on average, premature mortality from child maltreatment will cost the individual three working years from ages 62-64. Given the magnitude of the estimates from the literature on how child abuse affects life expectancy, this is very conservative. We further use average personal income from 2022 in Tennessee (\$58,279), assume growth in wages by 2 percent per year, assume the current age of victimization is six, and a five-percent discount rate to calculate the present value of those lost wages at \$31,002.47. With an average number of first-time substantiated victims of 11,668 per year, reduced life expectancy from child maltreatment has a present discounted value of \$361,736,821 per year. If victims' health in their later years costs them more than three years in the workforce, the estimated per-victim and statewide impacts increase. If the exit from the labor force occurs earlier than age 62 – say at age 50 – because of deteriorating health, estimates of the economic impact of premature adult mortality will also increase.

DECREASED WAGES AND PRODUCTIVITY AMONG SURVIVORS

In addition to the costs of mortality, one of the largest sources of economic impact of child maltreatment comes from reduced

earnings. Because of the various pathways listed above (reduced educational attainment, higher rates of chronic conditions, higher rates of a substance use disorder, higher rates of anxiety and depression, etc.), Currie and Widom (2010) estimate that victims of neglect, sexual abuse, and physical abuse earned 14 percent less per year on average than a matched comparison group. Using earlier national data, that 14-percent difference amounted to \$5,000 in 2003 dollars. The relationship between maltreatment as a child and reduced earnings operated along several margins, including reduced educational attainment, lower rates of labor force participation, differences in chosen occupation, and differences in wages within an occupation.

We convert the \$5,000 estimate from 2003 to 2023 dollars. In current terms, the difference in earnings between victims and non-victims is approximately \$8,232 per year.⁹ Following Fang et al. (2012), we assume wages grow at 2.5 percent per year (as they did from 2003-2023).¹⁰ We discount earnings from ages 18-64 back to age six, using a five-percent discount rate. For a child who is mistreated at age six, the present discounted value of future reduced earnings is calculated to be \$175,498. For 11,668 first-time substantiated victims per year, the statewide discounted cost adds up to approximately \$2.047 billion per year.

INCREASED MEDICAL CARE COSTS IN CHILDHOOD

Florence et al. (2012) examined linked Medicaid claims data from a sample of children with investigations by CPS into *allegations* of abuse and neglect and compared them with a sample of children who were Medicaid recipients but without such allegations. Using claims data from 2000-2003,

⁹ Implied average earnings from a 14-percent difference at \$8,232 per year are \$58,800 per year. Mean personal income in Tennessee in 2022 (Bureau of Economic Analysis) was \$58,279. Therefore, changes in CPI and changes in average earnings appear to be comparable over that interval.

¹⁰ When modeling wage growth in the case of premature mortality, those wages earned farther in the future (starting at age 62) than in this case (when wages start at age 18). Therefore, for the case of premature mortality we used a slightly lower wage growth rate than recent data supports out of caution.

they found that children who were the subjects of CPS investigations incurred average medical costs of \$2,703 per year more than their non CPS-involved counterparts in 2003 dollars.

Following Fang et al., we use present discounted value to calculate the per-child increased medical expenses due to maltreatment. Using the Bureau of Labor Statistics' CPI data on medical expenditures, we find that \$2,703 in medical expenditures in 2003 is equivalent to \$4,460 in 2023. To calculate the per-child increase in medical expenditures due to child maltreatment, we assume that a first-time substantiated victim is six years of age in 2023. To forecast the child's medical expenditures through age 17, we assume that the \$4,460 in 2023 dollars reflects the amount of care that will be consumed every year. We use a medical CPI of 3 percent (which is the average over the past 10 years) to project nominal increases in medical care going forward from age six to age 17 and a five-percent discount rate. We calculate the per-child present discounted costs of medical care due to maltreatment at \$46,955.99. That figure, multiplied by the number of first-time substantiations, implies costs of \$536,214,506. In other words, we find that child maltreatment accounts for about 3 percent of Medicaid expenditures in Tennessee.

INCREASED MEDICAL CARE COSTS IN ADULTHOOD

Bonomi et al. (2008) created the gold standard for calculating the difference in adult medical care spending attributable to childhood maltreatment. Using a sample of over 3,000 women enrolled in a large health care system, they found that women who experienced physical or sexual abuse as a child had medical care expenses approximately 21 percent greater than those who did not report a history of abuse. Converting the dollar-per-person-year figure to present terms, we expect victims of child maltreatment to incur additional medical care expenses of \$824 per person per year as an adult. Calculating the present discounted value back to age six yields

per-victim costs of \$14,896. Extrapolating across the state, child abuse yields total economic costs of approximately \$173,813,360 per year in adult medical care expenditures.

INCREASED DEMANDS ON SPECIAL EDUCATION

Jonson-Reid et al. (2004) report that survivors of child maltreatment are considerably more likely to require special education (24.2 percent) compared to children who are not substantiated victims (13.7 percent). Using the average of 11,668 substantiated first-time victims of child maltreatment during the data collection period, and that being a victim increases the probability of being enrolled in special education by 10.5 percentage points, child abuse and neglect account for 1,227 children needing special education services that otherwise would not.

For fiscal year 2020-2021, the Tennessee Department of Education reported spending approximately \$255 million per year on special education programs. Data from Kids Count indicates there were an average of 116,014 children in Tennessee enrolled in special education programs during our data collection period, implying a per-special education pupil spend of \$2,200 for special education programs. Because Jonson-Reid's estimate of the effect on child maltreatment was calculated based on enrollment by age eight, children who are enrolled by age eight are expected (on average) to require those services for approximately an additional 10 years. Therefore, the discounted value of special education spending per pupil, assuming a five-percent discount rate, is \$16,994.35.

Multiplying the 1,227 new enrollees per year by the discounted present value of special education spending by age eight, we estimate that child abuse increases special education costs by at least \$20,856,145 per year in Tennessee. However, the resources spent on addressing any given problem may not fully capture the costs of

that problem. Tennessee ranks in the bottom five states in per-pupil spending across the board.¹¹ From an economic perspective, if resources are not sufficient to address a need or problem, there may be spillover effects to other areas. In this case, if the victims of child maltreatment do not have access to the resources they need in schools, the learning outcomes of other students may be affected as well.

RESIDENTIAL CARE COSTS OF DEPENDENCY AND JUVENILE DELINQUENCY

Widom and Maxfield (2001) report that experiencing abuse or neglect as a child increases the probability of being arrested as a juvenile by 59 percent, from 17.2 percent to 27.4 percent. Children with substantiated cases of abuse and neglect are therefore 10.2 percentage points more likely to engage with the justice system. In 2021-2022, there were 1,697 youth in the custody of DCS that were in Juvenile Detention Centers (JDCs); and 5,771 youth in JDCs who were not. Applying Widom and Maxfield's estimate to the youth in the custody of DCS and in JDCs, substantiated cases of maltreatment are likely responsible for at least 630 children in custody. Additionally, 353 juveniles were held in longer-run incarceration circumstances in what are called Youth Development Centers. Wilder YDC is the last public detention center in the state with an annual budget of 20,342,200. Assuming Widom and Maxfield's estimate of the effect of maltreatment on the probability of offense is correct, child abuse and neglect accounts for 7.3 percent of the budget for Wilder, or approximately \$1.5 million.

From the most recent DCS annual report, 45 percent of children in JDCs were held for less than 24 hours, 21 percent were held for between 1-3 days, 14 percent were held between 4-10

days, 10 percent were held for 10-30 days, and 10 percent were held for more than 30 days. Using the midpoints of each range as the average (and 180 for greater than 30 days), the average number of days in a JDC was 21.85. Using a weighted average of costs per bed per day in Tennessee Juvenile 'Hardware Secure' facilities of \$572 per day, child maltreatment leads to incarceration costs of \$7,873,866.¹²

Additionally, there were 5,002 placements in level 2/level 3 group homes during 2021-2022. As of June 20, 2022, there were 4,060 children residing in licensed programs with an average length of stay of 302 days. We used a weighted average of the frequency of placement levels and contract rates to calculate an average daily cost of \$120.77. That figure, times the number of person-days in placements, yields \$148,089,056 per year.

COSTS OF CRIMINALITY IN ADULTHOOD

Widom and Maxfield (2001) also find that victims of abuse and neglect are nine percentage points more likely to be arrested as an adult and 4.2 percentage points more likely to be arrested for a violent crime. The Tennessee Department of Corrections reported there are 19,026 inmates incarcerated for felonies in their 2022 annual report. If being a victim of child abuse increases the probability of adult criminality by nine percentage points, then 11,668 first-time substantiated victims per year generate an expected 1,050 future felony convictions. The per-inmate-day cost of incarceration in Tennessee was \$96.68 as of 2022. With a national average time served of 2.7 years and an approximate recidivism rate of 40 percent in Tennessee, child abuse generates future incarceration costs of \$140,074,873 per year. Assuming the average age of offense is 20, the discounted value of those costs to a present day six-year-old cohort is \$91,445,958.

¹¹ <https://educationdata.org/public-education-spending-statistics>

¹² <https://justicepolicy.org/research/policy-brief-2020-sticker-shock-the-cost-of-youth-incarceration/#:~:text=The%20average%20state%20cost%20for,economic%20impact%20of%20incarcerating%20youth.>

WHERE DO WE GO FROM HERE

■ **The economic gains may be difficult to measure, but the fight is worth fighting.**

Addressing the problem from a policy perspective remains challenging for two reasons. First, child abuse is difficult to prevent because of the complexity of the problem. Child abuse is a function of environmental and family relationship factors. Prevention involves addressing risk factors at individual, family, and community levels. Interventions can take many forms, from increasing family economic security to efforts to change parenting styles and social norms.¹³ Though evidence exists linking certain interventions to greater parental engagement, that evidence is often mixed. Therefore, while prevention is certainly a worthy endeavor, efforts to mitigate the economic impact of child abuse will likely involve efforts to mitigate the effects after the fact, such as increased funding for and access to therapy. Unfortunately, the economic consequences of improved treatment are not the same as those of prevention.

Second, timing is a challenge: while the resources spent to address the economic

consequences would need to be spent in the immediate future, the economic benefits from those efforts will take a long time to manifest and be difficult to measure. The pathways that connect child abuse and neglect to economic consequences are well known and include reduced educational attainment, higher probability of developing substance use disorders, increased likelihood of engaging with the justice system, lower rates of labor force participation, increased medical care costs, and premature death. If preventative or post-trauma interventions are successful in reducing these adverse outcomes, not only will it take many years to empirically capture those benefits but disentangling the positive effects of any interventions from other emerging trends will be difficult. Even though the prevention of and treatment for child abuse and neglect has a return on investment that is slow and difficult to measure, the economic costs of child abuse are sufficiently large to warrant the state's attention on economic grounds alone.

¹³ <https://www.cdc.gov/violenceprevention/childabuseandneglect/prevention.html>

REFERENCES

- Anda RF, Croft JB, Felitti VJ, et al. Adverse Childhood Experiences and Smoking During Adolescence and Adulthood. *JAMA*. 1999;282(17):1652-1658. doi:10.1001/jama.282.17.1652
- Bonomi AE, Anderson ML, Rivara FP, Cannon EA, Fishman PA, Carrell D, Reid RJ, Thompson RS. Health care utilization and costs associated with childhood abuse. *J Gen Intern Med*. 2008 Mar;23(3):294-9. doi: 10.1007/s11606-008-0516-1. Epub 2008 Jan 19. PMID: 18204885; PMCID: PMC2359481.
- Brady KT, Back SE. Childhood trauma, posttraumatic stress disorder, and alcohol dependence. *Alcohol Res*. 2012;34(4):408-13. PMID: 23584107; PMCID: PMC3860395.
- Brown DW, Anda RF, Tiemeier H, Felitti VJ, Edwards VJ, Croft JB, Giles WH. Adverse childhood experiences and the risk of premature mortality. *Am J Prev Med*. 2009 Nov;37(5):389-96. doi: 10.1016/j.amepre.2009.06.021. PMID: 19840693.
- Chitiyo, Jonathan & Pietrantonio, Zachary. (2019). The Impact of Child Maltreatment on the Educational and Psychological Well-Being of Students. 17. 1-19.
- Conti G, Pizzo E, Morris S, Melnychuk M. The economic costs of child maltreatment in UK. *Health Econ*. 2021 Dec;30(12):3087-3105. doi: 10.1002/hec.4409. Epub 2021 Sep 14. PMID: 34523182.
- Corso PS, Mercy JA, Simon TR, Finkelstein EA, Miller TR. Medical costs and productivity losses due to interpersonal and self-directed violence in the United States. *Am J Prev Med*. 2007 Jun;32(6):474-482. doi: 10.1016/j.amepre.2007.02.010. Erratum in: *Am J Prev Med*. 2007 Sep;33(3):265. PMID: 17533062.
- Currie, J., and Widom, C.S. (2010). Long-Term Consequences of Child Abuse and Neglect on Adult Economic Well-Being. *Child Maltreatment*,15(2), 111-120.
- Fang X, Brown DS, Florence CS, Mercy JA. The economic burden of child maltreatment in the United States and implications for prevention. *Child Abuse Negl*. 2012 Feb;36(2):156-65. doi: 10.1016/j.chiabu.2011.10.006. Epub 2012 Feb 1. PMID: 22300910; PMCID: PMC3776454.
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., et al. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American Journal of Preventive Medicine*, 14, 245-258.
- Flaherty, E. G., Thompson, R., Dubowitz, H., Harvey, E., English, D. J., Proctor, L. J., et al. (2013). Adverse childhood experiences and child health in early adolescence. *Pediatrics*, 167, 622-629.
- Florence C, Brown DS, Fang X, Thompson HF. Health care costs associated with child maltreatment: impact on Medicaid. *Pediatrics*. 2013 Aug;132(2):312-8. doi: 10.1542/peds.2012-2212. Epub 2013 Jul 1. PMID: 23821692; PMCID: PMC4535023.
- Forster M., Rogers J., Benjamin S.M., Grigsby T., Lust K., and Eisenberg M.E. (2019) Adverse Childhood Experiences, Ethnicity, and Substance Use among College Students: Findings from a Two-State Sample, Substance Use & Misuse, 54:14, 2368-2379, DOI: 10.1080/10826084.2019.1650772
- Guastaferrro, K., Linden-Carmichael, A. N., & Chiang, S.-C. (2023). Association Between Child Maltreatment and Substance Use Disorder Across Emerging Adulthood. *Child Maltreatment*, 0(0). <https://doi.org/10.1177/10775595231154545>
- Halpern, S. C., Schuch, F. B., Scherer, J. N., Sordi, A. O., Pachado, M., Dalbosco, C., Fara, L., Pechansky, F., Kessler, F., and Von Diemen, L. (2018) Child Maltreatment and Illicit Substance Abuse: A Systematic Review and Meta-Analysis of Longitudinal Studies. *Child Abuse Rev.*, 27: 344- 360.
- Hemmingsson E, Johansson K, Reynisdottir S. Effects of childhood abuse on adult obesity: a systematic review and meta-analysis. *Obes Rev*. 2014 Nov;15(11):882-93. doi: 10.1111/obr.12216. Epub 2014 Aug 15. PMID: 25123205.
- Herrenkohl, T. I., Hong, S., Klika, J. B., Herrenkohl, R. C., & Russo, M. J. (2013). Developmental impacts of child abuse and neglect related to adult mental health, substance use, and physical health. *Journal of Family Violence*, 28(2), 191-199.
- Humphreys KL, LeMoult J, Wear JG, Piersiak HA, Lee A, Gotlib IH. Child maltreatment and depression: A meta-analysis of studies using the Childhood Trauma Questionnaire. *Child Abuse Negl*. 2020 Apr;102:104361. doi: 10.1016/j.chiabu.2020.104361. Epub 2020 Feb 13. PMID: 32062423; PMCID: PMC7081433.
- Jia H., and Lubetkin E.I. (2020) Impact of adverse childhood experiences on quality-adjusted life expectancy in the U.S. population. *Child Abuse & Neglect*, 102, <https://doi.org/10.1016/j.chiabu.2020.104418>.
- Jonson-Reid, M., Drake, B., Kim, J. S., Porterfield, S., & Han, L. (2004). A prospective analysis of the relationship between reported child maltreatment and special education eligibility among poor children. *Child Maltreatment*, 9, 382-394.
- Klika, J.B., Rosenzweig, J. & Merrick, M. Economic Burden of Known Cases of Child Maltreatment from 2018 in Each State. *Child Adolesc Soc Work J* 37, 227-234 (2020). <https://doi.org/10.1007/s10560-020-00665-5>
- Lansford JE, Dodge KA, Pettit GS, Bates JE. Does physical abuse in early childhood predict substance use in adolescence and early adulthood? *Child Maltreat*. 2010 May;15(2):190-4. doi: 10.1177/1077559509352359. PMID: 20019026; PMCID: PMC2868928.
- Negele A, Kauffhold J, Kallenbach L, Leuzinger-Bohleber M. Childhood Trauma and Its Relation to Chronic Depression in Adulthood. *Depress Res Treat*. 2015;2015:650804. doi: 10.1155/2015/650804. Epub 2015 Nov 29. PMID: 26693349; PMCID: PMC4677006.
- Peterson C, Florence C, Klevens J. The economic burden of child maltreatment in the United States, 2015. *Child Abuse Negl*. 2018 Dec;86:178-183. doi: 10.1016/j.chiabu.2018.09.018. Epub 2018 Oct 8. PMID: 30308348; PMCID: PMC6289633.
- Ringelsen, H., Casanueva, C., Urato, M., & Cross, T. (2008). Special health care needs among children in the child welfare system. *Pediatrics*, 122, e232-e241.
- Robinson L., Raich W., and Hammitt J.K. (2018). Valuing Children's Fatality Risk Reductions. *Toulouse School of Economics Working Paper TSE-1018*.
- Rogers NT, Power C, Pinto Pereira SM. Child maltreatment, early life socioeconomic disadvantage and all-cause mortality in mid-adulthood: findings from a prospective British birth cohort. *BMJ Open* 2021;11:e050914. doi:10.1136/bmjopen-2021-050914
- Sedlak, A.J., Mettenburg, J., Basena, M., Petta, I., McPherson, K., Greene, A., and Li, S. (2010). Fourth National Incidence Study of Child Abuse and Neglect (NIS-4): Report to Congress, Executive Summary. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families.
- Stein, B., Zima, B., Elliott, M., Burnam, M., Shahinfar, A., Fox, N., et al. (2001). Violence exposure among school-age children in foster care: Relationship to distress symptoms. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40(5), 588-594.
- Spratt EG, Back SE, Yeatts SD, Simpson AN, McRae-Clark A, Moran-Santa Maria MM, Price KL, Hartwell KT, Brady KT. Relationship between child abuse and adult smoking. *Int J Psychiatry Med*. 2009;39(4):417-26. doi: 10.2190/PM.39.4.f. PMID: 20391862; PMCID: PMC3186351.
- Swahn MH, Whitaker DJ, Phippen CB, Leeb RT, Teplin LA, Abram KM, McClelland GM. Concordance between self-reported maltreatment and court records of abuse or neglect among high-risk youths. *Am J Public Health*. 2006 Oct;96(10):1849-53. doi: 10.2105/AJPH.2004.058230. PMID: 17008582; PMCID: PMC1586157.
- The Budget of the State of Tennessee, 2021-2022.
The Budget of the State of Tennessee, 2023-2024.
Tennessee Department of Children's Services, Annual Report, 2021-2022.
Tennessee Department of Corrections, Annual Report 2022. Lisa Helton, Commissioner.
- Twardosz, S., & Lutzker, J. R. (2010). Child maltreatment and the developing brain: A review of neuroscience perspectives. *Aggression and Violent Behavior*, 15, 59-68.
- Weeks, R., & Widom, C. S. (1998). Self-Reports of Early Childhood Victimization Among Incarcerated Adult Male Felons. *Journal of Interpersonal Violence*, 13(3), 346-361.
- Widom, C. S., & Maxfield, M. G. (2001). An update on the "cycle of violence". Washington, DC: US Department of Justice Office of Justice Programs, National Institute of Justice.